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ผู้ช่วยศาสตราจารย์ ดร. ธนิศร์ ชัยรัตน์
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Message from the President of Buriram Rajabhat University

United Nations (UN) has emphasized the Sustainable Development Goals on the development of humanities and social sciences, education, environmental science, and arts and culture with the main purpose of motivating all countries in the world including Thailand to agree upon and bring all these goals into effective practice. Buriram Rajabhat University also has the main roles in line with these SDGs to develop sustainable local communities and to equip graduates with knowledge of different disciplines and commitment to social development.

Faculty of Humanities and Social Sciences (HUSOC) under Buriram Rajabhat University (BRU), Thailand has been developing graduates in Humanities and Social Sciences for possessing explicit knowledge leading to sustainable local development based on understandings of exquisite culture of locality and community. In order to apply academic and research works on Humanities and Social Sciences in all aspects of local community development relating to SDGs, HUSOC and Mandalay University of Distance Education (MUDE) together with other academic partners co-host the 2nd National and International Conference on Humanities and Social Sciences (NIC-HUSOC II) under the theme “Achievement of Sustainable Development Goals (SDGs): Challenges for Humanities and Social Sciences in the Digital Age” between 4th – 7th September 2019 in Mandalay, the Republic of the Union of Myanmar.

On behalf of Buriram Rajabhat University, I warmly welcome experts, researchers, lecturers, students and participants to this conference. I also would like to express my sincere thanks to keynote speakers, featured speakers, commentators, peer reviewers and all working staffs who well cooperate in organizing this conference. I wish the NIC-HUSOC II every success in all objectives.

Associate Professor Malinee Chutopama
President
Buriram Rajabhat University
Message from the Pro-Rector of MUDE

It is my personal appreciation to realize that the Faculty of Humanities and Social Sciences (HUSOC), Buriram Rajabhat University (BRU), Thailand and Mandalay University of Distance Education (MUDE), the Republic of the Union of Myanmar are co-hosting the 2nd National and International Conference on Humanities and Social Sciences (NIC-HUSOC II) under the theme “Achievement of Sustainable Development Goals (SDGs): Challenges for Humanities and Social Sciences in the Digital Age” between 4th – 7th September 2019. Besides, the other institutes have also been officially invited to co-host this conference.

It is highly hoped that the NIC-HUSOC II will contribute to the application of academic and research works on Humanities and Social Sciences in all aspects of social and local development. This event will become an open stage for researchers, scholars and other interested people to participate, present research papers, and exchange knowledge and experiences in Humanities and Social Sciences. Moreover, the conference will be an effective tool for strengthening the academic collaborations among institutes. This will also be a path leading to MoU and MoA signed by these parties sooner or later in the near future.

I would like to take this opportunity to welcome eminent persones, scholars and researchers from both Thailand and overseas to the conference held in Mandalay. My sincere thanks go to the keynotes speakers, featured speakers, commentators and peer reviewers for their great contribution, and my special thanks are allocated to the organizing committee for their huge effort to make this conference possible and successful. It is highly hope that the NIC-HUSOC II will be beneficial for everyone.

Last but not least, I wish the the symposim every success.

Dr. Aung Naing Soe
Pro-Rector
Mandalay University of Distance Education
Message from the Deans

Humanities and Social Sciences are multisciences covering Language, Linguistics and Literature, Philosophy and Religion, Ethnics, Folklore, Library and Information Science, Music and Performance Arts, Fine and Applied Arts, Tradition and Culture, Tourism, History, Archaeology, Anthropology, Law, Politics, Public Administration, Economics, Sociology, Psychology, Education, Technology and Learning Innovation, etc. These sciences can be applied to different aspects of sustainable development. Consequently, they will lead to productivity to serve with the UN SDGs.

The 2nd National and International Conference on Humanities and Social Sciences (NIC-HUSOC II) under the theme “Achievement of Sustainable Development Goals (SDGs): Challenges for Humanities and Social Sciences in the Digital Age” is co-hosted by Faculty of Humanities and Social Sciences (HUSOC), Buriram Rajabhat University (BRU), Thailand and Mandalay University of Distance Education (MUDE), Myanmar during 4th – 7th September 2019 in Mandalay city.

This conference will be a platform for institutes, researchers, educators and others to participate and publicize their academic and research works. Exchange of knowledge and experiences on Humanities and Social Sciences in the digital age will also be carried out for sustainable development according to the goal set by the United Nations.

On behalf of the NIC-HUSOC II organizing committee, we would like to thank Associate Professor Malinee Chutopama, BRU President, Dr. Aung Naing Soe, MUDE Pro-Rector for their support and useful advice. Our special thanks go to both Thai and foreign co-hosts, keynote speakers, featured speakers, journals, peer reviewers, commentators, researchers and all participants. The organizing committee highly hopes that the NIC-HUSOC II will be beneficial to the participants to apply the obtained knowledge and experience in humanities and social sciences and other relevant disciplines to their academic and professional purposes.

Assistant Professor Dr. Akkarapon Nuemaihom
HUSOC Dean
BRU, Thailand

Professor Ni Ni Hlaing
HUSOC Dean
MUDE, Myanmar
NIC-HUSOC II: The 2nd National and International Conference on Humanities and Social Sciences

under the theme

“Achievement of Sustainable Development Goals (SDGs): Challenges for Humanities and Social Sciences in the Digital Age”

Date: 4th - 7th September 2562

Venue: Hotel Shwe Pyi Thar, Mandalay, Myanmar

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Rationale

Humanities and Social Sciences are integrated sciences which combine knowledge of human and society such as ways of life, belief, arts and culture, tourism, law, politics and government, education and learning innovation, etc. United Nations has regulated Sustainable Development Goals (SDGs) which are the global issues that many countries including Thailand agreed upon at the United Nations General Assembly on September, 2015. This agreement had been signed by the United Nations’ members to enforce the sustainability on Humanities and Social Sciences, education, environmental science, and arts and culture, etc. in order to fulfill the following 17 Sustainable Development Goals (SDGs): 1) no poverty, 2) zero hunger, 3) good health and well-being, 4) quality education, 5) gender equality, 6) clean water and sanitation, 7) affordable and clean energy, 8) decent work and economic growth, 9) industry, innovation and infrastructure, 10) reduce inequalities, 11) sustainable cities and communities, 12) responsible consumption and production, 13) climate action, 14) life below water, 15) life on land, 16) peace, justice and strong institutions, and 17) partnerships for the goals. Faculty of Humanities and Social Sciences (HUSOC), Buriram Rajabhat University (BRU) has the aims to develop graduates in Humanities and Social Sciences for possessing explicit knowledge leading to sustainable local development based on understandings of exquisite culture of locality and community. These will lead to an application of academic and research works on Humanities and Social Sciences in all aspects of local community development relating to the sustainable development goal. As a result, Faculty of Humanities and Social Sciences, Buriram Rajabhat University, will organize the 2nd National and International Conference on Humanities and Social Sciences (NIC-HUSOC II) under the theme “Achievement of Sustainable Development Goals (SDGs): Challenges for Humanities and Social Sciences in the Digital Age” between 4th – 7th September 2019 at Mandalay University of Distance Education (MUDE), Mandalay, the Republic of the Union of Myanmar. This conference will be a platform for institutes, organizations, researchers, educators and others to participate, present, and publicize their academic and research works. Exchange of knowledge and experiences on Humanities and Social Sciences in the digital age will also be carried out for sustainable development according to the goal set by the United Nations.
Conference Purposes

1. To publicize research, creative and innovative works on Humanities and Social Sciences in the digital age of lecturers, students, educators, and researchers from both national and international institutions;

2. To promote research potentiality, and creative and innovative works on Humanities and Social Sciences of lecturers, students, educators, and researchers from both national and international institutions;

3. To promote and develop quality and standardization of research, creative and innovative works on Humanities and Social Sciences in order to benefit the sustainable development of locality, society, and nation as a whole;

4. To be a platform for educators, researchers, lecturers, and students both inside the country and abroad to present their good academic and research works on Humanities and Social Sciences which can lead to local and national sustainable development in the digital age; and

5. To be a platform for exchanging experiences and wisdom on Humanities and Social Sciences among national and international educators and researchers.

Target Groups/ Participants

1. 100 lecturers and personnel of Faculty of Humanities and Social Sciences, and from others faculties of Buriram Rajabhat University

2. 100 educators and researchers from both national and international universities where the MoUs have already been signed with Buriram Rajabhat University, and others persons who are interested in the conference.

Venue

Hotel Shwe Pyi Thar, Mandalay, the Republic of the Union of Myanmar
Conference Schedule and Venue

4th September 2019  Depart for the Republic of the Union of Myanmar
5th September 2019  Opening ceremony/ Keynote speech/ Featured speech/ oral and poster presentation at Hotel Shwe Pyi Thar
6th September 2019  Sightseeing in Mandalay City
7th September 2019  Depart for Thailand

NIC-HUSOC II Sub-themes

Oral and poster presentations of academic and research papers cover the following themes and sub-themes:

1. Language, Linguistics, and Literature
2. Philosophy and Religion
3. Ethnics
4. Folklore
5. Library and Information Science
6. Music and Performance Arts
7. Fine and Applied Arts
8. Tradition and Culture
9. Tourism
10. History and Archaeology
11. Law and Politics
12. Social Development and Social Studies
13. Education, Technology and Learning Innovation
14. Other fields related to the conference theme

Co-Hosts

Buriram Rajabhat University, Thailand / Mandalay University of Distance Education, Myanmar / Council of Faculty of Humanities and Social Sciences Dean of Rajabhat University, Thailand / Niagara University, U.S.A / Middle Tennessee State University, U.S.A / National Pingtung University (NPTU), Taiwan / Institute of Advanced Studies in English, India / University of Northern Philippines, the Philippines / Shangrao Normal University, the People's Republic of China / Hue University College of Foreign Languages, Vietnam / Savannkhet Teacher Training College, Lao PDR / Royal University of Phnom Penh, Cambodia
Journals Joined in NIC-HUSOC II

1. The conference proceedings

2. Thai journals joined in the NIC-HUSOC II:
   2.2 LEARN Journal: Language Education and Acquisition Research Network
   2.2 Journal of Humanities & Social Sciences (TCI 1), Buriram Rajabhat University
   2.3 Journal of Education, Mahasarakham University (TCI 1)
   2.4 Humanities Journal (TCI 1), Faculty of Humanities, Kasetsart University
   2.5 Pranakorn Rajabhat University Journal, Faculty of Humanities and Social Sciences (ACI)
   2.6 Saktong: Humanities and Social Sciences Journal (TCI 1), Kamphaeng Phet Rajabhat University

3. Foreign journals joined in NIC-HUSOC II:
   3.1 Asian Journal of English Studies (UGC), India
   3.2 An International Journal of Contemporary Issues (UGC), India
   3.3 Scholarly Research Journal for Interdisciplinary Studies (SRJIS), India
   3.4 Scholarly Research Journal for Humanities Sciences & English Language (SRJHSEL), India
   3.5 Jurnal Pendidikan IPA Indonesia (Indonesian Journal of Science Education) (Google Scholar, DOAJ, EBSCO, ACI, SCOPUS)
   3.6 Tadris: Jurnal Keguruan dan Ilmu Tarbiyah (Tadris: Journal of Education and Teacher Training) (DOAJ, EBSCO)
Remark: The manuscript edited according to peer reviewers will be publicized in the proceedings in the form of CD-ROM. The excellent research papers will be considerably publicized in the journals joined in this conference.

Consideration of Research Paper

1. Research paper selection presented in the conference and publicized in the proceedings will be according to the announcement of criteria for consideration of research and academic paper presentation and publication in NIC-HUSOC II: The 2nd National and International Conference on Humanities and Social Sciences, and the Faculty of Humanities and Social Sciences’ Order of Appointing Editor-in-Chief Committee.

2. The research paper will be disqualified in the following cases:
   2.1 Abstract, research articles, and posters are not in line with the conference’s submission format or the researchers do not edit the paper according to the peer reviewers’ comments and suggestions.
   2.2 Late and/or incomplete registration and payment

3. The final consideration and decision of paper acceptance and rejection will be made by the appointed conference committee.
Conference Program
NIC-HUSOC II: The 2nd National and International Conference on Humanities and Social Sciences
under the theme
“Achievement of Sustainable Development Goals (SDGs):
Challenges for
Humanities and Social Sciences in the Digital Age”
Date: 4-7 September 2019
Venue: Hotel Shwe Pyi Thar Mandalay, Myanmar
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<tr>
<th>Date/Time</th>
<th>Activity/Venue</th>
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<tr>
<td>3 September 2019 (For BRU participants)</td>
<td>Departure for Bangkok from Buriram (Departure: 12 pm. at night)</td>
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<td>4 September 2019</td>
<td>Departure for Mandalay, Myanmar (Check-in: 8 am. / Departure: 11 am. / Arrival: 12.15 pm.)</td>
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<td>6 pm.</td>
<td>Welcome dinner at Hotel Shwe Pyi Thar, Mandalay</td>
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<td><em>NB:</em> The participants who are from other institutes are recommended to join the BRU group at Donmuang International Airport at 8 am. at Air Asia check-in counter.</td>
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<td>5 September 2019</td>
<td>Registration at Thar Yadanar Ballroom, Hotel Shew Pyi Thar</td>
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<td>08.00-08.30 am.</td>
<td>- Cultural performance for welcoming guests</td>
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<td>08.30-10.00 am.</td>
<td>- Opening ceremony by Minister of Education, Myanmar</td>
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<td>- Opening remarks by MUDE Pro-Rector</td>
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<td>- Report speech by Prof. Ni Ni Hliang</td>
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<td>- Thankful speech by Dr. Krapan Kringan, BRU Vice-President</td>
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<td>- A token of appreciation presentation</td>
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<td>Coffee break</td>
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<td>10.15 am.-10.45 am.</td>
<td>Keynote speech on “ASEAN Achievement of Sustainable Development: The Organizational, Social-Professional, and Personal Needs of Individuals to Make it Happen” by Prof. Dr. Walter S. Polka</td>
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<td>10.45-11.15 am.</td>
<td>Keynote speech on “ASEAN Achievement of Sustainable Development: The Organizational, Social-Professional, and Personal Needs of Individuals to Make it Happen” by Prof. Dr. Walter S. Polka</td>
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Development: First Steps - Implementing Covey’s 7 Habits” by Prof. Dr. R. Michel Smith

11.15-11.40 Keynote speech on “Environmental Images and Perception in the Awareness of Rural People” by Professor Saw Pyone Naing Rector of Sagaing University of Education, Myanmar

11.40 am.-12.00 Ribbon cutting ceremony for opening NIC: HUSOC II poster presentations

12.00 -1.00 pm. Lunch
*Thai group: Thar Yadanar Ballroom
*Burmese group: Hotel dining room

1.00-6.00 pm. Featured speaker: Professor Dr. Ted Yu-Chung Liu
Featured speaker: Professor Ni Ni Hlaing
Featured speaker: Dr. Irom Gambhir Singh
Featured speaker: Associate Professor Dr. Dhirawit Pinyonatthagarn
Featured speaker: Dr. Mok Sarom
Featured speakers (Journal Publication Session):
2. Assoc. Prof. Dr. Supong Tangkiengsirisin, Director of Language Institute Thammasat University & President of Thailand TESOL
3. Asst. Prof. Dr. Kandaporn Jaroenkitboworn (Editor in Chief of PASAA Journal [SCOPUS])
4. Asst. Prof. Dr. Supakorn Phocharoensil Editor in Chief of LEARN Journal [SCOPUS])

*Coffee break at 2.30-2.45 pm.*

1.00-6.00 pm. National and International Oral and Poster Presentations
*Coffee break at 2.30-2.45 pm.*

6 pm. Dinner at Phoenix Restaurant

**6 September 2019**

Mandalay City Sightseeing
-Royal Palace
-Golden Monastery
-Kuthodaw Pagoda
*Lunch at Ko’s Kitchen
-Mahamuni Buddha Temple
-Shew Sin Tai Silk Industry
-U Bein Bridge
*Dinner at Tomyam Kung Restaurant

**7 September 2019**
-Check-out: 8.00 am. and leave for the airport
-Departure for Thailand (Departure: 12.45 pm. / Arrival: 3.25 pm.)

NB: This schedule is subject to change.
**Poster Presentation Schedule NIC-HUSOC II (2 national papers / 22 international papers)**

**Date:** 5th September 2019

**Venue:** Thar Yadanar Ballroom 1 (50 pax)

**Commentator:** Professor Mya Ohn / Asst. Prof. Dr. Surachai Piyanukool

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<th>No.</th>
<th>Author</th>
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<tr>
<td>1</td>
<td>Purisa Watcharenwong</td>
<td>Bilingual Community Information of Nong Takai Noi Village Moo 4 Nongkong Sub-district, Nangrong District, Buriram Province</td>
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<td>Objectivity of Political News Presentation in Conflict Situation: A Case Study of News on PDRC Rally and the Government of Matichon and Thai Post</td>
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<td>Ittikorn Camacho</td>
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<td>Sutthipong</td>
<td>The Community Development according to the Principle of the Sufficiency Economy Philosophy: A Case</td>
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<td>9</td>
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<td>Rapheephan Phonginwong / Sarintip Chaiyakhot / Phatra Seesaiya / Sasiphimmat Hongsombud</td>
<td>The Effects of Meaning and Utilization of Sufficiency Economy Approach on the Self-Reliance Community : Case study Long Mark Yai Village Karanta District, Meuang Buriram, Buriram Province</td>
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<td>Medicinal Uses and Antimicrobial Activities of Isolated Isoflavonoid Compound from One of Myanmar Indigenous Medicinal Plants</td>
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(Parallel Session)
Date: 5th September 2019
Venue: Thar Yadanar Ballroom 1 (50 pax)

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<td>Benjaporn Wannupathum, Suthip La-ongtong, Wantanee Namsawat, Surachai Piyanukool, Prakong Kanjanakaroon</td>
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(Parallel Session)

Date: 5th September 2019

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| 1   | State of Development of National Accreditation and Quality Assurance Committee Professor Zaw Win (Featured Speaker) | Professor Zaw Win | Featured Speaker: Professor Zaw Win
| 2   | Driving Force for Successful Quality Tertiary Education Delivery in this Modern Age through ICT: Myanmar Context May Thet Htun / Thet Zin / May Thu Aung | Professor Zaw Win | Professor Zaw Win
| 3   | Water Parameter and Quantity of Microorganisms from the Natural Pond, Loilem Township, Southern Shan State Aung May Sein / Naw Star Let Kyaw / Win Mar Soe | Professor Zaw Win | Professor Zaw Win
<p>| 4   | Assessment on Infrastructure of Indigenous Groups in Resettlement Area of Upper Paunglaung Hydropower Project (Myanmar) | Professor Zaw Win | Professor Zaw Win |</p>
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<td>Utilization of fishing gears and occurrence of fish species in vicinity of Mingun Village, Sagaing Township</td>
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Oral Presentation Schedule NIC-HUSOC II (15 international papers)

(Parallel Session)

Date: 5th September 2019

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(Parallel Session)

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Venue: Thar Yadanar Ballroom 4 (50 pax)

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| 1   | Role of English as Global Language in Northeast India  
Assoc.Prof. Dr. Irom Gambhir Singh (Featured Speaker) | Dr. Irom Gambhir Singh | Featured Speaker: 
Assoc.Prof. Dr. Irom Gambhir Singh |
| 2   | Thai Language Usage in English Classroom by Foreign Teachers at Buriram Rajabhat University  
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Sutat Nakjan | Dr. Irom Gambhir Singh |                          |
<p>| 4   | Histopathological Changes of Gills in Cyprinus carpio Linnaeus, 1758 From Fish | Dr. Irom Gambhir Singh |                          |</p>
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| 14 | Gonadal developmental stages of *Polynemus paradiseus* in Twante Canal at Yangon Region, Myanmar  
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| 15 | Wine Brewing as a Sustainable Economic Activity in Empowering Women: A Case Study of Andro Village, Manipur (India)  
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(Parallel Session)
Date: 5th September 2019
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<td>Dr. Ashok R. Thorat</td>
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## Oral Presentation Schedule NIC-HUSOC II (15 international papers)

(Parallel Session)

**Date:** 5<sup>th</sup> September 2019

**Venue:** Conference Room (15 pax)

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<td>Assoc. Prof. Dr. Dhirawit Pinyonatthagarn</td>
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(Parallel Session)

Date: 5th September 2019

Venue: Spa Room 1 (15 pax)

Commentator: Assoc.Prof.Dr. Saraphi Wantrong / Dr. Sutheekit Fodsungnern

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(Parallel Session)

Date: 5<sup>th</sup> September 2019

Venue: Spa Room 2 (15 pax)

Commentator: Prof. Zaw Naing & Prof. Ni Ni Mar

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<td>ဒေါက်တာခင်အုန်းမြင်ရှင်မြုင်ဂလာ</td>
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(Parallel Session)

Date: 5th September 2019

Venue: Spa Room 3 (15 pax)

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(Parallel Session)

Date: 5th September 2019

Venue: Spa Room 4 (15 pax)

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<td>Development of Future Classroom: A Case Study of Buriram Rajabhat University Demonstration School</td>
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<td>Comparative Study of Music Curriculum at Elementary Schools of Thailand and the Philippines</td>
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Featured Speech
ASEAN Achievement of Sustainable Development: The Organizational, Social-Professional, and Personal Needs of Individuals to Make It Happen

Prof. Dr. Walter S. Polka
Professor at Niagara University, USA

Abstract

The United Nations (UN) created a list of 17 global sustainable development goals to be achieved by 2030. This paper will provide an overview of the needs of individuals in various ASEAN contexts that must be addressed by national, regional, and local government, political, economic, education, business, health, social, and technology leaders to make those developmental goals a reality. Specific emphasis will be placed on achieving the following goals: 5) Gender Equality; 10) Reducing Inequality; and 16) Peace, Justice, and Strong Institutions via a focus on further developing human capital and the organizational, social-professional, and personal motivations of individuals to advance their respective societies in the achievement of those United Nations goals.

The Effective Change Zone (ECZ) will be presented as the conceptual framework to facilitate the understanding of the significance of the nexus between the four organizational needs, six social-professional needs, and five personal needs of individuals engaged in changing their societal contexts to achieve the ASEAN sustainable goals. Studies relating to the ECZ by various researchers, including the author, will be presented to reinforce the importance to change leaders of addressing and effectively meeting the needs of individuals and groups of people engaged in the change process, especially major transformations to societies like the ASEAN sustainable goals project. The key components of the Effective Change Zone categories are identified in the paper with brief descriptions and key references as summarized in the Appendix to this abstract. Power Point slides will further elucidate this conceptual framework for achieving the ASEAN sustainable goals project.
ASEAN Achievement of Sustainable Development: First Steps-
Implementing Covey’s 7 Habits

Prof. Dr. R. Michael Smith
Professor at Niagara University, USA

Abstract

In 2015, the United Nations (UN) created a list of 17 global sustainable development goals to be achieved by 2030. This paper will provide an overview of the 17 sustainable development goals and focus on Goal 4 Quality Education, and Goal 17 Partnerships for the Goals. Covey’s 7 Habits of Highly Effective People will then be introduced in an effort to provide a viable framework for ASEAN to elevate global interdependence for sustainable development that is based on planning, cultural respect and understanding, collaboration, constructivist education, and renewal.
Environmental Images and Perception in the Awareness of Rural People

Professor Saw Pyone Naing¹ / Khin Ohnmar Htwe²
¹Rector of Sagaing University of Education, Myanmar

Abstract

Mental images are the individual’s or group’s constructs of phenomena that have been experienced either directly or indirectly. Images are constructed outwardly from features or locations most important to the observer. Although the scale varies from a few miles to a entire world, the image is clearest for those areas considered to be the most important. As an individual matures or a social group becomes larger and more sophisticated, the area encompassed by the clear image is enlarged. The study in the rural areas of Myanmar such as in Shan State, Ayeyarwaddy Region and Central Dry Zone area showed that the environmental images of the villagers are mainly related to their intimate physical environmental and social environment very well. Although types of occupation and level of education are important for environmental perception and environmental images of rural people in these areas, some basic systems such as belief, tradition and culture are strongly related to villagers’ cognition processes. Traditional practice of conservation of villagers usually associated with their images on environmental as well. Conservation on physical environment is interdependently related to the use of land for various economic activities. The study also showed different images of rural people even in similar environmental conditions. Although average images of villagers are similar, detail images of intimate environment are different from one place to another. Clear understanding of the images and perception of villagers, which are based on their past experiences and learning from their groups, can be helpful for the local development planning and environmental management. The case study in rural area of the Inle Lake showed that environmental images of villagers are mainly related to their intimate physical environment and social environment very well. Although types of occupation and level of education are important for environmental perception and environmental images of rural people, some basic systems such as belief, tradition and culture are strongly related to villagers’ cognition processes. In this way, traditional practice of conservation of villagers usually associated with their images on environment as well. Conservation on physical environment is interdependently related to the use of land for various economic activities.

Keywords: environmental images, environmental perception, cognition, physical environment, social environment, conservation

Introduction

There are 17 Sustainable Development Goals for every aspect of the key challenges of the world including resources, population, gender, education, environment, etc. Goal number 4 is related to Quality Education which is the key area for all goals of Sustainable Development. UNESCO announced the programme of
Education for Sustainable Development emphasizing quality teaching, quality learning, research and innovations in higher education as well as basic education sector. Therefore, higher education institutions and universities are responsible areas for giving relevant knowledge and information on SDGS.

This paper mainly focused on the research findings in rural area of Myanmar. The study also focused on awareness of the people on their environment. There are there main regions under the study which are located in Ayeyarwaddy Delta, Central Dry and Shan Highland respectively. But this paper is intended to be an example study of the awareness of the rural people. This study tried to relate awareness of the to their images and perception.

Mental images are the basis of human behaviour. They are personal representations based on observations and past experiences. Each individual has a personal image of the world, and each shares all or part of that image with members of a social group. This image tends to be centered on the individual or the group. Of many types of images, geographers are primarily concerned with images of the environment. In analysing human behaviour in the natural environment, geographers are concerned with tangible elements that are bases for images. An image may be nothing more than an inventory of these elements; however, if decisions are to be made, a quality of appraisal must be added, a finding that something is beneficial or harmful, beautiful or ugly, desirable or undesirable.

Mental images are the individual’s or group’s constructs of phenomena that have been experienced either directly or indirectly. Images are constructed outwardly from features or locations most important to the observer. Although the scale varies from a few square kilometres to the entire earth, the image is clearest for those areas considered to be the most important. As an individual matures or a social group becomes larger and more sophisticated, the area encompassed by the clear image is enlarged.

A psychological turn in human geography in the late 1960s directed attention to the central role of perception as mediation between the environment and human action. To specify a key role for cognition was also to relax the determinism of locational analysis with its assumption of fully rational spatial behaviour. Research led to proliferation of terms describing mental configurations of space. The most influential research was Peter Gould’s innovative experiments exploring the content of what he called mental maps.

Decision-makers operating in an environment base their decisions on the environment, as they perceive it, not as it is. The action resulting from decisions is played out in the real environment. The study of environmental perception in geography focuses on the ways in which the actors’ understanding of their surroundings conditions their behaviour within their surroundings.
The Study Area

The study area, the Inle Lake, is located between North Latitudes 20° 23’ and 20° 42’, and East Longitudes 96° 50’ and 96° 57’, situated in Southern Shan State. (Figure 1 and 2)

*Figure 1: Location of the Inle Watershed Area and the Inle Lake*
This whole basin had once been occupied by a Tertiary lake, the Inle Lake being the remnant and the lake itself is silting up at a very fast pace and therefore the actual open area is only 11 miles from north to south in length and 4 miles in width from east to west.

The Inle Lake is surrounded by mountain ranges on the eastern and western banks of the lake in north-south alignment. Dry fanning and shifting cultivation are found on these ranges. (Figure 3)

Figure 3: Mountain ranges in the eastern bank and western bank of the Inle Lake

(Photographed by Dr. Saw Pyone Naing, 2004)
Methodology

Mental Map is referring to the psychological representation of space as shown by simple paper and pencil test. Semi-structured interview method was applied to gather data from villagers of five sample villages in the Inle Lake. These villages are Mongsauk Village, Yeagyi Village, Segoung Village, Inpawkhon Village and Samka Village. Households’ members were requested to draw a mental map showing their knowledge, images and perception on their neighbourhood environment. Individuals and composite images were filtered out from these maps and responded answers from villagers.

Type of Images as shown on Mental Maps

There are five main categories of images that showed on the mental maps of rural people from sample villages of the Inle Lake. These images concerned with Nodes, Paths, Landmarks, Districts and Edges. These are main elements of mental maps. (Table 1)

Table 1

<table>
<thead>
<tr>
<th>Images of villagers in the Inle Lake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
</tr>
<tr>
<td>Number</td>
</tr>
<tr>
<td>%</td>
</tr>
</tbody>
</table>

Among the images of villagers, about 46 per cent emphasized on nodes, 22.7 per cent showed landmarks, 18.2 per cent revealed paths and remaining respondents depicted images of districts and edges on mental maps. Nodes represented a gathering places such as houses and Dhamaryon (a building where people gather for religious and social affairs of the village), rice mill and play ground. In the customs of the Inlay, young people usually visit to other houses after they finished their regular daytime works. Images on paths in this case are steams and waterways because major transportation in the Inle Lake is waterway only. Major landmarks in the study places are Biluchaung, Open water body, trees and Natsin (a house for supernatural spirits and the supernatural governor of the village). (Figures 4 to 11)

The most significant images described on mental maps of villagers in the Inle Lake are houses, Biluchaung Stream (which is a famous stream in connection with the fist big hydroelectric Power Plant in Myanmar), dumping site, paddy field, rice mill, toilet place, tree, stream, open lake water, open land space, Natsin or a place for supernatural spirit or governor of the village, pay ground, Dhamaryone or a building use for religious and social works, and weaving industry site.
Figure 4, 5: Lower parts of Biluchaung Stream

Figure 6: Upper part of Biluchaung (lower part of Indain Stream) and Figure 7: Open water area of the Inle Lake

Figure 8: Big trees and waterways in the background and Figure 9: Paddy fields of the Inle Lake
A monastery, gatherings place for villagers for social and religious affairs

**Images on Changes of Environmental Conditions**

In the study, about 68 per cent of the respondents mentioned that environmental conditions are changed and the remaining 32 per cent answered that there are no significant changes in the environment of the Inle Lake.

The changes are mainly focused on flora, fauna, climatic conditions, soil, agriculture, environment, dress, aquatic life, stream and water level. Changes are more apparent for villagers living near open water areas such as Mongsauk, Ywagyi and Inpawkhon villages. *(Table 2)*

**Table 2**

*Images on changes of environmental conditions*

<table>
<thead>
<tr>
<th>Items</th>
<th>Mongsauk</th>
<th>Ywagyi</th>
<th>Segoung</th>
<th>Inpawkhon</th>
<th>Samka</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flora</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
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<td>10</td>
</tr>
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<td>Fauna</td>
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<td>4</td>
</tr>
<tr>
<td>Temperature</td>
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<td>1</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Rain</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Soil</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Environment</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Dress</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Aquatic life</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Stream</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Water Level</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Percentage</td>
<td>70</td>
<td>30</td>
<td>80</td>
<td>20</td>
<td>60.6</td>
<td>39.4</td>
</tr>
</tbody>
</table>

Source: Field observation, 2004, 2005
Table 3

Images on changes of environmental conditions by villages

<table>
<thead>
<tr>
<th></th>
<th>FL</th>
<th>FN</th>
<th>TP</th>
<th>RF</th>
<th>SL</th>
<th>AG</th>
<th>EN</th>
<th>DR</th>
<th>AQ</th>
<th>ST</th>
<th>WL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mongsauk</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Ywagyi</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Sekoung</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Inpawkhon</td>
<td>3</td>
<td>3</td>
<td>7</td>
<td>7</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Samka</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>8</td>
<td>12</td>
<td>14</td>
<td>5</td>
<td>11</td>
<td>6</td>
<td>12</td>
<td>9</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>Percent</td>
<td>66.7</td>
<td>53.3</td>
<td>80</td>
<td>97.3</td>
<td>33.3</td>
<td>77.3</td>
<td>40.0</td>
<td>80.0</td>
<td>60.0</td>
<td>53.3</td>
<td>86.7</td>
</tr>
</tbody>
</table>

FL = Flora, FN = Fauna, TP = Temperature, RF = Rainfall, SL = Soil, AG = Agriculture,
EN = Environment, DR = Dress, AQ = Aquatic life, ST = Stream, WL = Water level

(Source: Field observation, 2004, and 2005)

The highest percentages are found for images on climatic condition, water level, dress and agricultural condition. Actually these variables are more common for everyday life of the villagers in the study area. Soil is less common but mentioned by respondents because some of the villagers rely on and touch agriculture works for their living. Only 40 per cent mentioned that environment is good for them because most of the villagers cannot differentiate the question on the word of environment. Villagers mentioned on the environment in relation to economic conditions so that they did not consider their places as a better environment for their living. (Table 3)

### Image on Natural Hazard

All respondents of five villages revealed only two main types of natural hazard, strong winds or small tornadoes and floods during rainy season. These two natural hazards frequently occurred in the Inle Lake area. There is a relationship between spatial distribution of villages and the images of the villagers from these villages. It is evident that villagers who live in the villages in the northern part of the lake where large open water area is located. These villagers mentioned only strong winds as important natural hazard or natural disaster. At the same time, villagers who live in the villages located in the southern part of the lake where the water area is only a narrow stream, emphasized flood as a main natural hazard. Villagers live in the villages located in the transition part of the lake, mentioned both strong and flood as natural hazards. However, some amount of respondents revealed that there are no serious environmental hazards in the Inle Lake and some villagers did not response about natural hazard. (Table 4) Among the above two natural hazards, strong winds or small tornadoes is the most common and most serious problem for residents of the Inle Lake because the occurrence, frequency and direction of these winds cannot predict accurately before and during occurrence(Table 5). The spatial distribution of these images is as shown in Figure 12 and 13.
Table 4

Images on natural hazard

<table>
<thead>
<tr>
<th>Village</th>
<th>Strong wind</th>
<th>Flood</th>
<th>No hazards</th>
<th>No response</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mongsauck</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Ywagyi</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Segoung</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Inpawkhon</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Samka</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>Percentage</td>
<td>50.0</td>
<td>27.8</td>
<td>5.6</td>
<td>16.6</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Field observation, 2004 and 2005

Table 5

Images on natural hazard

<table>
<thead>
<tr>
<th>Type</th>
<th>Mongsauck</th>
<th>Ywagyi</th>
<th>Segoung</th>
<th>Inpawkhon</th>
<th>Samka</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong wind</td>
<td>1</td>
<td>100</td>
<td>1</td>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>Flood</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>No hazard</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>No response</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>8</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: Field observation, 2004 and 2005
The results of the interviews and questionnaires showed that there are significant relationships between environmental images of the villagers and the physical features of the location of the villages. These physical features include flora, fauna, open lake water, and stream. The location of Mongsauk is located in the eastern bank of the lake at the foothill of the eastern ranges. Therefore, images of the villagers from this village are closely related to land animals. As the same time Samka, a small town, is also located at the southern part of the lake on the stream bank. Therefore, villagers from this place mainly mentioned about land animals. Other places mainly focused on aquatic life.
It is postulated that environmental image is closely related to the intimate environment of the people. Based on these images, villagers make their decisions to alter their environment. Therefore, images of the people are necessary factor for the environmental planning. Indigenous technologies for environmental conservation depend on the environmental images of the local villagers of that particular area.

Rural people usually noticed changes in flora and fauna in relation to their physical conditions. They can compare previous flora and fauna to resent ones. Based on the nature of the Inle Lake, flora and fauna include both land plant and animal and aquatic plants and animals. According to their images, several plants and animals disappeared. Forests are degraded and some plants such as Latpan, Tamarind, herbal plants, big trees, Paine and Yeme trees are disappeared within a few decades. Now, there are very few and small plants. For the animals, many variety of land and aquatic animals disappeared. Some animals such as wild boars, peacocks, beavers, big snakes, deer, wild duck, and wild bird are totally disappeared in the lake area. Aquatic life also changed in the quantity and species within several years. Some fishes are now very rare such as Ngaphein, which is a famous fish in the Inle Lake, and Ngayant, and Ngakhu. Instead of these native fishes, newly introduced species are widely found in the lake. These new species include Talarvia, Kyauknga, and Ngagyn. Respondents
notified that because of these introduced species local fishes were lost their habitat and gradually disappeared. Images on social environment are usually focused on monastery and pagodas and big towns and cities with kinship and friend relations. (Table 6 and 7)

Table 6

Images on flora and fauna

<table>
<thead>
<tr>
<th>Village</th>
<th>Flora Before</th>
<th>Flora Recent</th>
<th>Fauna Before</th>
<th>Fauna Recent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ywagyi</td>
<td>Latpan</td>
<td>Few</td>
<td>Ngaphain</td>
<td>Tilapia, Kyauknga</td>
</tr>
<tr>
<td>Samka</td>
<td>Big trees, herbal</td>
<td>Small trees</td>
<td>Ngakhu, Ngayant</td>
<td>Few</td>
</tr>
<tr>
<td>Samka</td>
<td>Forest</td>
<td>Few</td>
<td>Peacock, wild boar</td>
<td>Tilapia</td>
</tr>
<tr>
<td>Sekoung</td>
<td>Tamarind</td>
<td>Replanted</td>
<td>Ngaphain, Ngakhu, Ngayant</td>
<td>Tilapia</td>
</tr>
<tr>
<td>Sekoung</td>
<td>Hyacin, Pain, Weed, big trees</td>
<td>Few, small trees</td>
<td>Ngaphain, Ngakhu, Ngayant</td>
<td>Tilapia</td>
</tr>
<tr>
<td>Inpawkhon</td>
<td>Pain</td>
<td>Few</td>
<td>Ngaphain, Ngakhu, Ngalu</td>
<td>Tilapia</td>
</tr>
<tr>
<td>Inpawkhon</td>
<td>Yeme tree</td>
<td>Few</td>
<td>Beaver, big snake, Ngaphain Deer, Ngapokeme</td>
<td>Tilapia</td>
</tr>
<tr>
<td>Mongsauk</td>
<td>Forest</td>
<td>Few</td>
<td>Ngaphain, Ngape, Ngaluu</td>
<td>Tilapia, Ngayin</td>
</tr>
<tr>
<td>Inpawkhon</td>
<td>Several</td>
<td>Few</td>
<td>Deer, wild duck Ngaphain</td>
<td>Few</td>
</tr>
<tr>
<td>Inpawkhon</td>
<td>Yemepin</td>
<td>Few</td>
<td>Beaver</td>
<td>Tilapia</td>
</tr>
<tr>
<td>Inpawkhon</td>
<td>No</td>
<td>No</td>
<td>Ngaphain, Ngape, Ngayant</td>
<td>Tilapia</td>
</tr>
<tr>
<td>Inpawkhon</td>
<td>No</td>
<td>No</td>
<td>Ngaphain, Ngape, Ngayant</td>
<td>Tilapia</td>
</tr>
<tr>
<td>Inpawkhon</td>
<td>No</td>
<td>No</td>
<td>Ngaphain, Ngape, Ngayant</td>
<td>Tilapia, Kyauknga, Ngayin</td>
</tr>
<tr>
<td>Samka</td>
<td>Forest</td>
<td>few</td>
<td>Peacock, wild boar Ngaphain, Ngayant</td>
<td>Tilapia</td>
</tr>
</tbody>
</table>
Table 7

Images on social environment

<table>
<thead>
<tr>
<th>Village</th>
<th>MN</th>
<th>PDO</th>
<th>ALP</th>
<th>YGN</th>
<th>MDY</th>
<th>TG</th>
<th>NS</th>
<th>KS</th>
<th>FR</th>
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<tbody>
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</tr>
<tr>
<td>Samka</td>
<td></td>
<td></td>
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<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Samka</td>
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<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sekoung</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
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Conclusion

The study showed different images of rural people in similar environmental conditions. Although average images of villagers are similar, detail images of intimate or close environment are different from village to another.

Local land use planning or conservation practice should consider the images of the local residents for better and effective implementation for planning.

There is a causal relationship between planning, environmental education and environmental perception for sustainable development of a region. Environmental images and environmental perceptions are the link between environmental education, including both formal education and informal education, and effective environmental planning. Without peoples’ participation, it is difficult to success certain objectives of regional development planning.

To achieve the Sustainable Development Goals, public participation is the most important. At the same time, public participation is also related the mental images of the people and their perception. This paper is mainly prepared to give some example of the study related to public participation, mental images and perception of the rural people in Myanmar because Myanmar is now also trying to achieve Education for Sustainable Development under the UNESCO project.
GCED Development and Integration in Cambodia: Towards Developing a Localized Model for Practice

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Abstract

This paper examines in-depth the final version of the GCED tools and the overall monitoring activities carried out by Cambodia. Particularly, it explores the extent to which GCED concepts are embedded in Cambodia’s tools, and the way in which these contribute to GCED teaching and learning practices at school and classroom levels. The coding scheme was developed an integrated to carry out this task. The results of the coding showed that Cambodia, throughout the various activities carried out during the three phases, has gained a deep understanding of GCED principles; and has even translated these into innovative tools, which enables the mainstreaming of GCED into education policies and practices. Finally, this paper reflected on the challenges and opportunities that have influenced Cambodia’s endeavors, progresses and outcomes over the past three years, and examines the sustainability proposals made and the partnering institutions, hoping that these can be useful for any future GCED-related initiative.

Keywords: GCED, evaluation, sustainability, retrospective, curriculum, partnering institutions

Introduction

This paper is the final product of the cooperation project “Global Citizenship Education Curriculum Development and Integration”, resulting from the strong partnership developed by UNESCO Asia-Pacific Centre of Education for International Understanding (APCEIU) and the International Bureau of Education (IBE) of UNESCO. This three-year project started in 2016 with the aim to mainstream Global Citizenship Education (GCED) in Cambodia, through a series of in-country activities and interventions. During Phase I, the emphasis was mostly on understanding the integration of GCED within the education system. This was done through an in-depth situational analysis that explored the presence or absence of GCED, and then allowed to determine the GCED entry point. In addition, during this phase, GCED Curriculum Committees were established in the four countries and different capacity-building workshops were carried out with key stakeholders to ensure the understanding of GCED guiding principles. Building upon this, Phase II focused on three main aspects: i) the development of country tailored tools to mainstream GCED (subject curricula and syllabi, teacher education guidelines and manuals, teaching and learning resources); ii) the piloting of these innovations; and iii) the monitoring of the piloting processes and the evaluation of the tools. Finally, Phase III aimed at improving the tools following the recommendations proposed during Phase II. During this stage, all output documents were translated to English. In addition, a series of discussions were held to reflect on possible ways to guarantee the sustainability of the project endeavors for Cambodia.
Background of GCED Development and Integration in Cambodia

The education system of Cambodia has undergone numerous curriculum reforms since the 1960s, and the country is experiencing one at this moment. In this regard, the Cambodian team has stated that, “GCED in Cambodian education system is introduced at the right time of curriculum and teacher education reform” (MoEYS, 2017a, p. 2). When the GCED project began in 2016, the Ministry of Education, Youth and Sport of Cambodia (MoEYS) had just finalized the draft of its national curriculum framework and made it available for the beginning of 2017. Particularly, this reform aims to address some of the challenges that the Cambodian education system faces, such as unqualified curriculum developers and unqualified teachers.

Together with the curriculum framework, the MoEYS had planned to finalize the detailed syllabi for each subject within each grade by the end of 2017. To align with the current national curriculum reforms being undertaken in Cambodia, it was agreed that the GCED project would support the development process of the syllabi of History and Moral-civics for basic education and the creation of teachers’ blueprint. Two sub-committees, consisting of MoEYS officers as well as experts from other public institutions, such as universities and teacher training institutes, were formed to develop the GCED integrated curriculum framework as well as a draft of syllabi for Moral-civics education. In order to provide learners with the core knowledge and skills to act as responsible citizens and enable them to address global issues, as highlighted in the educational vision of the new national curriculum framework, the Cambodian team integrated GCED learning outcomes, pedagogical approaches and assessment methods into the syllabus of the relevant subjects.

Having said that, Cambodia is moving at a right pace in accordance with the broader framework of the MoEYS education strategic plan, both in terms of the country’s benefit and of the GCED project’s efficiency and sustainability. From 2018, their main work will focus on teachers’ understanding of GCED through the means of continuous training and professional development, and a nationwide expansion of teacher training programmes by 2020.

Objectives of the Study

The fundamental purposes of this paper are two fold:
(1) to investigate in-depth the final version of the GCED tools and the overall monitoring activities carried out by Cambodia; and
(2) to discover the extent to which GCED concepts are embedded in the Cambodia’s tools, and the way in which these contribute to GCED teaching and learning practices at school and classroom levels.

Methodology

To analyse the piloting and implementation stages, the team used the different M&E tools developed during Phase II. Among these tools were a checklist, a classroom observation tool, interview questions and a tool to enhance focus group discussion.
The checklist in Khmer was elaborated based on the aforementioned Cox’s matrix. Thus, the checklist was organized into three main sections – cognitive, socio-emotional, and behavioral- and entailed an introductory section where users were requested to describe their tools in details. Section A. General includes a set of key questions that are designed to help users understand the overarching GCED concept reflected in the country’s tool. Section B. GCED Domains is structured according to the three domains mentioned previously. At the end of Section B, users are asked to analyse the tool and identify GCED areas to be strengthened. Finally, Section C. Further Considerations for Effective Implementation includes practical aspects that should be taken into account when implementing the tool.

To develop the classroom observation tool, different instruments were employed for competency-based curriculum reforms and then, adapted their content based on the specific requirements. As a result, this comprehensive tool not only takes into account the way in which GCED related aspects are presented in the lesson plan, but also analyses the way in which they are reflected in the teaching and learning environment, both at school and classroom level, as well as in the pedagogy, the material and the type of assessment used.

The interview questionnaire for teachers and/or school leaders aimed to monitor and assess how GCED is understood and implemented at school and classroom levels. An introductory part asks teachers to reflect and evaluate their understanding and preparedness of GCED in five specific areas: materials, delivery, environment, content and resources. The questions for teachers then focus on three specific areas: lesson, training and room for improvement. Another set of questions was developed specifically for school leaders about the school environment, their training and the areas for improvement.

Brief Description of the Tool

The syllabus of Social Study Primary Education includes syllabus tables for Grades 1 to 6. For each grade, the syllabus is structured according to Chapters, in turn composed of various Units. The tables also include expected learning outcomes and number of teaching and learning hours required to master the knowledge, skills and attitude (MoEYS, 2018d).

Both syllabuses of Moral-civics Lower Secondary Education and Moral-civics Upper Secondary Education were developed based on, among others, the syllabus of social study subject for basic education 2006, the core curriculum for basic general education 2006, anti-corruption education and most notably, global citizen education (MoEYS, 2018e; MoEYS, 2018f). Both were developed by the ‘Sub-committee of Moral-Civics Subject’, under the guidance of the Ministry of Education, Youth and Sport in Cambodia.

The documents respectively outline the goals and objectives of Moral-Civics education, its main principles, the allocated teaching hours required, implementation guidelines (including teaching methodologies), assessment procedures, and syllabus tables for grades 7 to 9 (Lower Secondary Education syllabus) and grades 10 to 12 (Upper Secondary Education). Each table incorporates the main learning contents and the expected learning outcomes that are structured according to knowledge, skills and attitude. In fact, these are three
components deemed necessary for students to acquire in order to achieve the
goal of Moral-civics education, across all grades (MoEYS, 2018e; MoEYS,
2018f).

The two main principles in the syllabus of Moral-civics Lower
Education are about understanding the current situation of society and
developing students’ capacity to come up with solutions for societal issues. This
translates to the following chapters in the syllabus charts of Grades 7 to 9: “me
and my family”, “my community”, “culture and religion”, “our society”
(MoEYS, 2018f). In the syllabus of Moral-Civics Upper Secondary Education,
the main principles correspond to four topics of Moral-Civics: “human values”,
“good communication in community”, “culture, religion and education”, and
“our society”. The chapters are composed of several lesson plans, all relevant to
one another. An emphasis is also placed on providing learners with
competencies throughout all grades (MoEYS, 2018e).

Results
Moral-civics education syllabus: Phase II

A series of workshops was implemented for the development of the
Moral-civics education syllabus. The Moral-Civics subject sub-committee
conducted a workshop (April 2017) gathering 35 participants from MoEYS, the
Royal University of Phnom Penh (RUPP), National Institute of Education (NIE)
and other related institutes. The aim was to discuss the possibility to integrate
GCED topics and learning objectives into the Moral-civics subject syllabus.
Then, a three-day capacity-building workshop was held (May 2017) in
collaboration with APCEIU in order to train key stakeholders on how to raise
understanding and awareness of GCED, as well as to incorporate GCED values,
knowledge, competencies and attitudes for learners to acquire within Moral-
Civics education.

Finally, throughout the month of May 2017, a series of three, two-day
writing workshops took place. In the three occasions, 35 Moral-Civics subject
members from MoEYS and NGOs were brought together to work on the draft of
the Moral-civics education syllabus with the aim to integrate GCED into the
syllabi of all grade levels. Particularly, the first writing workshop focused on
primary education, the second one on lower secondary and the final one on
upper secondary.

After these workshops, a piloting plan was established to develop the
piloting tools to test the validity and reliability of GCED integration into the
Moral-civics education syllabus. The team developed lesson plans to be used in
the piloting for primary, lower secondary and upper secondary. After that, an
introductory workshop was held with representatives of three piloting schools.
Their inputs were incorporated into the final tool and the class observations took
place at the beginning of August in three schools located in urban, rural and
remote areas of the Takeo province. The characteristics of the selected schools
namely, urban, rural and remote, allowed for a representative sample selection
of the country’s education system. During the first day, classroom observations
focused on primary grades (3-6) and upper secondary grades (10-11), while on
the second day the piloting focused on lower secondary education grades (7-8).
APCEIU representatives interviewed teachers and school leaders of the selected schools.

The results of the piloting process revealed substantial differences from one piloting region to another. However, both experiences revealed a large gap between the tools developed and the way in which teachers at classroom and school levels applied these tools. In particular, some of the issues that were noted during the exercise were: (1) that the school and classroom environment, in general, did not reflect the local or global community nor did it provide spaces for GCED related activities; (2) that the lesson plans used for the piloting hardly reflected on GCED issues; and (3) the lack of GCED training for teachers and principals (to familiarize with GCED content) resulted in a lack of confidence and knowledge to deliver the topic. Despite these challenges, the piloting experience also highlighted an increasing awareness on behalf of teachers of the importance of GCED for their students.

Thus, the Moral-civics team presented similar results to the History team as well as similar concerns, especially about how to encourage teachers in changing their teaching methodologies as well as the way to make the school environment more attractive to students, with more GCED elements. In order to strengthen the translation of the GCED concepts from the tool to the classroom and fully benefit from the innovation, maximal efforts and commitments should be made by all relevant stakeholders in the next stage of the project. During the Experts Review Meeting, both History and Moral-civics education sub-committees agreed that their focus for the way forward should be on developing resourceful teaching and learning materials (textbooks, guidelines, lesson plans, etc.) and strengthening teachers’ and schools’ capacities by providing pre- and in-service teacher trainings and professional development opportunities, so that teachers can internalize the new pedagogies.

**Moral-Civics Education Syllabus: Phase III**

In relation to Phase III, the representatives of Moral-civics proposed the following activities: (1) the revision and finalization of the draft for primary, lower secondary and upper secondary levels (March-May 2018); (2) the publication, translation and distribution of the material (June-July 2018); and (3) the monitoring and evaluation of the GCED integration (August-September 2018).

When the plan was presented during the Kick-off Meeting in Seoul, the Cambodian representative pointed out that their main priority in this Phase III was the GCED content and competencies, and ensure their correct integration in the material and then move to the teaching methodologies.

The representative of Cambodia further explained that the Moral-civics team was still working towards the integration of GCED concepts and learning outcomes as guided in the UNESCO GCED manual. The stated challenges were similar and stressed the lack of GCED expertise and training in order to carry out this task successfully; thus, underlining the need to keep focusing on teachers training and professional development.
Revision of the syllabi

Between March and May 2018, the Moral-civics team organized three workshops to revise the syllabi. The first workshop was for primary, the second for lower secondary and the last for upper secondary education. Each workshop consisted of a two-day meeting where members of the Moral-civics subject as well as officials from different MoEYS departments, professors from the Royal University of Phnom Penh (RUPP) and from the National Institute of Education (NIE) discussed about the importance of GCED as well as the role of teachers and the curriculum. By using UNESCO’s publication “Global Citizenship Education: Topics and Learning Objectives” (UNESCO, 2015) as a main point of reference, the teams revised and finalized the drafts of the three documents (MoEYS, 2018g; 2018h; 2018i).

Monitoring and Evaluation of the GCED integration

According to the Monitoring and Evaluation Report provided by the Moral-civics team (MoYES, 2018j), this activity took place in August 2018 in three schools of different levels and characteristics, namely one city school, one semi-urban school and one rural school, of the Takeo Province. The main question of the monitoring activity was: “what do teachers think of the attention that their school pays to global citizenship or the underlying themes?”. In order to answer this question, the team conducted a series of interviews with school directors and teachers.

From the interviews, it resulted that both teachers and directors consider GCED as a very important issue that should be included in the curriculum, although not as a compulsory subject. In relation to this, a link between the importance of GCED for teachers and the degree of GCED integration in the classroom was found in the interviews. The more important a teacher considered GCED, the more attention she/he paid to GCED-related topics in her/his lessons.

They also discussed about the importance of implementing GCED not only in classroom activities, but also in extra-curricular activities. Indeed, there has been an increasing attention to the incorporation of GCED in extra-curricular activities, such as GCED workshops or the development of charity-related activities, at both primary and secondary levels. Nevertheless, teaching remained the most common way to integrate GCED in schools. In relation to this, the report mentions that there was a difference between the ways in which GCED was integrated at the three levels. Teachers paid more attention to it at primary level than at lower and upper secondary levels. Moreover, in primary education teachers focus more on the integration of GCED skills, leading to the development of students’ “ability to cooperate/to solve conflicts, but also the ability to adopt an attitude of responsibility, respect and involvement, and the ability to think critically and to form one’s own opinion” (MoYES, 2018j, pp. 1-2).

Despite the positive results, some of the main concerns expressed by teachers in relation to the integration of GCED were: i) the difficulty of some GCED related topics for students, especially at primary level; ii) the lack of time to include GCED in their lessons, since other topics were prioritized over GCED; iii) the lack of knowledge of GCED topics. Similar concerns were also expressed by directors (MoYES, 2018j, p. 2).
In-depth Analysis of the Tool

The analysis presented below will look more in-depth at the content of the syllabi —primary, lower secondary and upper secondary—developed by the Cambodian Moral-civics team. It is important to mention that the primary syllabus of Moral-civics is part of the overarching Social Studies Syllabus Primary Education, which encompasses distinct subjects. In this document, only the parts of the Social Studies Syllabus Primary Education related to Moral-Civics, which were translated into English, was analyzed together with the two complete syllabi for lower and upper secondary. A brief description of these three documents is firstly given, followed by a presentation of the main results of the coding scheme. Finally, the results were analyzed, and a reflection on the improvements the country has made since and throughout the first two phases of the project was provided.

Results of the Coding

The results of the coding show that the documents all incorporate elements of the three GCED domains, particularly of the socio-emotional domain and the behavioral domain. It is important to reiterate that the Social Studies Syllabus Primary Education was not fully translated into English. The coding results thus do not capture the entirety of the tool; and the analysis and reflections focus solely on the English parts of the document, which consist of some units in the syllabus tables (content of the unit and expected learning outcomes of the unit). The remaining sections of the document, except for the preface, were not accessible.

Interestingly, within the cognitive domain, issues pertaining to the category of Human Rights and Peace were more predominant than the ones belonging to the Global Issues one. In fact, out of the 8 sub-categories identified in the Moral-civics Lower Secondary Education syllabus, 6 were part of Human Rights and Peace. In the case of the Upper Secondary Education syllabus, the total 12 sub-categories present were equally split between the two categories. No sub-categories belonging to Global Issues were found in the Social Studies Syllabus; whereas 5 corresponding to Human Rights and Peace were discovered.

Both syllabi of Moral-Civics Lower Secondary Education and Upper Secondary Education covered all sub-categories of the socio-emotional domain (some were more emphasized than others, as explained below). The English parts of the Social Studies Primary Education Syllabus made reference to 9 sub-categories. The ones missing were “Global/international citizen(ship)”, “Global-Local Thinking”, “Problem Solving”, and “Global Citizenship Education”. Regarding the behavioral domain, all sub-categories were identified across the three tools.

In terms of pedagogical approaches and methods, both syllabi of Moral-civics made reference to 3 sub-categories, notably “student-centered learning”, “peer learning” and “use of ICT/social media in learning”. However, the latter was briefly mentioned in both documents and no concrete examples of practices or methods were given. The ones missing revolved around inclusive education and whole-school approach. In the syllabus tables for Grades 1 to 6 in the Social
Studies document, activities of role-play and group work are indicated, which fall under the sub-categories of “student-centered learning” and “peer learning”. No other sub-categories of pedagogical methodologies were discerned, which could potentially be due to the lack of contents translated into English.

Regarding assessment, the sub-category of “self-assessment/peer assessment” was not identified across the three documents. Elements referring to “National/Standard(ized)/ summative/traditional assessment” and “Alternative/customized/differentiated/creative/ authentic assessment” were found in the Moral-civics Education syllabi, but not in the Social Sciences document meaning that it could not be coded or analyzed regarding assessment.

Reflections on the Analysis

Before delving into each domain specifically, it is important to note how GCED is increasingly incorporated and intensified throughout the grades. This is consistent with the results of the analysis of the tool that was carried out during Phase II, which also found that the percentage of inclusion of the GCED domains dramatically escalates within upper secondary education. From primary Moral-Civics Education to lower secondary Moral-Civics Education, a slight increase was also noticed. The coding results illustrate this, as the Moral-Civics Upper Secondary Education syllabus contains the most categories of all documents followed by the Lower Secondary Education syllabus and then the Social Studies syllabus. There is an increasing progression and development of GCED, not only in terms of breadth – an increase in the number of GCED-related topics and issues addressed - but also in terms of depth. Some topics (peace, rights, freedom, respect of diversity, attitudes of care, solidarity) are addressed from Grade 1 all the way up to Grade 12, in a more complex and intricate way. Teaching and learning the same topic in such a continuous way is relevant as it instills GCED ideas and issues from a very young age, and these ideas evolve as the learner gets older and journeys through her or his education. However, as will be explained below, the coherence of the GCED concept throughout education levels is not always strong.

Sub-categories of Human Rights and Peace that crosscut all documents (and thus grades) are: “human rights”, “freedom”, “democracy”, “peace and peace-building”. Similar to these findings, the coding results also show that the content related to human rights is continuous throughout all levels, but differ per document. The Social Studies syllabus focalizes on children’s rights, the “four rights of the children” (MoEYS, 2018d, p.38). The Moral-Civics lower secondary syllabus expands the topic, by also treating rights for the disabled, and touching upon the convention on human rights. In fact, there is a reference to women’s rights, the rights of ethnic groups, international law on human rights. The sub-category “awareness of forms of abuse/harassment/violence” was identified in the primary Social Studies syllabus (specifically in Grade 5, “Unit 3: Child Sexual Exploitation”, and in Grade 6, Unit 4: Self-protection against Sexual Abuse) and in the Moral-Civics Lower Secondary Education (in the lesson plans entitled “Prevention and prohibition of sexual harassment” and in the guidelines where “domestic violence prevention” is present), but not in the Moral-Civics Upper Secondary syllabus. This is quite surprising due to the fact
that this issue is as important at upper secondary level as it is for the primary one, especially given the age group of students at upper secondary level. The concept of non-consent was even addressed in Grade 4, under the unit of bodily integrity.

As previously mentioned, there was little reference to Global Issues across the three documents (0 in Social Studies, 2 in lower secondary, and 6 in upper secondary). For instance, “North-south relationships, interconnection” and “globalization” were identified only in the Moral-Civics Upper Secondary Education syllabus. Examples of interconnection are: “describe the connection between Cambodian and foreign civilization” (MoEYS, 2018f, p. 11).

Regarding sustainable development, the Moral-Civics syllabi explicitly mention the concept, and the Social Studies tool combines community involvement with environmental concerns and challenges. However, it does not specify practices or forms of sustainable development.

One global issue treated in both lower and upper secondary education which merits attention is migration. In the lower secondary syllabus, immigration is discussed under the lesson of “good relationship in family” and seems to be depicted in a negative light: “show the negative impacts of giving up family and immigrating” (MoEYS, 2018e, p. 17). The concept is thus discussed in relation to family. Moreover, there seems to be a confusion between the ‘immigration’ and ‘emigration’, as “giving up family” would imply that one of the family members is leaving, and thus emigrating, rather than immigrating. Interestingly, the upper secondary syllabus discusses emigration, nationality and migration, but not the concept of immigration. A lesson plan talks about reasons to emigrate, the advantages and disadvantages, ways to prevent emigration, as well as problems that refugees encounter, and the general problems of migration and unemployment of youth (MoEYS, 2018f, pp. 26-27). There is thus little coherence on this concept throughout the two Moral civics syllabi.

Although the socio-emotional domain was very strong in the Moral-Civics syllabi, the sub- categories missing in the Social Studies syllabus reveal that concepts and topics related to Global Citizen/Citizenship, and Global-Local thinking are not introduced within primary education. There is more of an emphasis on the nation and national citizenship. In line with the previous analyses, there is a presence of the nation and national citizenship throughout all grade levels. However, it is important to note that the Moral-civics syllabi does take into consideration an international and global dimension. In fact, elements of “global-local thinking” are present in the very goals of the syllabi: “Making students feel proud of themselves and love not only themselves, family, community and society but also region and the world” (MoEYS, 2018f, p. 2), and “Studying this subject will alert students to understand about livelihood in the society, inculcate them to love their territory, grow their mindset to be global citizens with necessary basic characteristics in the name of democracy builders referring to live peacefully both in our country and the globe” (MoEYS, 2018e, p. 1).

Concerning the behavioral domain, the Social Science Studies syllabus stresses participation at a very local, community level throughout all grades which falls hand in hand with its concept of citizenship: “grow mindset and
participative attitude to make home, schools and community better places for living and studying” (MoEYS, 2018d, p. 15). As we shift up through the grade lesson plans in the Lower and Upper Secondary Moral-civics documents, the level of participation encouraged takes on a wider scale, national and even global. For example, the idea of universal ethics and responsibility is discussed (MoEYS, 2018d, p. 4). A lesson plan discusses “peoples’ roles in community”, including the following skills and attitude to acquire: “Show what people are supposed to do in order to be involved in developing and protecting security in shelter locally and internationally”, “Develop the spirit of collaboratively improving community and foreign countries” (MoEYS, 2018f, p. 16).

In both Moral-Civics syllabi, it is stressed that a number of different teaching methodologies should be used and combined (MoEYS, 2018e; MoEYS, 2018f). However, in the syllabus tables, it is not mentioned what kinds of pedagogy methods or strategies are used in order to teach about a particular subject or topic, or to reach certain expected learning outcomes. The two documents also define assessment and explain different forms of assessments. The goals and objectives of assessment are given which reflect formative principles of assessment, for example: “Providing feedback is necessary to alert the awareness to students about their strength and weakness in order to guide teaching and learning process with quality and effectiveness in pursuit of achieving the goal of education for all” (MoEYS, 2018f, p. 6). However, there are no concrete examples of assessment in practice in the syllabus tables. The expected learning outcomes are given, but how they are assessed is not indicated.

In conclusion, the coding results reveal continuous and strong efforts on behalf of the Cambodian team to integrate GCED into their syllabi. This was already the case in the results of the analysis of the tools that was carried out during Phase II. The tools reveal various aspects and dimensions of GCED, and an important contextualization of the latter through linkages between national and global concepts.

**Final Considerations on the Analysis of the Tools**

After analyzing the tools developed by the Moral-Civics team, it is important to reflect on two main issues. In the first place, we would like to point out that the absence of some topics in all documents, such as those falling under the category of “Global Issues”, may be not a result of indifference or lack of interest on these topics on behalf of the country. Rather, it may be due to a lack of connection between these issues and the current discussion on the content and development of different subjects in Cambodia.

A second important point to raise is the degree of complementarity and synergies between the subject of Moral-Civics, illustrated in the analysis of the documents of both subjects. The presence of these synergies is crucial for the development of a holistic and robust education system and a comprehensive understanding of the curriculum, where individual subjects come together to complement and support each other.
Final Thoughts: Sustainable Plan

Cambodia did not preoccupy about the sustainability of the project, since the GCED project is inscribed within the larger national education reform, meaning that the MOEYS will keep supporting it. The long-term vision and impact consisted of three specific elements to be carried out within a timeline of 5 years: (1) learners will become responsible citizens and agents of GCED; (2) the teaching forces are to be transformed into the agents of GCED; and (3) the instructional materials will be used by all teachers and learners throughout the country. The short-term goals are the following: (1) school teachers, who are participating in GCED piloting projects, become agents of GCED at their schools and communities; and (2) teacher trainers at Teacher Education Colleges (TEC) and at the National Institute of Education (NIE) are sensitized on the GCED curriculum.

The strategies and concrete steps proposed to achieve the aforementioned goals are: (1) the development and finalization of instructional materials incorporating GCED-related concepts, illustration and learning outcomes. This should be achieved, with more emphasis on the content and structure of the trainings for writers of instructional materials, which should teach them how to use a hands-on approach to write instructional texts and to master GCED key concepts, illustrations and learning outcomes; and (2) the dissemination of curriculum guides to teachers and teacher trainers in 2018, through a series of training workshops, MoEYS blogs and websites (online dissemination) and the distribution of hard copies of the GCED curriculum guides. In terms of the necessary resources to achieve these goals, the Cambodian representative mentioned financial support for workshops and training as well as technical experts in textbook writing and GCED. The representative of the country really stressed the necessity for Cambodia to focus on carrying out training workshops because of the lack of qualified instructional material developers. Other participants of the meeting agreed with Cambodia’s focus and activities, and reiterated the importance of using training activities to share GCED understanding across different stakeholders and develop a critical mass understanding of GCED within the country.

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Cultural Awareness through Symbolism in Fictions by Shirley Jackson

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Abstract

Culture is a way of life that includes a collection of beliefs and attitudes, shared understandings and patterns of behaviour. This research attempted to analyse the organizational culture through the symbolism found in three selected fictions by Shirley Jackson, an American author in the twentieth century. Symbols as Traditional, Original and Private were classified by the theory proposed by Pickering and Hoeper (1986). The cultural studies through the symbols were based on the ideas of Greenblatt (2009) and the cultural types: ‘Material culture’ and ‘Non-material culture’ were examined via the website: http://web.mst.edu/~gdoty/class/concepts-practices/def-symbols.html. The objectives of the research were (i) to investigate the prominent symbol types in the selected fictions and (ii) to explore the 20th century American culture through the prominent symbol types. The findings indicated that (i) the Original Symbol took the highest frequency and (2) Non-material culture dominated the societies in the selected fictions. It highlights that the respective societies in the fictions have been influenced by psychological conflicts with invalid tradition and disconnections to the outside world where men and money dominate. This study suggests that symbolism in fictions often enhance the learners to analyse the culture as a field of language through literature.

Keywords: culture, symbolism, fiction

Introduction

Fictions are treated as a way of exploring subject matter, making statements about the relationship between real life and the life depicted in literature. Hence, they are often related to the culture of real world, emphasizing and foreshadowing symbolism in the works of art. According to Pickering and Hoeper (1986), a symbol is something that stands for or suggests something else by reason of relationship, association, convention, or accidental resemblance … a visible sign of something invisible. Symbols in fictions are often inanimate objects, animals, or people, but other things may function symbolically: colours, names, a line from a song, a repeated phrase.

The first step to understand the meaning of symbol is having the shared background knowledge between the writer and the reader on a particular symbol. It is also related to linguistic competence, literary skills and experience in hunting symbols. Symbols sometimes strongly suggest the meaning which leads to the suspense of a story from the very beginning of it. These symbols can convey the ideas to predict what will happen later by exploring their suggestive meaning within the context. A recurring symbol throughout the story can commonly be considered to be the most important one.
There were many researches about symbolism which projected the human nature through the main characters, the criticism and satire of the feudal lords, and the weather conditions which support the theme of the text. However, cultural awareness through symbolism has not been conducted yet. This study is significant from other researches that cultural studies were conducted classifying as the Material culture and Non-material through the symbols found in the fictions. Shirley Jackson published three articles, four works of non-fiction prose, two family books, seven novels, one play, one work of poetry, and more than fifty-five short stories (http://www.kutztown.edu/faculty/reagan/jackson.html). Among them, her three fictions are selected for this research. The first fiction is the short story “The Lottery” published in 1948; the second is the novel “The Haunting of Hill House” published in 1959; and the last one is a novella namely ‘We Have Always Lived in the Castle” published in 1962. These fictions will be analysed from the perspective of symbolism concept. Symbolism will be focused only on investigation of the culture from the characters’ symbolic names, some written words and items that stimulate characters’ rooted emotions.

Understanding symbolism in fiction is not always easy. The different layers of meaning can be exposed according to the knowledge of the reader about symbolism. Students often find difficult in interpreting the symbol; it needs multi-faceted views such as the background of the work, and linguistic structure which foreshadow the author’s intention.

Objectives of the Study
The objectives of the research are:
1. To explore the most prominent use of symbols in the selected fictions by Shirley Jackson
2. To investigate the status of twentieth century American culture through the use of symbols

Background of the Study
Pickering and Hoeper (1986) stated that a symbol is something that stands for or suggests something else by reason of relationship, association, convention, or accidental resemblance … a visible sign of something invisible. Pickering and Hoeper (1986: 59) classified that there are three types of symbols: Traditional, Original, and Private symbols, depending on the source of the associations that provide their meanings.

(i) Traditional Symbols: Traditional Symbols are those whose association are the common property of a society or a culture and are so widely recognized and accepted that they can be said to be almost universal. The symbolic associations that generally accompany the forest and the sea, the moon and the sun, night and day, the colours — black, white and red, and the seasons of the year are examples of traditional symbols. They are so much a part of the culture that their significance can be taken pretty much for granted.

(ii) Original Symbols: Original Symbols are those whose associations are neither immediate nor traditional; instead, they derive their meaning, largely if not exclusively, from the context of the work in which they are used. Melville's white whale is an original symbol, for white whales are often associated in the popular
imagination with brute strength and cunning. Moby Dick assumes his larger, metaphysical significance only within the contextual limits of Melville's novel. Outside that novel, a whale is just a whale.

(iii) Private Symbols: Private Symbols restrict the source of their meaning even more than original symbols. Certain authors employ symbols that are the products of their own peculiar and idiosyncratic systems of philosophy or belief. The above classification was applied in this research to study symbolism through which culture of the 20th century in the selected fictions was explored. Greenblatt (2009) set a handy set of six questions to consider the culture behind a work. These questions demand the facts that the theoretical framework and style of writing of a work of art, the readers’ knowledge to challenge such work, the different values the writers and readers set on it, the concept on the social class presented, understanding the message relating to someone’s freedom in a literary work, and how the current social class outside the work is. In the article culture, concept and characteristics (cited in the website http://web.mst.edu/~gdoty/classes/concepts-practices/def-symbols.html), culture is a way of life that is common to a group of people. It includes a collection of beliefs and attitudes, shared understandings and patterns of behaviour. However, these processes may be centered on certain universal aspects of human behavior and activities such as house building, food production, and preparation, clothing language, etc. The methods of food production and preparation, the structure of buildings, the way people clothe, the way people speak and communicate varies from culture to culture.

Capability is the ability to cope with the environment, natural as well as man made. It can be described as: Man x environment = culture
Culture has two broad components: One is material and the other is non-material.

![Figure 1: Material and Non-material culture](Source:http://web.mst.edu/~gdoty/classes/concepts-practices/def-symbols.html)

**Research Methodology**

Mixed method with qualitative and quantitative approach was used in this research. Pickering and Hoeper's (1986) approach was applied to classify the symbols in terms of Traditional, Original, or Private. In the second part, symbols were analysed by Robinson’s (2006) approach. In this stage criteria for data analysis included (i) The symbolic names that suggest underling moral, intellectual, or emotional qualities, (ii) the objects, pictures, written words, sounds, or particular
marks that represent something else by association, resemblance, or convention, and (iii) The items that stimulate deeply rooted emotions, and the arbitrary designs that the individual or an authoritative body has designated to have a specific meaning within specific contexts. After analyzing the symbol types, cultural analysis was conducted through these symbols.

**Data Collection**

The integrated approach, which include: (1) The symbolic names that suggest underling moral, intellectual, or emotional qualities, (2) The objects, pictures, written words, sounds, or particular marks that represent something else by association, resemblance, or convention, and (3) The items that stimulate deeply rooted emotions, and the arbitrary designs that the individual or an authoritative body has designated to have a specific meaning within specific contexts, was applied to collect the data of symbol types. It can be shown below. In this table, Tr. represents Traditional symbol; Or., Original symbol; and Pr., Private symbol.

*Table 1*

*Symbol types found in the selected fictions*

<table>
<thead>
<tr>
<th>No.</th>
<th>Fictions</th>
<th>Symbol Type</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Tr.</td>
<td>Or.</td>
</tr>
<tr>
<td>1</td>
<td>The Lottery</td>
<td>39</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>Haunting of the Hill House</td>
<td>109</td>
<td>166</td>
</tr>
<tr>
<td>3</td>
<td>We Have Always Lived in the Castle</td>
<td>41</td>
<td>89</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Total Frequency</th>
<th>Percentage</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>189</td>
<td>37.4</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>305</td>
<td>60.4</td>
<td>101.6</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>2.2</td>
<td>3.7</td>
</tr>
<tr>
<td>Mean</td>
<td>505</td>
<td>100</td>
<td>168.3</td>
</tr>
</tbody>
</table>

As shown in Table 1, there is statistically significant that the mean score of the Original Symbol is the highest with 101.6 (60.4%). The second highest is the Traditional with the mean score 63 (37.4%), and the least one is the Private symbol, only with 3.7 (2.2%). The result revealed that the symbols were mostly used relating to the contexts of the text, different from the assumptions outside the text.
Table 2
Material culture and Non-material culture found in the fictions

<table>
<thead>
<tr>
<th>No.</th>
<th>Fictions</th>
<th>Material</th>
<th>Non-Material</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The Lottery</td>
<td>3</td>
<td>76</td>
<td>79</td>
</tr>
<tr>
<td>2.</td>
<td>The Haunting of Hill House</td>
<td>23</td>
<td>157</td>
<td>180</td>
</tr>
<tr>
<td>3.</td>
<td>We Have Always Lived in the Castle</td>
<td>6</td>
<td>108</td>
<td>114</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>32</td>
<td>341</td>
<td>373</td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
<td>8.6</td>
<td>91.4</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>10.7</td>
<td>113.6</td>
<td>124.3</td>
</tr>
</tbody>
</table>

The above table shows the Material and Non-material culture found in three different fictions: the short story, the novel and the novella. The mean score of Non-material culture took 113.6 (91.4%) which dominated the mean score of the Material culture 10.7 (8.6%). So, in all fictions, Non-material culture especially related to psychological disorder of the characters is reflected to highlight the themes of the fictions as destruction.

Findings and Discussion

In this process of analysis, the symbols used in the respective fictions can be found that the Original symbol dominated the other two types; the Traditional symbol took the second highest and the Private symbol was in the lowest mean. The second finding was that the Non-material culture was higher in mean than the material culture.

The culture of this society of the short story “The Lottery” has been influenced by invalid tradition of obeying the rules set by the less thought provoking leaders as follows:

Mr. Summers was very good at all this; in his clean white shirt and blue jeans, with one hand resting carelessly on the black box, he seemed very proper and important as he talked interminably to Mr. Graves and the Martins. Mr. Summers was very good at all this; in his clean white shirt and blue jeans, with one hand resting carelessly on the black box, he seemed very proper and important as he talked interminably to Mr. Graves and the Martins. (P, 294; Lines, 15-19)

The above statement shows that the name ‘Mr. Summers’ could give its image of pleasantness and maturity among the villagers. His relationship to his organization indicates that he had the power of ruler in that rural America. He was stylish and appeared to be an intellectual; his manner appeared to be clever in his work as a matured one. But he stole the time of the villagers by talking to his assistants too long. It shows the different social class of the official and the laymen, the aristocrat and the poor. It can be compared with the female characters including ‘Mrs. Hutchinson’. The women’s style was shown in the following extract;

…women, wearing faded house dresses and sweaters, came shortly after their menfolk. (P, 292; Line, 3)
The gender difference appeared in these two characters that male was in an impressive style and prominent role as the official, and female as ordinary women in their domestic life, taking position behind their husbands. Women are often seen as inferior to men in societal groups, such as in the assembly before the stoning. The morning of June 27th was clear and sunny, with fresh warmth of a full summer day; the flowers were blossoming profusely and the grass was richly green. The people of the village began to gather in the square, between the post office and the bank, around ten o’clock; (P, 291; Lines, 1-5)

The setting was very pleasant with flowers and green grass in the sunny summer. The lottery was usually held in summer mentioned above. This was a time of ritual annually held.

In “The Haunting of Hill House”, the “conditions of absolute reality” that Eleanor and Hill House vanquish in their dreams may ultimately refer to the reality of human freedom. She was searching for mother or freedom in her unconscious mind. It appears in the lines below:

“Mother?” she said softly, and then again, “Mother?” A little soft laugh floated down to her, and she ran, breathless, up the stairs and stopped at the top, looking to right and left along the hallway at the closed doors. (P, 188; Lines, 25-30)

Hill House as a male figure in the following features and it was difficult for women to fit in that man driven society. It can be referred to the following text: Climbing, looking down, she thought of the soft green grass outside and the rolling hills and the rich trees. Looking up, she thought of the tower of Hill House rising triumphantly between the trees, tall over the road which wound through Hillsdale and past a white house set in flowers and past the magic oleanders and past the stone lions and on, far, far away, to a little lady who was going to pray for her. (P, 191; Lines, 6-12)

There is no reason for society to question the motives of a married woman, but every reason to plague the two unmarried ladies with questionable sexual orientation. Eleanor and Theodora were in the darkness of passion joyfully. This is stated: Theodora’s hand tightened and Eleanor caught her breath on a little sob—had something moved, ahead, something whiter than the white trees, beckoning? Beckoning, fading into the trees, watching? Was there movement beside them, imperceptible in the soundless night; did some footstep go invisibly along with them in the white grass? Where were they? (P, 144; Lines, 25-30)

Lesbian culture can be seen in the society of 1950s America. The family’s civilized culture can be seen from the use of symbols in the sentence: “Blackwoods had always lived in our house, and kept their things in order; as soon as a new Blackwoods wife moved in, a place was found for her belongings, and so our house was built up with layers of Blackwoods property weighting it, and keeping it steady against the world.” (P, 1; Lines’ 22-26)

Capitalist world can also be seen in Jackson’s use of symbols in her description: “Our mother disliked the sight of anyone who wanted to walking past our front door, and when our father brought her to live in the Blackwood house, one of the first things he had to do was close off the path and fence in the entire Blackwood property, from the highway to the creek.”(P, 18; lines, 9-13)

As mentioned in Chapter (2), American modern fictions are rich in symbolism. People’s wants of wealth and fear of death are the result of the wars. The Depression Era urged the people of America to find places for home and hope of love.
The scientific experiments became prominent to create a modern world of America. This chapter concludes that, like the other famous fictions in modern American fictions, Jackson’s all three fictions reflect 20th century American culture through the most prominent use of symbols to portray its social and political perspectives especially.

**Conclusion and Recommendation**

In this section, all three fictions — “The Lottery, The Haunting of Hill House, and We Have Always Lived in the Castle” have been evaluated with their distinct features of culture through the use of symbols.

The culture of the society in the short story “The Lottery” has been influenced by invalid tradition of obeying the rules set by the less thought provoking leaders, especially from Jackson’s use of symbols in her story ‘The Lottery’. From the symbols found in the story, it can be concluded that the symbols used mostly from names and weather as setting reflect the Non-material culture of the society of the text.

The female characters in “The Haunting of Hill House” represent what society will and will not tolerate. The house itself represents society and reacts to the rebelliousness of women. Shirley Jackson’s social commentary on women’s predetermined roles pervades the novel. Jackson tells the readers that society wishes to identify, weed out, and punish outsiders. Women can run, hide, die, or change. There is no reason for society to question the motives of a married woman, but every reason to plague the two unmarried ladies with questionable sexual orientation.

All the three fictions with the gothic elements such as atmosphere of mystery and suspense, high, even overwrought emotion, the metonymy of gloomy and horror, setting as a castle, women threatened by a powerful, and impulsive tyrannical male can convey the idea of culture and symbolism from Jackson’s feminist gothic writing through her effective use of symbols. So, the culture of the 20th century America was reflected in the societies of the fictions through the symbolism of characters, objects, and actions.

Thus, these findings will be beneficial for those who would like to study culture in literary analysis as the field of language through literature. It would be better if the culture of 20th century America is studied from the works written by male authors to confirm this statement that Non-material culture dominated the 20th century American culture.
References


University Teachers' Attitude on 21st Century Skills Map for the Social Studies and Implications for Teachers’ Competences in the Global Digital Era

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Abstract

The Partnership for 21st Century Skills (P21) has forged alliances with key national organizations that represent the core academic subjects, including Social Studies, English, Math, Science, Geography, World Languages and the Arts. These collaborations have resulted in the development of 21st Century Skills Maps that illustrate the intersection between core subjects and 21st Century Skills. Recently, technology has become an educational necessity in global-digital era. Facing these phenomena, social studies should make innovations related to changes of 21st Century Skills and learning paradigm, which is characterized by the principles of disclosure of information, computing, automation, and communication. Social studies is an interdisciplinary subject that draws upon economics, geography, history, law, and politics, as well as some of the subjects in the social sciences and humanities. The social studies enables students to investigate various ideas, concepts, and issues using an interdisciplinary approach, giving students an integrated learning experience and leading to a deeper understanding of the interconnections between social, political, economic, and environmental ideas and issues. Technology integration into social studies learning is one of the learning innovations in the global-digital era. The social studies programs will enable students to become responsible, active citizens within the diverse communities to which they belong. As well as becoming critically thoughtful and informed citizens who value an inclusive society, students will have the skills they need to solve problems and communicate ideas and decisions about significant developments, events, and issues. In social studies and world studies, students realize the vision for the program as they: develop the ability to use the “concepts of disciplinary thinking” to investigate issues, events, and developments; develop the ability to determine and apply appropriate criteria to evaluate information and evidence and to make judgments; develop skills and personal attributes that are needed for discipline-specific inquiry and that can be transferred to other areas in life; build collaborative and cooperative working relationships; use appropriate technology as a tool to help them gather and analyze information, solve problems, and communicate. This research examines 21st Century Skills map for the social studies and the implications for developing teachers’ competences. An explorative focus group study was conducted with teachers (n = 118) in selected universities since 2017. It has been found that although teacher training and sources have not been adequate, teachers’ awareness and self-confidence is limited, content coverage limited and time for preparation longer, the teachers perceive that Social Studies should make innovations related to changes of 21st Century Skills and learning paradigm and implications for teachers’ competences in the global digital era.
Keywords: University teachers, Social Studies, 21st Century Skills Map, Teachers’ Competences, Global Digital Era

Introduction

This research deals with key roles required for teachers in new digital era. Teachers’ role in the 21st century has become more complex in the present changing world where knowledge is almost unlimited. Teachers are expected to become technologically oriented and responsible not only for their teaching but also for their students’ learning. Today teachers are required to be facilitators helping learners to make judgments about the quality and validity of new sources and knowledge, be open-minded and critical independent professionals, be active co-operators, collaborators, and mediators between learners and what they need to know, and providers to scaffold understanding. In this digital era, teachers’ role has shifted from mere preacher to the manager of students social and emotions behaviours; mentor for their learning and over-all development as a balanced citizen; motivator for slow learner and a fast learner in digital environment. Social Science can be defined as a scientific study field since almost all the sub-disciplines use scientific methods to investigate facts. However, Social studies can be introduced as the study of both social sciences and humanities. According to U.S American National Council for the Social Studies, “Social studies, is the integrated study of the social sciences and humanities to promote civic competence.” Social Studies is a relatively new term and came into use in the 20th century. In social science, we study the society and social life of human groups while in Social Studies, we study both social science and humanities in order to promote effective citizenry. Social Studies is divided into two main categories of humanities and social sciences. Though Social Studies is a subject that is taught from primary school onward, social science is only available as a degree level course. In addition, social studies is a relatively new term while social science dates back to the 18th century. Currently, technology developments, especially information and communication technology (ICT) and openness in its utilization have provided a social and human infrastructure for teachers and students to improve collaboration, interaction, and participation in their learning activities, and support them to create constructive learning environments (Chen, 2011). It’s time for universities to maximize the impact of technology as well” (P21, 2008c). The social studies program can develop students’ understanding of who they are, where they come from, where they belong, and how they contribute to the society in which they live. Students develop a sense of who they are by exploring their identity within the context of various local, national, and global communities in which they participate. Students develop their understanding of where they came from by studying past societies, analyzing connections between the past and present, and exploring the contribution of past societies to heritage. They explore where they belong and develop a sense of place by investigating the various spaces – physical, social, cultural – in which they live. Finally, students explore ways in which they can contribute to the society in which they live, developing the knowledge, skills, and attributes they need to be responsible citizens who make a positive contribution to their communities. Students develop their ability to formulate relevant questions; to gather, organize, interpret, and analyze information, data, and evidence from a variety of primary and secondary sources, using various tools and technologies; to extract information from
and construct maps and graphs for a variety of purposes; and to formulate and communicate ideas, conclusions, and judgments by using ICT. The Partnership for 21st Century Skills (P21) has forged alliances with key national organizations that represent the core academic subjects, including Social Studies, English, Math, Science, Geography, World Languages and the Arts. These collaborations have resulted in the development of 21st Century Skills Maps that illustrate the intersection between core subjects and 21st Century Skills. This research examines the 21st Century Skills map for the Social Studies and the implications for teachers’ competences.

1. Pedagogical principles Teachers Need in Integrating Technology into Learning Social Studies

   In addition, Mason et al. (2000) suggest pedagogical principles teachers need in integrating technology into learning Social Studies as follows:

   (a) Expanding student learning goes beyond what they can be done without the support of technologies
   (b) Introducing students on the context of its use
   (c) Providing opportunities for students to learn the relationship between science, technology, and society
   (d) Encouraging the development of students’ skills, knowledge, and participation as a good citizen in a democratic society
   (e) Facilitating the students to contribute actively in research and evaluation of the technology — Social Studies relationship.

2. Concepts of Disciplinary Thinking in the Social Studies

   Concepts of disciplinary thinking can be used in any investigation in Social Studies, although certain concepts are more obviously related to some topics than others, and concepts are often interrelated. Students use the concepts when they are engaged in the inquiry process, whether they are conducting an investigation that involves the process as a whole or are applying specific skills related to different components of that process as they work towards achieving a given expectation.
Table 1
Concepts of disciplinary thinking across subjects (Source: Martorella, 1977)

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Concepts of disciplinary thinking</th>
<th>History</th>
<th>Geography</th>
<th>Politics</th>
<th>Economics</th>
<th>Law</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Significance</td>
<td>Historical</td>
<td>Spatial</td>
<td>Political</td>
<td>Economic</td>
<td>Legal</td>
</tr>
<tr>
<td>2</td>
<td>Cause and Consequence</td>
<td>Cause and</td>
<td>Significance</td>
<td>Objects</td>
<td>Significance</td>
<td>Cause and Effect</td>
</tr>
<tr>
<td>3</td>
<td>Continuity and Change</td>
<td>Continuity and</td>
<td>-</td>
<td>Stability and Change</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>Patterns and Trends</td>
<td>-</td>
<td>Patterns and Trends</td>
<td>-</td>
<td>Stability and Variability</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Interrelationships</td>
<td>-</td>
<td>Interrelationships</td>
<td>-</td>
<td>-</td>
<td>Interrelationships</td>
</tr>
<tr>
<td>6</td>
<td>Perspective</td>
<td>Historical</td>
<td>Geographic</td>
<td>Political</td>
<td>Economic</td>
<td>Legal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Perspective</td>
<td>Perspective</td>
<td>Perspective</td>
<td>Perspective</td>
<td>Perspective</td>
</tr>
</tbody>
</table>

Avg 66.66% 66.66% 66.66% 66.66% 66.66%

(i) The Use of Technology in the Social Studies

The skills map can be used by teachers as a framework and concrete examples of the integration of 21st Century Skills in designing and developing the Social Studies learning that integrated with technology so that students can advance their learning comprehensively, appropriately; and can support those to understand:

a) what they need to be learned / gained comprehensively core academic subjects and the 21st Century Skills and themes in the Social Studies learning;

b) how they learn supported by innovative learning climate, active-participatory, relevant, rigorous, and student-centered (P21, 2008c; 2008d).

In this context, the P21 also stresses, "It's time for universities to maximize the impact of technology as well" (P21, 2008b) to create an innovative learning climate, and a synergistic and integrated learning system to maximize the impact of the role of technology. This will enable students to:

c) create learning practices, human support and physical environments to support the 21st Century Skills achievement

d) support professional learning communities that enable teachers to collaborate, share best-practice experiences, and integrate 21st Century Skills into classroom practice

e) allow students to learn in accordance with the real-world 21st century contexts (e.g., through project-based learning or the like

f) allow the fairness access to learning tools, technology, and quality sources

g) provide an architectural and interior design of the 21st century for learning groups, teams, and individuals

h) support for building the wider community and international engagement in online and face-to-face learning.

To maximize the impact of a pivotal role of technology for gaining the Social Studies 21st Century Skills, the partnership has created “the 21st century Social Studies Skills Maps” that illustrate the intersection between 21st Century Skills and the 'core academic subjects' of the Social Studies, including Social Studies, English,
Mathematics, Science, and Geography. Through this map, students can advance their learning outcomes in the new global economy. (P21, 2008).

Figure 1: 21st Century Skills Maps

The technological tools, hardware and software support the teachers and students to search, access, interact, collaborate, promote or publish their ideas, and develop their ongoing skills in the use of technology professionally as follows.

a) Spatial Skills

Spatial skills underpin spatial literacy, enabling students to develop and communicate a sense of place. Map, globe, and graphing skills help students visualize and make meaning of spatial data. These skills help teachers understand how data relating to three-dimensional spaces can be represented on two-dimensional surfaces. Although they learn spatial skills in social studies and geography, they apply them, in conjunction with the concepts of disciplinary thinking, in all three subjects in the social studies, history, and geography curriculum, and in world studies as well. In addition, they may apply these skills in everyday contexts and in other subjects.

b) Mathematical Literacy

There is a close connection between spatial skills and mathematics. In order to extract information from, analyse, and construct maps and graphs, teachers need to understand the intent of different types of data and how variations in scale interval can influence their meaning.

c) Technological skills

The social studies, history, and geography curriculum provides many opportunities for teachers to combine technological and spatial skills. For example, they may use online atlases or interactive maps when gathering data or information, or may use graphing and mapping applications to communicate their findings.

d) Learning Skills and Work Habits

The development of learning skills and work habits is an integral part of learning. To the extent possible, however, the evaluation of learning skills and work habits that may be included as part of a curriculum expectation, should not be considered in the determination of a student’s grades. In social studies, it is crucial that students not simply learn various facts but that they acquire the ability to think and to process content in ways best suited to each subject.
**Research Methodology**

Social Studies is defined as the integrated study of the social sciences and humanities to promote civic competence (Acikalin & Duru, 2005). Typically, students take general social studies in elementary school, then move to more specific areas of study in middle school, and even more in-depth subjects in high school and university. In elementary school, students take social studies every year, beginning with the most basic elements of geography and history, and gradually progressing to more specific and detailed subjects as years go on. In middle school, students take a specific social studies class each year, usually revolving around world history and country history, and in high school and university, classes are more dedicated to completing a thorough study of a particular subject, like modern history. An explorative focus group study was conducted with teachers (n = 118) in selected universities since 2017.

1. **Pedagogical Principles Teachers Need in Integrating Technology into Learning Social Studies**

   Recent developments have created new opportunities for powerful social studies teaching assisted by technology. Recently, technology has become an educational necessity in global-digital era. Facing these phenomena, social studies should make innovations related to changes of 21st Century Skills and learning paradigm, which is characterized by the principles of disclosure of information, computing, automation, and communication. Technology integration into learning is one of the learning innovations in the global-digital era. The following table describes the responses of the participants towards pedagogical principles teachers need in integrating technology into learning Social Studies.

   *Table 2*

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Pedagogical principles</th>
<th>Agree</th>
<th>Not Sure</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Expanding student learning goes beyond what they can be done without the support of technologies</td>
<td>13%</td>
<td>23%</td>
<td>64%</td>
</tr>
<tr>
<td>2</td>
<td>Introducing students on the context of its use</td>
<td>73%</td>
<td>1%</td>
<td>26%</td>
</tr>
<tr>
<td>3</td>
<td>Providing opportunities for students to learn the relationship between science, technology, and society</td>
<td>76%</td>
<td>14%</td>
<td>10%</td>
</tr>
<tr>
<td>4</td>
<td>Encouraging the development of students’ skills, knowledge, and participation as a good citizen in a democratic society</td>
<td>79%</td>
<td>7%</td>
<td>14%</td>
</tr>
<tr>
<td>5</td>
<td>Facilitating the students to contribute actively in research and evaluation of the technology — Social Studies relationship</td>
<td>83%</td>
<td>12%</td>
<td>5%</td>
</tr>
</tbody>
</table>
According to the responses towards pedagogical principles, 83% of the teachers perceive that facilitating the students to contribute actively in research and evaluation of the technology is very important. They also agree that technology developments as well as openness in its utilization could provide a social and human infrastructure for teachers and students to improve collaboration, interaction, and participation in their learning activities which will support them to create constructive learning environments.

2. Concepts of Disciplinary Thinking in Social Studies

It is important that teachers use their professional judgment to ensure that the degree of complexity is appropriate for both the grade level and the individual student’s learning style and that it does not lead to confusion. According to Martorella (1977), constructive learning environments incorporating technology has advantages than a traditional learning mode in terms of: flexibility in the time and place; computer requirements and operating systems; easiness, equity, sustainability, and accessibility in updating content and archiving capabilities; effectiveness, efficiency in cost or funding; and interactivity in learning process. So that, technology placed as the most creative and innovative work of 21st century, and becomes a central theme in many innovations and new vision of education, including Social Studies.

Table 3
Teachers' responses on concepts of disciplinary thinking in Social Studies (Source: Martorella, 1977)

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Advantages</th>
<th>Traditional learning mode</th>
<th>Constructive learning environments incorporating technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Flexibility in the time and place</td>
<td>-</td>
<td>Â</td>
</tr>
<tr>
<td>2.</td>
<td>The coverage</td>
<td>Â</td>
<td>Â</td>
</tr>
<tr>
<td>3.</td>
<td>Computer requirements and operating systems</td>
<td>-</td>
<td>Â</td>
</tr>
<tr>
<td>4.</td>
<td>Velocity in obtaining the necessary learning resources and in development</td>
<td>Â</td>
<td>-</td>
</tr>
<tr>
<td>5.</td>
<td>Easiness, equity, sustainability, and accessibility in updating content and archiving capabilities</td>
<td>-</td>
<td>Â</td>
</tr>
<tr>
<td>6.</td>
<td>Effectiveness, efficiency in cost</td>
<td>-</td>
<td>Â</td>
</tr>
</tbody>
</table>
Social Studies’ integrative nature, its exploration of the human experience across time and place, and its commitment to readying youth for life in a democratic society within a global context, means the field is well suited to enabling youth to learn with and about technology for several reasons: (i) the democratization of knowledge; (ii) the impact of technology in all areas of life; (iii) the creation of multiple blended and online settings within a global context; (iv) needs nurturing of students’ rich array of digital democratic experiences; (v) and a rich tradition of innovative use of technology in the teaching and learning of social studies. According to the data, 87.5% of the participants agree that technology integration into the Social Studies has to become a shared commitment within the worldwide community, and results indicate the significance to create learning processes and environments more enjoyable, accessible, meaningful, and authentic that are impossible in the traditional classroom and to empower students successful in gaining 21st Century Skills within core subjects of Social Studies.

3. The Use of Technology in the Social Studies

In this context, the P21 also stresses, "It's time for universities to maximize the impact of technology as well, to create an innovative learning climate, and a synergistic and integrated learning system to maximize the impact of the role of technology". According to the data, this will enable students to:
(a) create flexibility in the time and place to support the 21st Century Skills achievement
(b) support computer requirements and operating systems that enable teachers to collaborate, share best-practice experiences, and integrate 21st Century Skills into classroom practice
(c) allow students to learn with easiness, equity, sustainability, and accessibility in updating content and archiving capabilities
(d) allow the fairness access to effectiveness, efficiency in cost or funding
(e) provide interactivity in learning process for learning groups, teams, and individuals

Thus, technological tools, hardware and software support the teachers and students to search, access, interact, collaborate, promote or publish their ideas, and develop their ongoing skills in the use of technology professionally. Myanmar teachers’ attitude on the use of technology in teaching Social Studies in the global digital era is as follows:
Table 4
Teachers' responses on the impact of technology use in teaching Social Studies in the global digital era

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Ongoing skills in the use of technology professionally</th>
<th>Teachers' responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>1</td>
<td>Spatial skills</td>
<td>61%</td>
</tr>
<tr>
<td>2</td>
<td>Mathematical literacy</td>
<td>63%</td>
</tr>
<tr>
<td>3</td>
<td>Technological skills</td>
<td>72%</td>
</tr>
<tr>
<td>4</td>
<td>Learning Skills and work habits</td>
<td>77%</td>
</tr>
</tbody>
</table>

(a) Spatial Skills (61%)
Teachers report that spatial skills can support various interpretations and can be used to communicate different messages, depending on how the data are presented. In order to make meaning of maps and graphs, teachers must understand and be able to correctly use mapping and graphing conventions, just as they need to understand language conventions when using other text forms. Spatial skills are directly linked to literacy, mathematical literacy, and technological skills. Over 60% of the participants agree that they need to develop both literacy and spatial skills in order to extract information from, analyze, and construct these forms. To construct these graphic texts, teachers must learn how different types of maps, globes, and graphs can represent natural and human characteristics and the relationships between them.

(b) Mathematical Literacy (63%)
Many of these skills are reflected in the strands of the curriculum. Mathematical literacy is an individual’s capacity to formulate, employ, and interpret mathematics in a variety of contexts. It includes reasoning mathematically and using mathematical concepts, procedures, facts, and tools to describe, explain, and predict phenomena. Over 60% of the teachers agree that it assists individuals to make well-founded judgments and decisions needed by constructive, engaged and reflective citizens.

(c) Technological skills (72%)
Technological skills are the abilities and knowledge needed to perform specific tasks. They are practical, and often relate to mechanical, information technology, mathematical, or scientific tasks. More than 70% of the teachers agree that spatially literate teachers need to be able to use geographic information systems (GIS) and global positioning systems (GPS), which require the development of both spatial and technological skills.

(d) Learning Skills and Work Habits (77%)
Assessing, evaluating, and reporting on the achievement of curriculum expectations and on the demonstration of learning skills and work habits separately allows teachers to provide information to the student that is specific to each of these two areas of achievement. The learning skills and work habits that 77% of the participants mention are: responsibility; organization; independent work; collaboration; initiative; and self-regulation.
Discussion

As stated above, participants agree that the use of technology will give a great impact on gaining the Social Studies 21st Century Skills in the future. However, because of the relationship between Social Studies disciplines and technology is precarious and simultaneously contains potential advantages and critiques to its limitations in learning practice such as: (i) education, teacher training, and sources — software and funds — have not been adequate; (ii) teachers’ awareness and self-confidence are limited; (iii) content coverage is limited; and (iv) time for preparation is longer. These factors are part of support systems that have important roles and responsibilities about how they can integrate technology into Social Studies learning and create conducive learning environments; and how teacher education institutions prepare and develop their professionalism.

![Figure 2: Responses of the participants on pedagogical principles teachers need in integrating technology into learning Social Studies](image)

According to the data, 83% of the teachers agree that they need to integrate technology into learning Social Studies so that they will be able to facilitate the
students to contribute actively in research and evaluation of the technology and also need to provide students with frequent opportunities to communicate their understanding, practice their skills, and apply new learning. To increase their comfort level and their skill in teaching social studies, history, and geography, and to ensure effective delivery of the curriculum, teachers should reflect on their own attitudes, biases, and values with respect to the topics they are teaching. They may wish to seek out current research, resources on instructional approaches, mentors, and professional development and training opportunities, as necessary. Through regular and varied assessment, 79% of the participants agree to encourage the development of students’ skills, knowledge, and participation as a good citizen in a democratic society. By assigning tasks that promote the development of critical and creative thinking skills, teachers also help students become thoughtful and effective communicators.

Opportunities to relate knowledge and skills in social studies, history, and geography to wider contexts, both across the curriculum and in the world beyond the university, teachers agree to motivate students to learn and to become lifelong learners in the figure below.

![Figure 3: Teachers' responses on comparison of advantages between traditional learning mode and constructive learning environments incorporating technology to deepen students’ investigations to enrich and enliven the Social Studies (Source: Martorella, 1977)](Image)

Teachers who use technology selectively in learning Social Studies and in developing the 21st Century Skills must be based on the vision and goals of Social Studies: meaningful, powerful, value-based, challenging, and active; and need to act as a "multimedia creator" so that able to create their own multi-media teaching materials (Shiveley & VanFossen, 2009). In this research, 87.50% of the participants agree that teachers must provide constructive learning environment, clear guidelines and parameters related to the ways of determining the accuracy of the information, detection bias, the validity of the claims, etc. This is very important as a filter to ensure students that the information obtained really good quality and accurate.
According to the data, teachers should also anticipate student’s anxiety phenomena wisely by encouraging them to remain actively involved in the discussions, partnerships, and collaboration electronically.

Digital technologies, far from making social studies and history more lively, more rigorous, and more grounded in authentic sources, seem hardly to have made a dent in what teachers and students do. It is worth considering each of these explanations in this research, for a moment.

Figure 4: Teachers' responses on the impact of technology use in teaching Social Studies in the global digital era

According to the data in Figure 4, 77% of the teachers agree that by using technology in learning social studies and world studies, the positive impact of technology has been found in teaching Social Studies in the global digital era. Students may realize the vision for the program as they: develop the ability to use the “concepts of disciplinary thinking” to investigate issues, events, and developments; develop the ability to determine and apply appropriate criteria to evaluate information and evidence and to make judgments; develop skills and personal attributes that are needed for discipline-specific inquiry and that can be transferred to other areas in life; build collaborative and cooperative working relationships; use appropriate technology as a tool to help them gather and analyze information, solve problems, and communicate.

Findings and Discussion

Recent developments have created new opportunities for powerful social studies teaching assisted by technology. Major improvements have taken place in both hardware and software. Computers are much more powerful and versatile than they were a decade ago. Although many educational programs at that time were oriented toward drill and practice, it is now easy to find interactive and engaging programs. Using the right combination of hardware and software, teachers can develop lessons that enhance student skills in information retrieval, the presentation of data, the comparison and evaluation of different perspectives, and critical reflection and
decision making. As is often the case, efforts to take advantage of these opportunities in the classroom make important demands on individual teachers. Successful computer-based instruction requires careful planning, informed choices of hardware and software, and the matching of educational programs to curricular objectives and student abilities. Our purpose in this research is to identify the key considerations that should influence the selection of instructional technology in order to assist educators to evaluate current products and assess the feasibility of their use in the classroom. Teaching is the key to student success. Teachers are responsible for using appropriate and effective instructional strategies to help students achieve the social studies, history, and geography curriculum expectations, as well as appropriate methods for assessing and evaluating student learning. Teachers bring enthusiasm and varied teaching and assessment approaches to the classroom, addressing individual students’ needs and ensuring sound learning opportunities for every student. The attitude with which teachers approach social studies, history, and geography is critical, as teachers are important role models for students. Using a variety of instructional, assessment, and evaluation strategies, teachers provide numerous opportunities for students to develop and refine their skills and knowledge as they apply the concepts of disciplinary thinking to the content of social studies, history, and geography. These learning experiences should enable students to make meaningful connections between what they already know and what they are learning. Teachers should reflect on the results of the learning opportunities they provide, and make adjustments to them as necessary to help every student achieve the curriculum expectations to the best of his or her ability. It is important that teachers create an environment that will foster a sense of community, where all students feel included and appreciated and where their perspectives are treated with respect. One way of accomplishing this is for teachers to select topics, resources, and examples that reflect the diversity in the classroom.

**Conclusion**

Integrating technology in Social Studies learning is an important innovation of educational paradigm for developing 21st century Social Studies skills. It has solid philosophical and pedagogical foundations in the theory of constructivism. It has also become an academic and professional commitment among the world community of Social Studies. Various studies also provide empirical supports for developing 21st Century Skills through technology integration. However, some implications for further implementations in the classroom, a number of technical constraints, competences, and infrastructure supports should be attention of the teacher. They need to have sufficient knowledge, attitudes, and skills for the use effectively. Teachers’ competencies and education curriculum are also expected to provide a stock of knowledge, attitudes, and skills of technology by designing an adequate curriculum based on the principles of pedagogy, technology, and philosophy integratively. It has been found that although teacher training and sources have not been adequate, teachers’ awareness and self-confidence is limited, content coverage limited and time for preparation longer, the teachers perceive that Social Studies should make innovations related to changes of 21st Century Skills and learning paradigm and implications for teachers’ competences in the global digital era.
Recommendations

Finally, future research is needed to explore how the elements are the critical systems such as standards, assessments and professional communities’ partnership provide tools and resources that help facilitate and drive it, and must be aligned to produce a support system that produces 21st Century skills outcomes for today’s students. Research on technological devices and integrating models that compatible to the students for gaining skills needed are also important, because the 21st Century skills map for them are different in terms of contents, levels, and activities of skill are developed.

References

State of Development of National Accreditation and Quality Assurance Committee

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Abstract

To foster, support and safeguard the quality of education in Myanmar independently at all levels and in all fields, National Accreditation and Quality Assurance Committee (NAQAC) has been formed a couple of years ago with members from different backgrounds. To enhance linkages between Myanmar education system and international education by setting and using the standards and criteria of quality assurance and by improving the existing credit unit system at all levels of national education is one of the functions of NAQAC. In the region, quality assurance is a tool for harmonization (ASEAN, SEAMEO RIHED, 2012). To reach the goal for harmonization, developing standards and criteria plays an important role. In order to develop standards and criteria for institutional quality assurance, NAQAC conducts workshops and conferences including responsible senior managers and internal quality assurance (IQA) representatives from higher education institutions in Myanmar. The number of participants from different nature of universities is around a hundred. Based on the workshops and conferences, the results have been presented in this research.

Keywords: state, development, national accreditation, quality assurance, committee

Introduction

National Accreditation and Quality Assurance Committee (NAQAC) was formed by National Education Policy Commission (NEPC) on 16th of January 2017 according to National Education Law, Chapter 4, Clause 6 (b) to meet the educational and social requirements of the Republic of the Union of Myanmar. Comprising 20 members from different educational backgrounds; rectors and scholars from different nature of universities, legal expert, representatives from professional councils and joint secretary of Union of Myanmar Federation of Chamber of Commercial Institute are those who carry out the activities of the committee to meet the objectives.

The objectives of the committee are to provide education institutions with quality assurance trainings for the development of their quality and to collaborate with education institutions for internal quality assurance. Moreover, trust between institutions, public and NAQAC is an important point. Therefore, to attain public trust in the quality of education is one of the objectives. Furthermore, higher education institutions nowadays regard internationalization as one of the quality development points. To establish strong quality assurance networks regionally and internationally is vital for internationalization and harmonization. Therefore the committee has already laid down the functions and the tasks.
Functions of National Accreditation and Quality Assurance Committee

NAQAC is responsible for performing twelve tasks especially Internal Quality Assurance (IQA) and External Quality Assurance (EQA) as described in National Education Law (2014) to establish Quality Assurance (QA) system in every field and every level of education.

For higher education harmonization, the countries in the region have agreed to have frameworks like ASEAN Quality Assurance Framework (AQAF) and ASEAN Qualifications Reference Framework (AQRF). According to the agreements, NAQAC will utilize Myanmar National Qualifications Framework which is under preparation as a reference point. Moreover, enhancing linkages between Myanmar education system and international education by setting and using the standards and criteria of quality assurance and by improving the existing credit unit system at all levels of national education also plays vital role. Providing inclusive and quality education and lifelong learning and training to respond to the regional and global trends through formal, non-formal and informal systems; enhancing equitable access to quality and relevant Technical and Vocational Education and Training (TVET) and Higher Education to meet the employment demands at national, regional and international markets are highlighted areas among promotion of education for the 2030 agenda (draft) for sustainable development (Bangkok Declaration on Advancing Partnership in Education for 2030 Agenda for sustainable Development in ASEAN).

The committee is responsible for the quality assurance not only in the area of Higher Education Institutions but also in the area of Technical, Vocational Education and Training (TVET) schools and basic education. Reporting the situations of institutions at all levels of education which do not meet the defined standards and criteria of quality assurance to National Education Policy Commission is also carried out by the committee. Furthermore, the committee has to produce and publish materials on quality assurance, provide trainings to the relevant institutes, conduct seminars, workshops and research works for accreditation and quality assurance according to changing trends. To achieve international recognition and stakeholders’ trust by sharing information on the quality of education and to carry out this task in compliance with international practices are the tasks which must be done. Performing the tasks of quality assurance and accreditation of the institutes and programmes at all levels of education offered by international universities and organizations by collaborating with quality assurance agencies of the respective countries and by developing linkages with quality assurance networks is one of the priority works.

Methods and Materials

National Accreditation and Quality Assurance Committee has conducted data collection through survey questionnaires, workshops, seminars and conferences (activities in the table below) with invited senior managers and internal quality assurance Internal Quality Assurance (IQA) representatives from higher education institutions in Myanmar. Based on an analysis of the relevant activities and higher education literature, this paper has been written.
### Table 1
Activities

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Activities</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Meeting with Quality Assurance and National Qualifications Framework expert Ms Andrea, QA Workshop on NQF in Quality Education and International cooperation</td>
<td>10, March, 2017</td>
</tr>
<tr>
<td>2</td>
<td>Awareness raising seminars on QA for 25 EC</td>
<td>25-26, April, 2017</td>
</tr>
<tr>
<td>3</td>
<td>Survey questionnaires and University group discussions for IQA system in 166 HEIs</td>
<td>2-3, May, 2017</td>
</tr>
<tr>
<td>4</td>
<td>Presentations on the current status of IQA system by Groups of HEIs</td>
<td>15-18, May, 2017</td>
</tr>
<tr>
<td>5</td>
<td>Divided into three groups for higher education, basic education, international education areas to start Work</td>
<td>16-21, June, 2017</td>
</tr>
<tr>
<td>6</td>
<td>Distributed Survey Questionnaire to 540 schools</td>
<td>July, 2017/May, 2018</td>
</tr>
<tr>
<td>7</td>
<td>Analysis on survey data from different groups of HEIs to support their needs</td>
<td>19-25, June, 2017</td>
</tr>
<tr>
<td>8</td>
<td>Presentations on accreditation by nine professional councils</td>
<td>28-29, June, 2017</td>
</tr>
<tr>
<td>9</td>
<td>Workshop on ASEAN Qualifications Reference Framework (AQRF) and National Qualifications Framework (NQF)</td>
<td>17, August 2017</td>
</tr>
<tr>
<td>10</td>
<td>National Workshop between SHARE and NAQAC focusing on AQRF/ AQAF/ IQA/ OBE</td>
<td>4-6, Sept 2017</td>
</tr>
<tr>
<td>11</td>
<td>SHARE Cascade Workshops for the rest of HEIs (Yangon and Mandalay)</td>
<td>16, Oct 2017</td>
</tr>
<tr>
<td>12</td>
<td>Consultation for HE Standards &amp; guidelines (Mandalay)</td>
<td>27, Dec 2017</td>
</tr>
<tr>
<td>13</td>
<td>Consultation for HE Standards &amp; guidelines (Yangon)</td>
<td>25, Jan 2018</td>
</tr>
<tr>
<td>14</td>
<td>Standards and Guidelines for Institutional QA (Put up to CEU for comments)</td>
<td>17-22, June, 2018</td>
</tr>
<tr>
<td>15</td>
<td>Leading HE Transformation in Myanmar (First National Conference) (NAQAC updates sharing)</td>
<td>29-30, June, 2018</td>
</tr>
<tr>
<td>16</td>
<td>QA: The Journey of Myanmar Universities to International Accreditation (NAQAC presentation)</td>
<td>17-22, June, 2018</td>
</tr>
<tr>
<td>17</td>
<td>National workshop on Standards and criteria for institutional Quality Assurance in YUFL and Sagaing University</td>
<td>29, July 2019</td>
</tr>
</tbody>
</table>
The development of the committee

NAQAC conducted preliminary survey in higher education institutions - under different ministries to have awareness of QA system for ranking to upgrade for quality of education. Only when attitudes of University teachers and students towards Quality Assurance and the challenges they face have been identified, can National Accreditation and Quality Assurance Committee provide support for them. National Accreditation and Quality Assurance Committee requested the representatives from university groups to make presentations on IQA systems as the nature of the institutions are not the same. National Accreditation and Quality Assurance Committee conducted workshops, seminars, international conferences and presentations step by step to raise awareness of QA. A couple of hand books with the kind help of Central European University are distributed to higher education institutions for their reference.

National Accreditation and Quality Assurance Committee is cooperating with the following international institutions. National Accreditation and Quality Assurance Committee is making endeavors for the implementation of Myanmar National Qualifications Framework (MNQF) consulting with QA experts from local and international institutions. Standards and criteria for Institutional Quality Assurance (draft) have been written after doing consultations with higher education institutions for the first time in 2017. Moreover, NAQAC invited participants from higher education institutions and conducted another consultation meeting for Standards and criteria for institutional quality assurance in 2018 for the second time. The third time consultation is carried out in 2019.

Standards and Criteria for Institutional Quality assurance
1. Vision, Mission and Goals
2. Governance and Leadership
3. Policy Formulation and Implementation
4. Strategic Planning
5. Teaching and Learning
6. Human Resources
7. Financial and Physical Resources
8. Research
9. Student Assessment
10. Curriculum
11. Student Support and Services
12. Community Engagement, External Relations and International Partnerships
13. Internal Quality Assurance
14. Outputs and Results

Discussion

NAQAC has conducted workshops, seminars and conferences with invited senior managers and internal quality assurance (IQA) representatives from higher education institutions in Myanmar. The number of participants from different nature of universities is over a hundred in each event. The events are mentioned in the table. Based on the discussions and outcomes of workshops, comments of seminars and conferences, seven out of fourteen standards and criteria are favorable and the rest
could be carried out gradually. For institutional quality assurance, some of the standards and criteria could be performed well but others will take time. However, consultation visits by NAQAC would be supportive for them. There are future steps for the quality assurance processes that will present more details of strengths and challenges of the standards and criteria.

Conclusion
In conclusion, NAQAC is a young national body and has strengths and challenges in the development processes. The committee lacks technical experts as well as trained office staff. It will take time for National Accreditation and Quality Assurance Committee to coordinate with regional and international QA agencies. Therefore, the committee has been working together with ASEAN University Network for Quality Assurance (AUNQA), ASEAN Quality Assurance Network (AQAN), and ASEAN Qualifications Reference Frameworks (AQRF). Cross border education for students, professionals, scholars, technicians and Mutual Recognition Arrangements (MRAs) are very important in the region. To fulfill the regional purposes and to meet the standards and criteria of the committee, the members have to take more efforts as well as the more supports from relevant organizations.

References
Effective Communication Skills for In-service and Vocational Training, Knowledge-Sharing, and Peace-Building Initiatives

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Abstract

This paper as a whole is to share knowledge and experiences by highlighting the developing trends of EFL status in Myanmar over the past 15 years, while stressing the need for effective English communication skills mainly in three separate areas: (1) in-service training for civil servant personnel; (2) vocational training for would-be employees among the young; and, (3) improved monastic education geared towards wider knowledge-sharing and peace-building initiatives. Accordingly, the paper first presents information based on small-scale research related to in-service personnel regarding Foreign Scholarship and English Proficiency implemented from Oct 8th, 2004 to Feb 13th, 2007 at Mandalay University of Foreign Languages (MUFL). The paper then touches on vocational training endeavors recently taken at lower secondary schools. The paper next centers on monks with interests in English for two reasons: (1) for improving academic writing and presentation skills with intentions to submit in English their master’s and doctoral degrees on Buddhist Studies; and, (2) for knowledge-sharing of meditation practices in English, thereby contributing towards peace-building initiatives across the globe. The paper finally touches on formal, non-formal and informal learning styles while emphasizing the need to focus more on ‘informal’, which is not getting the attention it deserves. Recommendations follow.

Keywords: in-service, vocational, academic writing, learning

Introduction

The need to have effective communication skills is evident in all areas of life, starting from smooth running of our day-to-day activities within the country to that of the whole world in general. Each country has its own domestic problems, and global issues are confronting us all at the same time in more ways than one. With countries becoming increasingly caught within the cobweb of much business rivalry, trade wars and military confrontations of either one kind or another, the need for soft skills becomes all the more apparent. More important than soft skills however is to have ‘sincerity’ above all else, especially in the ways that we as human beings think, say and do to ourselves, if sustainable peace at all levels is to become a reality. After all, with sincerity lacking behind all the things that we think, say and do, no amount of communication skills that we possess can truly be effective. With soft skills used for aggrandizement and selfish gains, hopes for any amount of sustainable peace-building at all levels conceivable, be it local, regional, national, or global, will surely become short-lived. With multi-polarization also asserting itself day by day on the world stage, the need to overcome our differences and come up with workable solutions for currently fast-approaching issues of poverty and unemployment as well as increase in moral decadence becomes most glaring for all of mankind and at all
levels – regional, national and global. And finding such peaceful and workable solutions undoubtedly requires effective language communication skills backed with sincerity down from the grassroots level to the topmost strata of human society. There will almost always be the urgent need for negotiation and persuasion skills with which to sort things out with regard to differences in approach to the tackling of issues in hand. It is this sincerity above all else (Yule, 1996), and commitment that will bring about effectiveness in communication. It is this effectiveness in communication that will somehow help promote mutual trust and understanding by finding a common ground for sustainability of peace both at the national and global levels. Bilateral and multilateral priorities and commitments towards collaboration for quality education, job creation and poverty reduction (Ministry of Planning and Finance, 2018) should therefore be sustainable in the truest sense of the term and not short-lived. With this in mind, the role of communication skills and the importance of their effectiveness should be taken into account seriously at all times, and not lightheartedly, at all levels for the smooth running of the government machinery aimed towards good government and clean governance (Maung, 2015).


Regarding effective communication skills pertaining to Government in-service personnel, Table 1 which follows presents Data Collection of the four language skills of civil servants of several ministries that have all come for their language proficiency assessments before going abroad for training and further studies (Oo, 2007). The Research Objective is to reveal the then-status quo of EFL, English as a Foreign Language. Here, Research Methodology and Research Tools being used involve the administering of an improvised, four-skill-based test of approximately 45-minute duration with each individual taking his/her turn immediately upon their arrival with an official letter in hand. It is a letter sent from their respective office and ministry requesting for a 4-skill proficiency test. Out of the four skills, only the written test is administered not individually but together in one group with an essay topic or title given for them to write on. The idea then was to obtain a brief and fairly good idea of each individual’s level of English proficiency within certain time constraints based on the immediate necessity of the situation in hand. Although simplified and devoid of much statistical details, as it can be seen in the pages which follow, the essence is however maintained, and the results of the findings speak for themselves in a lucid way. Table 1 therefore reveals the Research Findings derived from the test results (shown in Band Scores) of these would-be state scholars and would-be nominees coming to the Mandalay University of Foreign Languages (MUFL) to sit for their language proficiency tests. The tests were conducted during the period from Oct 8th, 2004 to February 13th, 2007. The Overall Findings based on the Sample of Study consisting of 61 contestants -- who were all graduates and employed -- revealed that, aside from reading skill, the remaining three skills of listening, speaking and writing are more often than not below the acceptable Band 6 score requirement. Nevertheless, the overall average figure shown in red for all 8 ministries being
Table 1
Average Marks of Each Skill Presented Office- and Ministry-wise

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Ministries, etc.</th>
<th>No. of Candidates</th>
<th>L</th>
<th>S</th>
<th>R</th>
<th>W</th>
<th>Sub-Avg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Education</td>
<td>41</td>
<td>5.79</td>
<td>5.86</td>
<td>6.00</td>
<td>5.74</td>
<td>5.84</td>
</tr>
<tr>
<td></td>
<td>Science &amp; Technology</td>
<td>7</td>
<td>5.57</td>
<td>6.28</td>
<td>6.64</td>
<td>5.71</td>
<td>6.05</td>
</tr>
<tr>
<td>2</td>
<td>Health</td>
<td>3</td>
<td>6.00</td>
<td>6.50</td>
<td>6.33</td>
<td>5.66</td>
<td>6.12</td>
</tr>
<tr>
<td></td>
<td>Office of Attorney-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>General</td>
<td>3</td>
<td>5.33</td>
<td>6.00</td>
<td>6.33</td>
<td>3.66</td>
<td>5.33</td>
</tr>
<tr>
<td>4</td>
<td>Transport</td>
<td>3</td>
<td>5.66</td>
<td>5.83</td>
<td>6.16</td>
<td>5.83</td>
<td>5.87</td>
</tr>
<tr>
<td>5</td>
<td>MCDC</td>
<td>1</td>
<td>5.80</td>
<td>5.80</td>
<td>5.70</td>
<td>5.70</td>
<td>5.75</td>
</tr>
<tr>
<td>6</td>
<td>Energy</td>
<td>2</td>
<td>5.75</td>
<td>6.25</td>
<td>6.25</td>
<td>5.50</td>
<td>5.93</td>
</tr>
<tr>
<td>7</td>
<td>Co-operatives</td>
<td>1</td>
<td>4.00</td>
<td>5.00</td>
<td>7.00</td>
<td>4.00</td>
<td>5.00</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>61</strong></td>
<td><strong>43.90</strong></td>
<td><strong>47.52</strong></td>
<td><strong>50.41</strong></td>
<td><strong>41.8</strong></td>
<td><strong>45.89</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Sub-Avg.</strong></td>
<td></td>
<td><strong>5.48</strong></td>
<td><strong>5.94</strong></td>
<td><strong>6.30</strong></td>
<td><strong>5.22</strong></td>
<td><strong>5.73</strong></td>
</tr>
</tbody>
</table>

5.73, when rounded, was equivalent to Band 6. Moreover, the average figure for all 8 ministries for the Reading Skill alone was Band 6.3 or 6.5, if rounded, which is most encouraging given the fact that they would definitely be able to cope with the substantial amount of reading load they would be encountering during their further studies abroad. However, they are likely to have some difficulty in their written performances.

Table 2 below is a follow-up of the above Table 1. It reflects the same collected data, but this time it is slightly adapted to obtain a quick glance on the overall picture of the performance of the 61 candidates, followed by clarifications on the status of each language skill. As revealed above, out of the four language skills, reading skill is the highest. This is understandable since the focus of English teaching ever since schooldays has always been more on reading comprehension with an
intention to equip high school graduates with the most needed skill, which is reading, to tackle with all the reading load that they will have to encounter within textbooks, once they are in the colleges and universities of different disciplines. Equal emphasis on the remaining three skills has nevertheless been made but not always with complete success. And the corresponding result of this predicament has extended into the various workplaces of both public and private sectors of the current socio-economic setup, Myanmar being primarily a non-English speaking community.

Table 2
Average Marks of the 61 Foreign Scholarship Candidates and Would-be Nominees from 8 Ministries, etc.

<table>
<thead>
<tr>
<th>Total No. of Ministries, etc.</th>
<th>Total No. of Candidates</th>
<th>Avg. L of 8 Ministries, etc.</th>
<th>Avg. S of 8 Ministries, etc.</th>
<th>Avg. R of 8 Ministries, etc.</th>
<th>Avg. W of 8 Ministries, etc.</th>
<th>Overall Avg. of 4 Skills of 8 Ministries, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>61</td>
<td>5.48</td>
<td>5.94</td>
<td>6.30</td>
<td>5.22</td>
<td>5.73</td>
</tr>
</tbody>
</table>

Second highest in line comes speaking skill, and not listening. This too is understandable since a bit of simple but effective conversational English is something quite within the grasp of almost any ordinary person. He or she is quite ready to initiate a friendly, casual talk with any foreigner, if required. It may be a bit broken here and there but for the most part perfectly intelligible.

Third in line is listening skill, and here too it is understandable due to so many varieties and variations within each variety that we would come across one time or another regarding both native and non-native accents or pronunciation and intonation patterns (Kachru, Kachru & Nelson, Eds., (2006). Listening skill is more challenging and therefore much harder than speaking skill, so it seems to most individuals.

Last in line is writing skill because, in terms of the majority, it is very much harder to master; definitely the toughest skill, so to speak, in more ways than one -- grammar, vocabulary, appropriacy of usage or expression, and definitely much more. This overall information presents us with a fairly good picture of the then situation regarding the four English proficiency skill levels. However, now that almost 12 years have passed ever since this somewhat localized, small-scale research was conducted, assessments and evaluations derived from it may no longer reflect the current situation as it is, and now that the number of ministries has changed to 36. People moreover change with the passing of time. They are therefore more likely to have improved over these years for the better. Nevertheless, if chances permit for further research on this matter, new data can be collected. Then only, based on the latest available data of the day, can we possibly do comparative studies and look forward to much greater accuracy, validity and reliability as well as credibility in whatever new statistics thus accumulated.

All in all, it is certainly most encouraging to come across instances of bilingual competence occurring more frequently than ever before in almost all walks of life, especially among the newly recruited individuals in the key areas of journalism, TV and other mass media, foreign office, as well as all other public and private sectors, not to mention young people doing well with employments elsewhere...
overseas in English speaking communities. All that is needed here is to keep up this momentum conducive to sustainable development in all forms beneficial and productive to oneself and to society as a whole. This applies to vocational training in all forms as well.

**Vocational Training and Effective Communication Skills as its Integral Part**

Information which follows is based on mostly online research (Ministry of Education, 2016), and from casual interviews or succession of conversations together with colleagues from the actual workplaces; and, they are conversations which took place in a very informal setting during our short encounters within the past few months of May and June of this year 2019. Regarding technical and vocational training programs at the lower-secondary school level, assuming my understanding is correct and which I believe to be so, revised six-month training courses will have been written in a matter of time to help alleviate poverty and joblessness. By and large, topic areas of training will usually have their focus on carpentry, masonry, soldering, and much more. Revised technical and vocational training programs will also appear in high schools at a not-so-distant future. Such initiatives have been made to this end, if and whenever possible. It is indeed most encouraging to know that recent developments in 2019 so far has been that of arrangements to revise and update, with support from ADB, each level of the four levels of the current syllabi and course outlines at the technical and vocational education and training schools situated in several big cities across the country. Accordingly, the revised and updated texts to be used for each specific line of training will be published in Myanmar language alongside its English equivalent for perusal in collaboration with ADB. Such efforts will in a way bring about poverty reduction and consequently produce social peace and stability through better employment and income opportunities, especially for the young from suburban areas as well as village tracts.

Hopefully speaking, these developments will in turn encourage more of bilingually proficient individuals to ultimately emerge now and then in the near future within the workforce of most institutions, in both public and private sectors. Due to the prevailing use of English for International Communication (University of Latvia, 2014) in the wider world of work, the awareness of its importance has caught on more than ever, and especially in Myanmar in areas where newly appointed staff from Myanmar side are required to work hand in hand with foreign counterparts in the various entrepreneurial ventures.

The ability to converse well in English is essential in order to have things running smoothly. For instance, there have been greater initiatives put in to conduct better Customer Service English classes in terms of size and frequency as part of the routine staff training sessions within the hotel and tourism industries every time they have plans to expand their operations. It is this substantial volume in hotel and tourism services that has somehow helped increase language occupational training courses sporadically up to a certain significant level in both the public and private sectors of the economy.

Likelihood of more foreign investments entering Myanmar perhaps in a not-so-distant future is also becoming another factor that has in a way contributed towards this awareness of the important role of English, whether it be in science and technology, research and medicine, education or otherwise. This awareness of the
need for well-qualified bilinguals has indeed spread in the urban and rural areas of both public and private sectors, and equally among the young and old. The likely reason for this awareness among the in-service personnel is the mounting need to express oneself well on important issues whenever occasions arise for appearing in front of an international audience. And the most likely reason for this same awareness occurring among youngsters is due to future prospects that will become available in terms of job opportunities as well as individual self-improvement opportunities both domestically and overseas within an international context.

Whatever reasons they may have for learning and picking up English, be it vocational or otherwise, and regardless of whether their pursuit of learning is successful or not, motivation is high as always, especially among those who have set high goals in life in whatever career they may reside. This is evidently seen not only among lay individuals living within human society but also among monks from the monastic circle. Monks are seen over the years enrolling themselves off and on in the various levels of Postgraduate Diploma in English (PGDE) classes conducted either during the weekends or on weekdays. They were classes in which I myself have personally participated along with other English teachers as part of Human Resource Development program located at MUFL.

Buddhist Monks’ Participation in Knowledge-sharing and Peace-building Initiatives

Aside from MUFL, interest in language communicative skills has also risen elsewhere among monks. Buddhist monks in general may be very learned in their own Buddhist literature both in terms of theory and practice, and therefore may have achieved for themselves a certain level of excellence. In parallel vein, they have become very keen on learning English. They now realize that once they are required to attend (whether inland or overseas) any of those international Buddhist and Inter-faith seminars or conferences that they are sometimes invited to, they do need a certain level of English for their competence in self-expression. Moreover, they do need English for their own academic pursuits for Buddhist Studies abroad. Here, English becomes truly essential to be able to express well in public on both mundane and supra-mundane matters. Their earnest desire has always been that of taking part in knowledge-sharing of insight meditation practices as a means to achieving inner peace and tranquility, thereby contributing gradually but steadily towards peace-building across the globe, the kind of peace that is sustainable in the best possible way without harm coming to anyone, and accomplished mainly through one’s own self-purification practices (Nanarama, 1993).

In short, there is definitely a growing interest in pursuing meditation for immediate benefits, which is inner peace for one, along with English required for knowledge-sharing not just among ordinary lay persons belonging to the outside world (Goenka, 2012) but also among monks of the Buddhist Order (or Sangha) coming from within the various monasteries.

For a sustainable development of any kind to truly take place, it is apparent now that vocational skills and language skills are by themselves not enough. Psycho-physical disciplinary skills involving ethics for one, along with mind concentration and self reflection, are also crucial. Practicing meditation in itself is a psycho-physical discipline which brings forth immediate benefits, as mentioned earlier. These
immediate benefits are not just in terms of health and inner peace but also sharp concentration, which equips him with the required energies or capacities for more increased productivity and to tackle any stress and strain situations in his workplace in a most effective way possible. This will in turn help raise the quality of the workforce within the country as a whole. Again, this will, in its own limited but substantial way, amount to promoting human resource development in terms of self control and self development consequently followed by reduction of crime rates due to lessening of moral decadence.

Aside from these immediate benefits, there is then a parallel growing interest in meditation but this time for long-term benefits through the teaching and training (Pa-Auk, 2013) of monks and lay people towards a certain state of psycho-physical discipline. Here, the long-term benefits that it gives will not be temporary but truly long-lasting and therefore sustainable in the real sense of the term, since the aim here is not just for the immediate benefits, as mentioned earlier, but also for the total end to suffering once and for all, and the end to discontentment in all its forms one can possibly conceive of. This aim towards the end of all discontentment is to be achieved through realization of the Four Noble Truths and the diligent practice of the Middle Way, commonly referred to as the Eightfold Path; thereby, ultimately leading to Final Bliss (Nibbana) or sometimes referred to as Eternal Peace (Pa-Auk, 2005) which is attained mainly through this self-purification practice and self-salvation or complete liberation from the Round of Rebirths (Samsara).

So far, recent developments in newly opened Buddhist universities across the country - University of Global Peace for one, which is in Mandalay -- reveal a keen interest in bridging whatever gap there is between English as a language with which to write their research papers, and Buddhism or the actual line of study that they are currently pursuing, which is mainly in Pali and Myanmar languages. This need to bridge the gap exists since it is now a requirement that MAs, MPhils, and PhDs in Buddhist Studies be submitted only in English. The gap is bridged with the help of volunteer teachers including myself coming over to teach academic writing and presentation skills along with other necessary English skills. It was a 6-month preliminary course before the actual implementation of MA, MPhil and PhD programs, and Batch 1 started in August 2018, followed by Batch 2, which is currently in progress and to end by this coming November of 2019. Alongside these English language skills is the equal emphasis given to both theoretical and practical aspects of the Buddhist psycho-physical discipline as a whole, just like the way it is for certain monks travelling abroad for further studies in other neighboring countries like Sri Lanka, India, and Thailand to name a few.

Alongside these developments, there are also instances elsewhere of novices and young monks choosing to leave their monastic education and not remain within the Buddhist Order, whenever they are being called upon to return to their hometowns and remote villages as a result of financial difficulties and shortage of farmers and workers in the cultivation fields. These are the young children that they themselves as parents have once willingly allowed for them to enter novicehood and monkhood. Inability to effectively prevent such instances from taking place is drastically decreasing the number of novices and ordained monks coming from these remote regions. The only way to reverse this trend is to alleviate poverty through financial support from perhaps subsidies as well as availability of more employment
opportunities with attractive salaries for the locals and the remaining family members so that hopefully they will not call back their children they themselves have once willingly had them ordained into novicewith exams and monkhood. Hence, sustainability of education, peace and stability to a large extent depend on poverty reduction and job opportunities coupled with adequate language skills, factors not to be taken lightheartedly, regardless of which section of society is involved – urban or rural, monastic or non-monastic.

Discussion

Myanmar, as a country among several other Southeast Asian countries, is unique in its own way, having its own background in history, coupled with a strong influence of Buddhist culture and traditions, language and literature. Even so, it still needs English to comply with the linguistic requirements of the much wider contemporary world, especially when collaborating at the international level. It is at the same time a fertile ground for much future research on EFL within a non-native context. Myanmar has indeed come to appreciate the value of having another language aside from its very own as a tool with which to communicate and have things accomplished with mutual benefit in sight. At the same time, Myanmar by itself being the existing lingua franca, the official language teaching policy of English has always been that of English as a Foreign Language, or EFL in short, ever since 1964 (Ireland & Benthuysen, 2014). Nonetheless, learning and mastering of English has long been taken as a challenge as well as an opportunity worth taking by many an individual for widening horizons and gaining additional experience. It is indeed still the most widely used over the internet as well as in the other key areas of the world such as in the diplomatic circle for one, by people of all divergent backgrounds.

And yet challenges do exist, English not being one’s own mother tongue in the very first place. For instance, unless one has journalism as his main profession, or any other type of occupation where constant submission of reports and other writing forms are required, he will have difficulty performing in this regard. This is perfectly understandable, since Myanmar language is the official language used in law court and all other offices of the government machinery. As mentioned earlier, Myanmar is the lingua franca.

Nonetheless, the importance of English as an international language of communication is continually felt strongly across the country as it integrates with ASEAN and with the rest of the world economically and in other areas of collaboration (Ministry of Education, 2003). Foreign counterparts, for instance, once they arrive in Myanmar for discussions on upgrading of syllabi and equipment concerning vocational training institutes, have to meet with Myanmar counterparts. It is here that problems related to language barriers could very well appear to both sides. The need to search for skillful translators suddenly arises. It does not matter whether the individual is a Japanese citizen or a Myanmar citizen. The only thing that matters is that from out of the two languages that the individual is proficient in, English has to be the one from both sides.

This very case in point goes to testify the fact that the country’s formal education system of learning alone will not do, especially in connection with having certain adequate English skills for functionality within an international workplace. Even if it is supplemented with non-formal education type of learning directly from the private sector, it will still be not quite enough. Unless it is further added on by
each individual’s own strong desire to learn and pick up English, in a self-initiated or self-motivated manner in his own private time, such difficulties in the workplace will continue to exist. To prevent all this from happening, and to transition from ‘quantity’ to ‘quality’ with regard to education and all other relevant aspects of it, each and every individual must take part in one way or another for his all-round development or self-improvement by training through a constantly self-reliant learning technique (Cederberg & Lindqvist, 2005).

Conclusion
To become truly productive citizens, aside from formal learning obtained directly from state-owned universities, individuals will also need non-formal learning which is derived mostly from private institutes bestowing certain diplomas and certificates in English and various other subjects. Again, aside from formal and non-formal learning, informal learning should still thrive within each individual’s life; it is the type of education which is run in accordance with his own individual pace and within his own spare time (Eaton, 2017). The only requirement is total commitment through regularity in one’s own training practices, like in the case of boxer training for an upcoming match. This type of self-initiated language training, based heavily on self-reliance, and already referred to earlier as ‘self-reliant learning’ (Cederberg & Lindqvist, 2005), will be a much better way to possibly bridge any gap that may exist between Myanmar counterparts and foreign expertise, and help contribute towards a quantum leap from quantity to quality in language proficiency and other vocational as well as educational endeavors.

In short, both formal and non-formal learning styles have been given much priority all along from the very start over the years. ‘Informal learning’, however, along with the importance of self-motivation, has never been given much attention, and hence it is not getting the attention that it truly deserves. The reason for such a predicament is that even if society succeeds in creating a suitable environment in this Digital Age for informal learning to thrive, should each person at the individual level somehow fail to participate due to lack of effort from his part or otherwise, the expected positive outcome will certainly not follow. If such drawbacks accumulate, we should seriously ask ourselves this question, “What needs to be done next?” In reality, all three types of learning mentioned above deserve equal attention and consideration, if not more.

Recommendations
To minimize any drawbacks from accumulating, while keeping in mind at best the ideas of quality education and sustainable development, the following three requirements should definitely be given due consideration, at least for the time being:

(i) There are those adults or elderly people between the ages of 60 and 70 endowed with qualifications good enough in their own respective line of profession to be of some value and service to society. The only weakness they may have is their inadequacy in terms of language proficiency. All such individuals should definitely focus their energies to make up for this insufficiency through informal learning in one’s own home. If willing and still in good health, they can very well continue to be part and parcel of the functional workforce mobilized for further Capacity Building within their own country, and become useful in their own way for many more years to come.
There are then those short yet compact courses for the upcoming young courses that can be conducted by English Departments at the tertiary level under the various titles of English for Medicine, English for Engineering, English for Hotel and Tourism, English for Politics, English for Negotiation & Presentation, English for Business Administration, and Soft Skills for Adolescents and Young Adults (Soares, Babb, Diener, Gates, & Ignatowski, 2017), most of which come close under ESP (English for Special Purposes), to help cater to the local needs of the time, as part of non-formal learning.

Finally, as part of formal learning, foreign scholarships in MA, PhD and other suitable certificates in ESP will help in the long run for all those belonging to the teaching profession with intentions to conduct future on-campus vocational training and capacity building programs in its own limited yet significant way. All of these initiatives, if taken, will assist in further sharpening the much needed effective communication skills of both young and old belonging to the country’s workforce.

References


Improving Emotional Wellbeing of University Students to Positively Impact Learning: Myanmar Context

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Abstract

Emotional wellbeing is a relatively new and growing area of behavioural research, which stimulated the imagination of the general public, the commercial world and the scientific community. Only a few studies have been done on the relationship between emotional wellbeing and academic performance. Stressors and challenges faced by Myanmar university students were investigated with the aims being to identify issues that may impact on emotional wellbeing of students, and also to assess whether issues impacting on emotional wellbeing affect academic performance. A sample of 106 students at selected universities voluntarily completed a self-report purpose made questionnaire. Results indicate that mental health problems and negative experiences for students were strong predictors of academic difficulties. Moreover, positive social interactions predict less academic difficulties. These findings are discussed in relation to the following research questions.

(i) What issues and problems do university students of Myanmar face?
(ii) And what strategies can we use to identify the students with problems?
(iii) What role should lecturers take after identifying these students? That is, how can we help?

Keywords: emotional wellbeing, university students, learning

Introduction

In Myanmar, engaging students at university level is viewed by these facilitators as a complex multidirectional task, necessary to enhance the overall wellbeing of students and to reduce university attrition rates. We are interested in methods of engaging the 'whole person', the cognitive, motivational and especially the affective aspects, that often create complex dilemmas for students facing their university experience. Our interest has arisen from the realization that a large number of students appear prepared to disclose to us the wide range of personal problems and difficulties that they face while attempting to settle into university life. According to Gumora & Arsenio (2002), many of these issues are extremely serious in nature, such as mental health problems, sexual assault and drug and alcohol crises. As grass root lecturers of these often fragile students, we feel strongly that we have a responsibility that goes beyond cognitive engagement. It must also include assistance with emotional stability, as early discouragement due to negative experiences can end an otherwise promising career. We will initiate open discussion on the concept of engaging a student as a 'whole person'.

After a brief introduction and overview, we will open the following topics for discussion:

i) What issues and problems do university students of Myanmar face?
ii) What strategies can we use to identify the students with problems?
iii) What role should lecturers take after identifying these students? That is, how can we help?

Learners have historically faced a wide range of stress and challenges whilst embracing new direction in their lives. The complexity of these stresses, however, appears to be expanding as we enter a new millennium. A number of studies suggest that higher rates of psychological morbidity are being recorded among the learners throughout the world.

Method

The participants were 106 university students attending a university in Myanmar in 2018, who were enrolled in Psychology, Law, Political Science and Business Administration Courses of selected universities in Myanmar. They voluntarily completed and returned the provided self-report questionnaire. Some participants received points towards research participation in their course. A questionnaire was adapted for this study based on previous research regarding students’ experiences in regard to health and wellbeing and student academic lifestyle. The first part of the questionnaire focused on demographic information while the second part was designed to gain information about participant’s actual experiences. Descriptive data were compiled from a collection of information gathered, discussion with university counselors and academic’s personal experiences, regarding areas of academic achievement, social interaction and health issues. Participants were required to give their response regarding the relevance of the experiences described in the statements. Questionnaires were distributed on campus by the researchers after personal approaches to groups of students. An information sheet describing the purpose of the research as well as information regarding the anonymous nature of the project was included.

Attending university can be a wonderful and exciting time for students as they acquire new knowledge, meet new people, learn about themselves and others, and form lasting friendships. The way in which universities manage this transition period can have a significant and long-lasting impact on students' mental health and well-being. Dealing with study skill difficulties can present a challenge for higher education students, who suffer from them, but also for higher education institutions and their support services.

Table 1
Responses of the participants on four study areas

<table>
<thead>
<tr>
<th>No.</th>
<th>Study Areas</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Positive</td>
</tr>
<tr>
<td>1.</td>
<td>Social Interaction</td>
<td>63%</td>
</tr>
<tr>
<td>2.</td>
<td>Mental Health</td>
<td>52%</td>
</tr>
<tr>
<td>3.</td>
<td>Experiences</td>
<td>70%</td>
</tr>
<tr>
<td>4.</td>
<td>Academic Difficulties</td>
<td>57%</td>
</tr>
<tr>
<td></td>
<td>Avg.</td>
<td>60.5%</td>
</tr>
</tbody>
</table>

The above table shows the average percentage of four study areas—social interaction, mental health, experiences and academic difficulties. The positive and negative impacts on the four study areas are also shown. It is found that students have more positive impact on the four study areas than negative impact.
Table 2
Responses of the participants on Social Interaction

<table>
<thead>
<tr>
<th>Gender</th>
<th>Negative Hectic Social Life</th>
<th>Positive Living Arrangements</th>
<th>Social Skill</th>
<th>Relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>33%</td>
<td>28%</td>
<td>21%</td>
<td>18%</td>
</tr>
<tr>
<td>Female</td>
<td>41%</td>
<td>25%</td>
<td>20%</td>
<td>14%</td>
</tr>
<tr>
<td>Average</td>
<td>37%</td>
<td>27%</td>
<td>20%</td>
<td>16%</td>
</tr>
</tbody>
</table>

According to the above table, 63% of the students have positive social interaction, but 37% of students suffer from hectic social life. It’s well known that being socially connected promotes a person’s overall and psychological health.

Table 3
Responses of the participants on Mental Health Problems

<table>
<thead>
<tr>
<th>Gender</th>
<th>Eating Disorders</th>
<th>Self-harming Behaviour</th>
<th>Mental Health Issues</th>
<th>Isolation</th>
<th>Loneliness</th>
<th>Family Problem</th>
<th>Overwhelmed by Responsibilities</th>
<th>Preoccupied with Body Weight and Image</th>
<th>I approached my lecturer/s about my difficulties.</th>
<th>I sought help with my personal problems from the counselor.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>11%</td>
<td>6%</td>
<td>7%</td>
<td>11%</td>
<td>6%</td>
<td>0%</td>
<td>11%</td>
<td>28%</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>6%</td>
<td>1%</td>
<td>5%</td>
<td>5%</td>
<td>6%</td>
<td>3%</td>
<td>6%</td>
<td>37%</td>
<td>26%</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>9%</td>
<td>4%</td>
<td>6%</td>
<td>9%</td>
<td>5%</td>
<td>1%</td>
<td>9%</td>
<td>32%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>48%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The above table shows that 52% of the students approached their lecturer/s for their difficulties and sought help with their personal problems from the counselor. But 48% of the students suffer from loneliness, isolation and other mental health problems. The data suggest that the mental health of a few university students has deteriorated with levels of distress, anxiety and depression on the rise. If not managed well, be a significant risk factor for students’ mental health. Data suggest that mental ill-health amongst students is not high. Only 22% of students involved in the study suffered mental illness. This study demonstrate how the particular challenges that a few student face can exacerbate mental ill-health and / or lead to low mood, anxiety and depression.
Table 4
Responses of the participants on Experiences / Problems

<table>
<thead>
<tr>
<th>Gender</th>
<th>Drug and Alcohol use</th>
<th>Abuse</th>
<th>Sexual Assault</th>
<th>Poor eating pattern</th>
<th>Strong focus on my study</th>
<th>Self-conscious about my experience</th>
<th>My Lecture rs cares about me</th>
<th>Confide in my parents about difficulties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>0%</td>
<td>11%</td>
<td>4%</td>
<td>21%</td>
<td>16%</td>
<td>21%</td>
<td>16%</td>
<td>11%</td>
</tr>
<tr>
<td>Female</td>
<td>0%</td>
<td>5%</td>
<td>0%</td>
<td>19%</td>
<td>19%</td>
<td>19%</td>
<td>19%</td>
<td>19%</td>
</tr>
<tr>
<td>Total</td>
<td>0%</td>
<td>8%</td>
<td>2%</td>
<td>20%</td>
<td>17.5%</td>
<td>20%</td>
<td>17.5%</td>
<td>15%</td>
</tr>
<tr>
<td>Total</td>
<td>30%</td>
<td>70%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to the above table, 70% of the students have positive experiences in their university days. But 30% of the students encountered negative experiences such as abuse and sexual assault.

Table 5
Responses of the participants on Academic Difficulties According to the above table, it is found that 43% of the students have some difficulties in academic skills. They thinks they are lack of academic skills because the course they learnt doing assignments are difficult than they expected. But 53% of the participants think that it is right to come to university. They could study well in the dormitory and maintain strong focus on their studies.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Negative Expectations</th>
<th>Lack of Skills</th>
<th>Level of Difficulty</th>
<th>Positive</th>
<th>I studied successfully in the dorm / residence.</th>
<th>I maintained strong focus on my study.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>0%</td>
<td>15%</td>
<td>10%</td>
<td>30%</td>
<td>15%</td>
<td>30%</td>
</tr>
<tr>
<td>Female</td>
<td>24%</td>
<td>19%</td>
<td>18%</td>
<td>13%</td>
<td>10%</td>
<td>16%</td>
</tr>
<tr>
<td>Total</td>
<td>12%</td>
<td>17%</td>
<td>14%</td>
<td>21%</td>
<td>13%</td>
<td>23%</td>
</tr>
<tr>
<td>Total</td>
<td>43%</td>
<td>57%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results
The current study examined the relationship between students' emotional well-being and their learning achievement during university study, and whether such
relationship would be mediated or moderated by university engagement. The participants completed a survey questionnaire consisting of emotional well-being, university engagement, and learning achievement measures. Results showed that emotional well-being positively predicted students' personal growth and academic achievement.

![Figure 1: Responses of the participants on four study areas](image1)

According to the above figure, positive impact on the four study areas is higher in percentage than negative impact. If we consider the responses for negative impact, the transition from adolescence into young adulthood as university student involves major changes in several areas – not only learning but also financial, housing, social, and emotional – and this transition period can cause relational challenges that some young students experience as stressful. This trend may suggest that students experience this period increasingly demanding, and for some of them it may be a direct cause of mental illness.

![Figure 2: Responses of the participants on Social Interaction](image2)

The above figure shows that female participants have higher positive social skills than male participants. But for hectic social life male participants are lower than female participants. The university students learn different linguistic and cultural competencies as children, making it more difficult to develop social networks within the dominant culture. According to higher education outcomes research, student-student interaction and faculty-student interaction are central influences in students' learning outcomes (Astin, 2004).
Figure 3: Responses of the participants on mental health problems

According to the above figure, it is shown that male participants have more mental health problem than female participants. But male participants do not feel that they are overwhelmed by responsibilities. Female participants approached their lecturers about their difficulties and sought help with their personal problems from the counselor more than male participants did.

Figure 4: Responses of the participants on negative experiences / problems

The above figure shows that female participants encountered negative experiences more than male participants. Both male and female participants encountered abuse higher than drug and alcohol use and sexual assault. Myanmar Students also suffered from poor eating pattern. But they could focus on their study and felt that their lecturers cared about them.
Figure 5: Responses of the participants on Academic Difficulties

According to the above figure, the level of difficulties in academic skills by female participants is higher than male participants. According to the Female participants, it was very difficult for them to study in the dormitory and to maintain strong focus on their studies. They expected more in academic achievements whereas male participants did not expect a lot in their achievement. Both of the participants had difficulties in the course and doing assignments. Therefore it is thought that they are lack of academic skills.

Discussion

The aim of this research is to explore issues relevant to mental health and emotional wellbeing among a sample of university students in Myanmar, with the focus being possible identification of negative issues that may impact on one’s ability to succeed in the academic environment. A large proportion of participants identified as having a positive social interaction (63%). Some also identified a negative relationship with their academics or lecturers (37%). These issues are important for students in assisting the development of stability and success, as identified by Adams et al (2006) who argued that these strong relationships assist in laying the foundation for emotional wellbeing of students. However, this research also identified several areas of concern. Fifty two percent of respondents reported being positive with mental health problems, while 48% cited “poor eating patterns, loneliness and weight gain or loss”. Some of the sample believed that they were “coping with their responsibilities”. They also report that 0% was experiencing drugs on campus and average 2% reported having a “negative sexual experience”. All these findings paint a picture of year university students struggling to cope. As reported in the data, some university students appear to find it difficult to seek support for personal and emotional problems. This is evident in this study with 20% of participants seeking assistance from the university counselor, despite 32% of participants identifying themselves and 48% “suffering from negative problems”. One of the interesting findings of this research revolves around the gender differences identified among the relationships. This suggests areas of concern that could be further investigated by institutions, when developing student support programs. This is also evident in predicting “Academic Difficulties”. While the data show the best predictors for academic difficulties were
mental health problems and the negative experiences, the academic difficulties are best predicted by the positive social interaction. These findings imply that support programmes for students aiming to address their academic difficulties, might require different strategies for the students. For some students, facilitating more positive interactions may assist with their more positive academic coping, whereas for other students addressing mental health issues and negative experiences associated with their campus may facilitate more successful academic outcomes. In the data, the negative experiences tend to have a strong relationship with academic difficulties.

According to Table (5), male students show no expectations for academic achievements whereas female students show 24%. Female students think they are lack of academic skills more than male students. As female students think they are lack of academic skills, their level of difficulty in academic skills become higher. As academics, we have a strong belief in duty of care for our students, as do universities and other educational institutions. According to Eisenberg, Golberstein & Hunt (2009), we have facilitated discussion by encouraging thought and ideas on: Academic issues (expectations, lack of skills, level of difficulty); health issues (drug / alcohol use & abuse, sexual assault, eating disorders, self-harming behaviour, other mental health issues (depression, anxiety, disappointed, stressed, etc), and preoccupied with body weight and image, overwhelmed by responsibilities; and social issues (isolation, loneliness, living arrangements, lack social skills, violence. Some suggested strategies as the basis for enhancing discussion are:

* Careful observation of patterns of attendance, meeting deadlines, maintaining grades
* Identify withdrawn or unusually quiet behaviour
* Identify students who have difficulty in communicating with lecturers
* Direct and indirect information from other students
* Engaging empathetic communication skills

Thus, we would also like to suggest that values attitudes and expectations of parents and families remain influential to students, even when a family member is not physically present. In addition, supportive, constructive and positive interactions with university staff and other students have been identified as laying the foundation for psychosocial maturity, moral development and emotional well-being. The purpose of the current study is to identify the issues and problems relevant to university students and whether specific items can be isolated that impact on academic performance. Thus, it is expected that there will be a wide range of difficulties identified by the participants that will include mental health issues and emotional problems, and that these issues will have a negative impact on academic achievement.
References


Role of English as Global Language in Northeast India

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Abstract

English as a global language acts as ‘lingua-franca’, a common language that enables people from diverse backgrounds and ethnicity to communicate. The diversity of languages and culture in the North eastern states of India finds its common ground in English through which ideas and values are merged and compromised. The North eastern states experience isolation from the mainland India due to its geographical location, culture and socio-political status are redeemed with English as an official or associate language of these states. Thus, English acts as a unifier and provides solace and harmony in the region. It also creates a sense of oneness and brotherhood within the region of North east India. The popularity of the language also owes its magnificence to the era of colonialism which acted as a catalyst for further propagation. There is also an ongoing process of appropriation and assimilation of the language by various non-native speakers and thus lending different dimensions to the language. Moreover, the flexibility of the language that enables its localization makes it more acceptable to the masses. The paper explores the sustainability of English as a unifying force among the diverse ethnic communities of the north-eastern region.

Keywords: associate official language, localization, non-native speakers, socio-political status etc.
From Semiology to Semiotics: An Intellectual Movement to Understand the World of Signs and Sign Systems

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Abstract

Semiology or semiotics is the study and interpretation of signs and sign systems. It can be applied to all sorts of human endeavors: cinema, theatre, dance, architecture, painting, politics, medicine, history, and religion. In other words, we use a variety of gestures (signs) in everyday life to convey messages to people around us, e.g., rubbing our thumb and forefinger together to signify money. We can think of messages (or texts) as systems of signs, e.g., lexical, graphic, and so on, which gain their effects via the constant clashes between these systems. The menu we consult in a restaurant has been drawn up with reference to a structure, but this structure can be filled differently, according to time and place, e.g., breakfast or dinner (Barthes, 1964, p. 28). This paper aims primarily to critically trace the development of an intellectual movement under the umbrella of semiology and semiotics in order to explore and understand the world of signs and sign systems that govern them in a better and modern perspective.

Keywords: semiology, semiotics, an intellectual movement, the world of signs, sign systems

Introduction

Semiology and semiotics are two related disciplines, which study semiosis, the relation of signification involving sign, object and mind, and classification of signs. Morris has classified three dimensions of semiosis: 1) the syntactic dimensions i.e. relations between signs, 2) semantic dimension i.e., relations between signs and objects, and 3) pragmatic dimension, i.e. relations between the sign and interpreter. In what follows, this paper tries to introduce the basic ideas of semiology and semiotics.

Semiology

Semiology has its basis in Kantian dichotomy of phenomenal (mental) and noumenal (material) worlds, which corresponds the classic European dichotomy of subjective and objective. De Saussure (1857-1913) founded the idea of semiology as the science of signs. Sign is a conceptual object, which consists of signifier (the name of sign) and signified (the referred idea in the mind, concept or meaning). In addition there are perceptual objects or referents (the real objects), but the signs do not refer to them, but only the concepts in our mind. The goal of semiology is to determine the relations between the signifier and signified in the given language context. De Saussure argues that the names (signifiers) and their relations to signified ideas are pure arbitrary, and there doesn't exist any fixed universal ideas, but they are also arbitrary and depend on language.

Semiotics
Peirce (1894) rejected the dualistic ontology behind the semiology and constructed a triadic view of world, which is represented in semiotics. He studied the triadic relation between the sign, the object and the mind. He argued that we cannot fully reach the material reality by our experiences. The signs construct the relation between the mind and experience, and they signify completely when they cause a habit change in the interpreter. The most effective change in habit can also produce new signs or new uses of signs. So the signs have meaning only in relation to mind and habits.

**Structuralism**

Structuralism, an intellectual movement which flourished during the 1950s and the 1960s, and semiology, which has been one of the chief modes of this intellectual movement. The major figures in this movement include Ferdinand de Saussure, Roland Barthes, Roman Jakobson, Claude Levi-Strauss, Thomas Sebeok, Julia Kristeva, and Umberto Eco. All believed semiology is the key to unlocking meaning of all things.

To begin with, we should think of structuralism as a mode of thought, a way of conceptualizing phenomena. Whereas in the past, determinists like Aristotle saw things in terms of cause and effect, structuralists look for structures:

- From the 15th century, the word "structure" was used as a noun: the process of building (Williams, 1976).
- During the 17th century, the term developed in two main directions: towards the product of building, as in "a wooden structure," and towards the manner of construction generally. Modern developments flow from (b). The sense of the latter is: the mutual relation of the constituent parts of a whole which define its nature, as in "internal structure."
- The term entered the vocabulary of biology in the 18th century, as in the structure of the hand.
- The term entered the vocabulary of language, literature, and philosophy in the 19th century, to convey the idea of internal structure as constitutive, as in matters of building and engineering. Scholars would talk (1863) about the structural differences that separate man from gorilla say.

It is essential for us to know this history if we are to understand the development of structural and structuralist thinking in the 20th century, as in linguistics and anthropology.

In other words, structuralism challenges common sense, which believes that things have one meaning and this meaning is pretty obvious. Common sense tells us that the world is pretty much as we perceive it. Also, structuralism tells us that meaning is constructed, as a product of shared systems of signification.

**Semiology: Two pioneers**

Semiology can be defined as the study of signs: how they work and how we use them. We note again that almost anything can signify something for someone. Saussure developed the principles of semiology as they applied to language; Barthes extended these ideas to messages (word-and-image relations) of all sorts.
Ferdinand de Saussure, 1857-1913

Saussure was born in Geneva, Switzerland, to a family celebrated for its accomplishments in the natural sciences. Not surprisingly, he discovered linguistic studies early in life.

In 1875, he entered the University of Geneva as a student of physics and chemistry, taking course in Greek and Latin grammar as well. This experience convinced him that his career lay in the study of language. In 1876, he entered the University of Leipzig to study Indo-European languages. Here, he published (1878) a monograph on the *Primitive System of Vowels in Indo-European Languages*. He was awarded the Ph.D. for his thesis on the genitive case in Sanskrit. After completing his thesis, he moved to Paris, where he taught Sanskrit, as well as Old High German. For 10 years, he focused on specific languages—as opposed to general linguistics. In 1891, he returned to Geneva, to teach taught Sanskrit and historical linguistics at the university. The university provided the catalyst for shaping semiology—he was asked to teach (1906-11) a course of lectures in general linguistics. He died in February of 1913.

Saussure’s key ideas:

- Language is a self-contained system, one which is made up of elements which perform a variety of functions, based on the relations the various elements have one with another. We can think of syntax and grammar as organizing principles of language. We have no trouble recognizing the grammatical sense of the following construction: **Colorless green ideas sleep furiously**.
- We can think of language as a system of signs, which we can study synchronically (as a complete system at any given point) or diachronically (in its historical development).
- A signifier (Sr), the sound-image or its graphical equivalent, and its signified (Sd), the concept or the meaning, make up the sign. For example, we can say that, to an English speaking person, the three black marks c-a-t serve as the signifier which evokes the "cat."
- The relation between Sr and Sd is arbitrary. Different languages use different words for the same thing. No physical connection links a given signifier and a signified.
- No linguistic unit (sound or word) has significance in and of itself. Each unit acquires meaning in conjunction with other units. We can distinguish) formal language (Saussure calls it langue) from the actual use of language (which he calls parole).
- Every expression we use is based on collective behavior or convention. We can say that a sign is motivated when we perceive a connection between Sr and Sd, e.g. in instances of onomatopoeia like "bow-wow" and "tick-tock".

Roland Barthes, 1915-80

Born in Cherbourg, a port-city northwest of Paris, he studied (1935-39) French and the classics at the University of Paris, and taught at universities in Rumania (1948-49) and Egypt (1949-50) before he joined (in 1952) the Centre National de la Recherche Scientifique, where he devoted his time to sociology and lexicology. Barthes' academic career fell into three phases. During the first phase, he concentrated on demystifying the stereotypes of bourgeois culture For example, in *Writing degree*
Zero (1953), Barthes examined the link between writing and biography: he studied the historical conditions of literary language and the difficulty of a modern practice of writing. During the second phase, the semiotics phase dating from 1956, he took over Saussure's concept of the sign, together with the concept of language as a sign system, producing work which can be regarded as an appendix to Mythologies. During this period, Barthes produced such works as Elements of Semiology (1964), and The Fashion System (1967), adapting Saussure's model to the study of cultural phenomena other than language. The third phase began with the publication of S/Z (1970), marking a shift from Saussurean semiology to a theory of "the text," which he defined as a field of the signifier and of the symbolic. S/Z is a reading of Balzac's novel Sarrasine, plotting the migration of five "codes," understood as open groupings of signifieds and as points of crossing with other texts.

In 1976, he became professor of "literary semiology" at the College de France. In his last book, Camera Lucinda (1980), he reflects on the levels of meaning of the photograph. Barthes died on 26 March 1980, having been knocked over by a laundry van (reports suggest that the driver was drunk).

**Barthes’s Key Contributions to Semiology:**

Three orders of signification

In the study of signs, we can speak of different levels of meaning or orders of signification.

**First order:** In the first order of signification, the sign is self-contained: the photograph means the individual car. This is the denotative order of signification.

**Second order:** In the second order, this simple motivated meaning meets a whole range of cultural meanings that derive not from the sign itself but from the way society uses and values the Sr and the Sd. According to Barthes (1964), signs in the second order of signification operate in two distinct ways: as mythmakers and as connotative agents.

**Third order:** The range of cultural meanings that are generated in this second order cohere in the third order of signification into a cultural picture of the world. It is in this order (the third) that a car forms part of the imagery of an industrial, materialist, and rootless society. In the third order of signification, ideology reflects the broad principles by which a culture organizes and interprets the reality with which it has to cope.

**Semiological analysis**

Barthes (1964) points out that semiological analysis involves two operations: dissection and articulation.

The first operation (dissection) includes looking for fragments (elements) which when associated one with another suggest a certain meaning. The analyst looks for paradigms, i.e., classes or groups from which elements have been chosen (and endowed with specific meaning). The units or elements in this group or class share a number of characteristics.

The second operation (articulation) involves determining the rules of combination. This is the activity of articulation. In summary: The analyst takes the object, decomposes it and then re-composes it. The analyst makes something appear which was invisible or unintelligible.
Like structuralism, semiology decenters the individual, who is no longer the source of meaning. Semiology (Barthes, 1964) refuses the obvious meaning of a work: it does not take the message at face value.

A guide to a semiological analysis

Based on Barthes' (1977) seminal essay, "The Rhetoric of the Image.", this guide identifies the key activities analysts undertake when they conduct a semiological critique of a text, such as an advertisement, a TV program, a movie, a painting, etc.

1. Offer your reader a brief overview of the message
2. Identify the key signifiers and signifieds.
3. Identify the paradigms that have been exploited.
4. Identify the syntagms that come across.
   (a) the linguistic message
   (b) the non-coded iconographic (literal) message
   (c) the coded iconographic (symbolic) message
5. Finally, identify the principle at work in the message or text. Remember, the goal of analysis is to determine the rhetoric or the grammar tying together all the elements.

Semiotic Pioneer: Charles Sanders Peirce, 1839 – 1914

Charles Sanders Pierce is an American scientist, logician, and philosopher noted for his work on the logic of relations and on pragmatism as a method of research.

He began writing on semiotics, which he also called semeiotics, meaning the philosophical study of signs, in the 1860s, around the time that he devised his system of three categories. During the 20th century, the term "semiotics" was adopted to cover all tendencies of sign researches, including Ferdinand de Saussure's semiology, which began in linguistics as a completely separate tradition.

He adopted the term semiosis (or semeiosis) and defined it to mean an "action, or influence, which is, or involves, a cooperation of three subjects, such as a sign, its object, and its interpretant, this trirelative influence not being in any way resolvable into actions between pairs". This specific type of triadic relation is fundamental to Peirce's understanding of "logic as formal semiotic". By "logic" he meant philosophical logic. He eventually divided (philosophical) logic, or formal semiotics, into (1) speculative grammar, or stechiology on the elements of semiosis (sign, object, interpretant), how signs can signify and, in relation to that, what kinds of signs, objects, and interpretants there are, how signs combine, and how some signs embody or incorporate others; (2) logical critic, or logic proper, on the modes of inference; and (3) speculative rhetoric, or methodudetic, the philosophical theory of inquiry, including his form of pragmatism. His speculative grammar, or stechiology, is this article's subject.

Pierce conceives of things like representations, interpretations, and assertions in terms of philosophical logic, rather than in terms of psychology, linguistics, or social studies. His semiotic theory does not resort to special experiences or special experiments in order to settle its questions, he draws continually on examples from
common experience, and his semiotics is not contained in a mathematical or deductive system and does not proceed chiefly by drawing necessary conclusions about purely hypothetical objects or cases. Peirce's semiotics, in its classifications, its critical analysis of kinds of inference, and its theory of inquiry, is philosophical logic studied in terms of signs and their triadic relations as positive phenomena in general. As philosophical logic, it is about the drawing of conclusions deductive, inductive, or hypothetically explanatory.

Conclusion
This paper has critically traced the development of an intellectual movement under the umbrella of semiology and semiotics in order to explore and understand the world of signs and sign systems that govern them. In short, semiology and semiotics are two related disciplines, which study semiosis, the relation of signification involving sign, object and mind, and classification of signs: 1) the syntactic dimensions or relations between signs, 2) semantic dimension or relations between signs and objects, and 3) pragmatic dimension or relations between the sign and interpreter.

References
Reducing Inequality through Promotion of Pre-Vocational Education to the Rural Poor Ethnic Children in Upper Northern Thailand: The Path to Sustainable Development Goals

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Abstract

This paper has made an attempt to synthesize the empirical data derived from the previous research projects “Managing Education for Ethnic Children on Opportunity and Equality of Basic Education Achievement towards Vocational Education Development for Labour Preparedness of the Country and ASEAN Economic Community Phase I and Phase II, 2014-2018, as a continuation for furthering the study in order to be able to formulate the policy implication and implementation in reducing inequality through promotion of Pre-Vocational Education to the rural poor ethnic children in upper northern Thailand and elsewhere in the region. The author has adopted the recognized three theoretical concepts to be used for the synthesis approach which consisting; a theory of “emancipation”, a theory of “the human rights rationale”, and a theory of development with identity. It has been anticipated that, at the least, the newly adopted strategic findings from the proposed synthesis assessment indicators; (1) The Rights to Education and Training, (2) Enhancing Opportunity to Economic Development, and (3) Strengthening Mutual Accountability among Organizations Involved in Implementation of Pre-Vocational Education, these indicators could be as the measure of the forthcoming policy implication and implementation of this paper. The proposed policy for reducing inequality of rural poor ethnic children will lead to an achievement of Sustainable Development Goal 4 (SDG) - Ensure Inclusive and Equitable Quality. Obtaining a quality education is the foundation to creating sustainable development. In addition to improving quality of life, access to inclusive education can help equip locals with the tools required to develop innovative solutions to the world’s greatest problems. The sustainable development goals clearly recognize that this gap must be closed.

Keywords: ethnic children, pre-vocational education, reducing inequality, rural schools in upper Northern Thailand

Introduction

Despite progress, the world failed to meet the Millennium DevelopmentGoals (MDG) of achieving universal primary education by 2015. In 2013, the latest year for which data are available, 59 million children of primary school age were out of school. Estimates show that, among those 59 million children, 1 in 5 of those children had dropped out and recent trends suggest that 2 in 5 of out-of-school children will never set foot in a classroom. According to United Nations Sustainable Development-Progress of Goal 4 in 2019 Quality Education, (Report of the Secretary- General, Special edition: progress towards the Sustainable Development Goals) has reported that despite the considerable progress on education access and participation over the
past years, 262 million children and youth aged 6 to 17 were still out of school in 2017, and more than half of children and adolescents are not meeting minimum proficiency standards in reading and mathematics. Rapid technological changes present opportunities and challenges, but the learning environment, the capacities of teachers and the quality of education have not kept pace. In 2016, at the global level, the participation rate in early childhood and primary education was 70 percent, up from 63 percent in 2010. The aforementioned report has revealed in 2015, children and adolescents of primary and lower secondary school age worldwide – more than 50 percent were not achieving minimum proficiency levels in reading and mathematics. Of these, about two thirds were attending school but were not learning in the classroom, or dropped out school and in 2014, about 2 in 3 children worldwide participated in pre-primary or primary education in the year prior to official entry age for primary school. However, in the least developed countries, the ratio was only 4 in 10.

According to a recent assessment as mentioned, from 2014 to 2019 UN MDG report found major progress has been made towards increasing access to education at all levels and increasing enrollment rates in schools. Basic literacy skills have improved tremendously. Most importantly, the end of lower secondary education often coincides with the end of compulsory education. By this stage, young people should be able to master subject-related knowledge and skills and possess personal and social skills. Equality issues constitute a major challenge in education, yet bolder efforts are needed to make even greater strides for achieving universal education goals. Obtaining a quality education is the foundation to creating sustainable development. In addition to improving quality of life, access to inclusive education can help equip locals with the tools required to develop innovative solutions to the world’s greatest problems. The sustainable development goals clearly recognize that this gap must be closed.

This paper shows educational models for the ethnic children in the remote areas of upper northern Thailand which during the socialization process of early childhood stage found prevailing communicate the mother language ethnic dialects. When the ethnic children had entered into compulsory school system the dominant language as a medium of instruction was introduced. This has been indicated that basic education can and do have extremely negative consequences to prevent access to education and achievement. Finally, the ethnic children turn to the dropped out and become low paid workers outside the communities or outer countries as demanded by the labour markets. In this paper contains many empirical data compiled from various research projects of the author in particular “Managing Education for Ethnic Children on Opportunity and Equality of Basic Education Achievement towards Vocational Education Development for Labour Preparedness of the Country and ASEAN Economic Community Phase I and Phase II, 2014 -2018, which dealing with ethnic identity as well as the pre-vocational education was implemented. The research projects conducted in the upper northern Thailand were in line with the relevant period to the United Nations Sustainable Development report of the Secondary General “Progress towards the Sustainable Development Goals 4 Quality Education - Ensure inclusive and equitable quality 2014 – 2019”.

The aforementioned research projects were located in the remote areas of three upper Northern provinces in Thailand comprising: Chiangrai, Chiangmai and Phayao.
The ethnic students were selected from the ethnic groups comprising Hmong, Iu Mien and Lahu studying in 3 primary schools, 3 secondary schools of the selected provinces. The projects had emphasized on pre-vocational education under collaboration between vocational institutes, primary and secondary schools, local communities and the local factories or firms to assist in the development and define the measure on quality education and building opportunity for labour preparedness and employment. The project had reported that with the successful implementation of pre-vocational education under collaboration of the three parties the ethnic students both attending junior (lower secondary) and high (secondary education) schools were capable to learn basic technical skills with favorable attitudes and able to obtain vocational certificate both in accumulation of credits from vocational institutes and simultaneously accomplish the regular programs in high schools according to the adopted policy of dual education of Thailand vocational education as the policy has been executed by the Office of Vocational Education since 2013 (B.E. 2556).

Purpose of the Paper

This paper, therefore, will make an attempt to synthesize the empirical data from the previous research projects “Managing Education for Ethnic Children on Opportunity and Equality of Basic Education Achievement towards Vocational Education Development for Labour Preparedness of the Country and ASEAN Economic Community Phase I and Phase II, 2014 -2018”, as a continuation for furthering the study in order to be able to formulate the policy implication and implementation in reducing inequality through promotion of Pre-Vocational Education to the rural poor ethnic children in upper northern Thailand and elsewhere in the region. It is expected that at the least, the newly adopted strategic findings from the proposed forthcoming policy implication and implementation of this paper will lead to an achievement of Sustainable Development Goal 4 (SDG) - Ensure Inclusive and Equitable Quality.

Synthesis Approach

As has been entrusted that ethnic people or in various terms frequently adopted the word indigenous peoples or referred as hill tribes or highlanders, sometimes as ethnic minorities are important as other citizens of the country of Thailand and are able to enjoy the fundamental rights and are protected by the laws of the Kingdom (UNHCR, Sub-Commission on Prevention of Discrimination and Protection of Minorities, WGIP 10th session, 1992). For in the past decades the ethnic minorities still live in the remote mountainous highland community which is vulnerable to economic opportunity due to limited cultivable land. And with earning capacity based primarily on reciprocity and subsistence has enabled them to withstand poverty and ultimately to find alternatives for their own survival. However, until today the ethnic peoples of Thailand continue to suffer from the same historical stereotyping and discrimination that have been reinforced directly and indirectly through the national education curriculum from the primary to the university level as reported by the Ethnic Studies and Development Center, Chiangmai University, 2012. In choosing a theoretical framework that is relevant to the synthesis approach by focusing the situations as derived from the empirical data of the previous projects an array of pertinent theoretical approaches seem appropriate to be examined. The author
has adopted the theoretical concepts which fit the data collected during the research Phase I and Phase II in the following:

(1) a theory of “emancipation” (Hobden & Jones in Baylis & Smith 2001: 212) indicated possibilities of challenging the status of minority peoples and find ways of “emancipatory changing” as described that emancipation of indigenous population groups could be considered from a class point of view in keeping with the Marxist position within critical theory. This notwithstanding the normative nature of the human development paradigm should in principle revolve around the emancipation of oppressed groups.

(2) another theory as cited from Hobden & Jones in Baylis & Smith 2001: 212, “the human rights rationale”, under this umbrella one might gather the theories and strategies that solicit more ethical development approaches and the quest for increased global, moral responsibility. Likewise empowerment theory as one of the most well-known examples of an alternative development strategy can be used as a point of departure to the extent that it offers concrete strategies of emancipation and inclusion of disadvantaged groups in all kinds of societies. Another concrete and more revolutionary approach that is especially applicable to human development issues and emancipation is liberation theory developed by the Brazilian educator Paolo Freire. The above mentioned theoretical and strategic approaches all have a similar modus operandi in dealing with development of and with marginalized people. In particular the concept on the rights to educational basis as in accordance with The Convention on the Rights of the Child states in Art. 29 that the education of the child shall be directed to “The development of the child’s personality, talents and mental and physical abilities to their fullest potential” and “The preparation of the child for responsible life in the free society, in the spirit of understanding, peace, tolerance, equality of sexes, and friendship among all peoples, ethnic, national and religious groups and persons of indigenous origin”.

According to ILO Convention No. 169, Art. 29 “The imparting of general knowledge and skills that will help children belong to the people concerned to participate fully and on an equally footing in their own community and in the national community shall be the aim of education for these peoples”. One of the implications is that indigenous children’s right to education is not respected unless they become bilingual and bicultural through school.

(3) a theory of development with identity, refers to a process that includes strengthening of indigenous peoples, harmony and sustain interaction with their environment, sound management of natural resources and territories, the creation and exercise of authority, and respect for the rights and value of indigenous peoples, including cultural, economic, social and institutional rights, in accordance with their own worldview and governance. This is a concept based on the principles of equity, interconnectedness, reciprocity, and solidarity (Inter – American Development Bank, 2006, Strategy for Indigenous Development).

Inequality in society is not a new phenomenon. Inequality, and its relationship with growth, has marked implications for poverty reduction. Inequalities also undermine the growth process by excluding people living in poverty from sharing the benefits of growth. Lack of opportunities for building human capabilities, such as limited access to quality education and healthcare, can contribute to rising inequality, and limit social and economic mobility. Similarly, unequal access to other tangible
productive assets, such as agricultural land, contributing to rising, or persistently high inequality, by limiting the ability of some to share fully in the benefit of growth (Gomin Wang-on, 2018, in “Economic and Social Inequality and Efforts to Escape of Poverty : The Case Study of Ethnic Akha Community in Chiang Rai Province”. Journal of Perspectives on Development Policy in the Greater Mekong Region, Volume 6, Number 1, pp.16).

These three theoretical concepts, which interact differently depending on each specific situation in the selected 3 primary and 9 secondary schools of the ethnic children, ethnic communities comprising Hmong, Iu-Mien and Lahu and involvement of 9 vocational institutes in three upper northern provinces in Thailand. In this context, the three theoretical concepts could be formulated into the proposed synthesis assessment indicators in the following:

(1) The Rights to Education and Training
(2) Enhancing Opportunity for Economic Development
(3) Strengthening Mutual Accountability among Organizations Involved in Implementation of Pre-Vocational Education

The Results of Synthesis for Policy Implications and Implementation in Relation to the Assessment Indicators

In order to support the measure in reducing inequality of rural poor ethnic children through promotion of pre-vocational education, the empirical data that fit with the synthesis assessment indicators by which each indicator will be described separately in the following:

(1) The Rights to Education and Training

Many governments have now recognized the importance of making school a less alien place for ethnic minority children. One solution is to use their mother tongue in the classroom, at least the early grades. As well as improving their chances of learning, mother tongue instruction helps children to be proud of the language they have used from birth and reinforce their self-esteem, some of identity and sense of belonging. It also prevents language loss. Bilingual education will help ethnic group participate as citizens of the country in which they live, presenting them with the knowledge and means to defend their interests as well as revitalizing and strengthening their own cultures. There are costs involved, including developing learning materials and training teachers in bilingual education approaches, and some countries feel that bilingual education is simply not ‘cost-effective’. But these costs should be weighed against the price the society pays for high dropout and repetition rates in schools where such language programs do not exist.

Today, the Office of the Basic Education Commission has developed schools for ethnic groups covering more than 50 percent of target areas. Among these schools, 11 are bilingual, located in the four regions of Thailand, such as Chiangmai and Chiangrai in the north, and Kanchanaburi in the west. In the eastern region, these schools are located in the province where the ethnic groups speak Cambodian and Vietnamese. In the south, they are situated in the areas where the local Malay is widely spoken. The Office will expand the number of schools of this type to 29 in
2014 and 1,600 in 2017 (Education Programs to be Developed for Ethnic Groups from ASEAN (reported by Thailand Ministry of Education, 20/02/2014).
During the Phase I of the previous research projects cited from Makha Khittasangka, et.al. 2018 in Journal of Perspectives on Development Policy in the Greater Mekong Region, Vol.6, No.1 January – June 2018, pp.72-76. The following Table 1, Table 2, and Table 3 has shown the evidence that the ethnic children had gradually developed Thai language by number of years of their exposure in classes when teaching Thai as a medium of teaching and learning. In the meantime, the research projects had developed the manual of basic ethnic dialects (Hmong, Iu-Mien, Lahu) for assisting the primary school teachers to use the ethnic dialects along with Thai vocabulary explained to the ethnic students during early primary education.

Level of Thai language while studying at Prathom Suksa 1 – 3 indicated the ability to use language of the ethnic students by self-assessment could be found at various level as the majority performed in class; (1) imitating language intonation (moderate), (2) conversation in class (good), (3) attending class activities (poor), (4) communicating physical language to others (good). The ethnic children could be able to use Thai language according to objectives which found (1) telling a story (good), (2) conversation (good), (3) problem identification (good). In term of using translation/vocabulary found the majority of ethnic children’s level of knowledge at diverse levels; (1) one word or single word (poor), (2) using mix of two words (poor), (3) imitating short phraseology (moderate), (4) ability to identify other’s personal character (moderate).

This findings, has confirmed following on from Heyns’ (1978) groundbreaking findings, a concrete example to examine for possibilities is vocabulary learning. Vocabulary size is related to reading comprehension. The size on vocabulary on entry to school is a very significant predictor of reading comprehension, not greatly in the first Grade but on third Grade onwards in some remarkable studies (Biemiller, 2006). Vocabulary provides building blocks for making meaning.
Table 1
Thai Language a Medium of Teaching and Learning by Self-Assessment of the Ethnic Children (Prathomsuksa 1 – 3)

<table>
<thead>
<tr>
<th>Devilment of learning Thai language</th>
<th>Knowledge level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Communication of language ability in society</td>
<td></td>
</tr>
<tr>
<td>1. Imitating language intonation from friends or other</td>
<td>2 (6.7)</td>
</tr>
<tr>
<td>2. Conversation in class</td>
<td>-</td>
</tr>
<tr>
<td>3. Attending class activities</td>
<td>4 (13.3)</td>
</tr>
<tr>
<td>4. Communicating physical language with others</td>
<td>2 (6.7)</td>
</tr>
<tr>
<td>Language use according to objectives</td>
<td></td>
</tr>
<tr>
<td>1. Telling a story</td>
<td>-</td>
</tr>
<tr>
<td>2. Conversation</td>
<td>-</td>
</tr>
<tr>
<td>3. Problem identification</td>
<td>1 (3.3)</td>
</tr>
<tr>
<td>Use of translation/vocabulary</td>
<td></td>
</tr>
<tr>
<td>1. One word or single word</td>
<td>1 (3.3)</td>
</tr>
<tr>
<td>2. Using mix of two words</td>
<td>1 (3.3)</td>
</tr>
<tr>
<td>3. Imitating short phraseology</td>
<td>1 (3.3)</td>
</tr>
<tr>
<td>4. Ability to identify other’s personal character</td>
<td>-</td>
</tr>
</tbody>
</table>

Level of Thai language while studying at Prathomsuksa 4 – 6 has indicated ability to use Thai language for communication in society of the ethnic students by self-assessment of the majority was found at various levels; (1) try to communicate for meaningful understanding (good), (2) begin to communicate with friends (very good), (3) has realized to understand Thai language (good). In term of using Thai language according to objectives as has been found through self-assessment of the majority of the ethnic students reported at various levels; (1) understand simple context (good), (2) able to communicate verbally (good), (3) able to report short circumstances (good). In the meantime, the ethnic students were asked about the ability to use translation/vocabulary which found the majority reported at good levels in; (1) able to develop vocabulary about body structure, daily use utilities, (2) able to classify objects and
equipments into group, (3) ability to use simple verb, (4) ability to use adjectives, (5) ability to use adverb.

The findings had shown that the more the ethnic students exposed to teaching and learning Thai language in class, the more they felt confident, especially the ability to communicate with friends and also they found the ability to understand vocabulary. This has confirmed the findings the chances of ethnic children to obtain higher education, the more the ability to use Thai language proficiency (Khittasangka, Makha, et.al.(2014). Culture and Language Communication of the Ethnic Group in Upper Northern Thailand in ASEAN Community Knowledge Networks for the Economy, Society, Culture, and Environmental Stability, p. 245-265).

Table 2
Thai Language a Medium of Teaching and Learning by Self-Assessment of the Ethnic Children (Prathomsuksa 4 – 6)

<table>
<thead>
<tr>
<th>Development of learning Thai language</th>
<th>Knowledge level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Ability to use language for communication in society</td>
<td></td>
</tr>
<tr>
<td>1. Try to communicate for meaningful understanding</td>
<td>-</td>
</tr>
<tr>
<td>2. Begin to communicate with friends</td>
<td>-</td>
</tr>
<tr>
<td>3. Has realized to understand Thai language</td>
<td>-</td>
</tr>
<tr>
<td>Using Thai language according to objectives</td>
<td></td>
</tr>
<tr>
<td>1. Understand simple context</td>
<td>-</td>
</tr>
<tr>
<td>2. Able to communicate verbally</td>
<td>-</td>
</tr>
<tr>
<td>3. Able to report short circumstances</td>
<td>-</td>
</tr>
<tr>
<td>Ability to use translation/vocabulary</td>
<td></td>
</tr>
<tr>
<td>1. Able to develop vocabulary about body structure, daily use utilities</td>
<td>-</td>
</tr>
<tr>
<td>2. Ability to classify objects and equipment’s into group</td>
<td>-</td>
</tr>
<tr>
<td>3. Ability to use simple verb</td>
<td>-</td>
</tr>
<tr>
<td>4. Ability to use adjectives</td>
<td>-</td>
</tr>
<tr>
<td>5. Ability to use adverb</td>
<td>-</td>
</tr>
</tbody>
</table>
Development of Thai language while studying at Mathayom Suksa 1–3 indicated development of Thai language of ethnic children especially in various stages of development in the followings; (1) Ability to use language for communication in society was found that the majority having confidence to use Thai language but not completed (good), still need help and advice in using Thai language (moderate), ability to communicate with friends with confidence (good). (2) Using Thai language according to objectives was found majority of ethnic students having ability to take simple role playing (good), ability to explain pictures with simple language (good), ability to make sequencing of the circumstances (good), ability to compare between two incidences (good). (3) Ability to use translation/vocabulary was found the majority having ability to use vocabulary to explain various incidences in reading books, weather and seasons (good), begin to express clear intonation (good), ability to use preposition, (good), ability to ask question (good), ability to use many sentences (good).

It could be concluded that the ethnic students through self-assessment felt confident in using Thai language at good level except that in term of communication in society expressed still need help and advice. This evidence might have been the teachers' roles influencing the in school practices because the ethnic students' families tend to teach their children using ethnic dialects in order to reinforce good behavior, keeping self-discipline, and performing ritual ceremony for cultural transfer through language communication (Khittasangka, Makha, et.al. ibid., p.253).
Table 3
Thai Language a Medium of Teaching and Learning by Self-Assessment of the Ethnic Children (Mathayom Suksa 1 – 3)

<table>
<thead>
<tr>
<th>Development of learning Thai language</th>
<th>Knowledge level N=30</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Ability to use language for communication in society</td>
<td></td>
</tr>
<tr>
<td>1. Confidence to use Thai language but not completed</td>
<td></td>
</tr>
<tr>
<td>2. Still need help and advice in using Thai language</td>
<td>2 (6.7)</td>
</tr>
<tr>
<td>3. Ability to communicate with friends with confidence</td>
<td></td>
</tr>
<tr>
<td>Using Thai language according to objectives</td>
<td></td>
</tr>
<tr>
<td>1. Ability to take simple role playing</td>
<td></td>
</tr>
<tr>
<td>2. Ability to explain pictures with simple language</td>
<td></td>
</tr>
<tr>
<td>3. Ability to make sequencing of the circumstances</td>
<td></td>
</tr>
<tr>
<td>4. Ability to compare between two incidences</td>
<td></td>
</tr>
<tr>
<td>Ability to use translation/vocabulary</td>
<td></td>
</tr>
<tr>
<td>1. Ability to use vocabulary to explain various incidences in reading books, weather and seasons</td>
<td></td>
</tr>
<tr>
<td>2. Begin to express clear intonation</td>
<td></td>
</tr>
<tr>
<td>3. Ability to use preposition</td>
<td></td>
</tr>
<tr>
<td>4. Ability to ask question</td>
<td></td>
</tr>
<tr>
<td>5. Ability to use many sentences</td>
<td></td>
</tr>
</tbody>
</table>

However, several concerns had been pointed by the educators as cited from Ole Henrik Magga, et.al. “that the enforced language the children undergoing subtractive education or at least the children are effectively transferred to the dominant group linguistically and culturally. This also contributes to the disappearance of the world
linguistic diversity, when the whole group changes language. Optimistic estimates of what is happening suggest that at least 50% of today’s spoken languages may be extinct or very seriously endangered (“dead” or “moribund”) around the year 2100. Pessimistic but still completely realistic estimates claim that as many as 90 – 95% of the spoken languages may be extinct or very seriously endangered during this century. Most of the disappearing languages will be indigenous languages, and most indigenous languages in the world would disappear according to these estimates” (Indigenous Children’s Education and Indigenous Languages, Expert paper written for the United Nations Permanent Forum on Indigenous Issues, 15 November 2004).

(2) Enhancing Opportunity for Economic Development

Although in the Phase I research had indicated the ethnic students’ parents had an aspiration for their children to further education higher than basic education. They need to have an improvement of pre-vocational education if it could be a better skill for their children livelihood in the future. This is the reasons why the parents and communities did not have much understanding about the pattern of integrated teaching “Pre-Vocational Education” in the school curriculum or did not understand how an investment in vocational education meant a prospect future for their children (Makha Khittasangka, et.al. 2017 in “ASIAN Community Knowledge Networks for the Economy, Society, Culture, and Environmental Stability”).

The findings from Phase I were the inputs for continuation of Phase II research as delineated in the following Figure 1

![Figure 1: The Gap between Assessment of Regional Basic Education Office and School on Basic Occupation Subject](image)

In Thailand, the systems of vocational education and training consist of two different sectors. The first is formal vocational education, carried out a full time school scheme. Graduates are awarded a certificate, which is on par with that of graduates of general upper secondary education. The other sector, a regular program of secondary education with required the students to enroll as students in the vocational institutes and able to complete vocational certificate along with an achievement in secondary education. This program has arranged for the students who prefer to enter formal higher vocational training programs (Office of Vocational
Education (B.E. 2556), Hand Book of Pre-Vocational Education). Jon Lauglo and Rupert Maclean, (2005) has provides similar concept of TVET that vocationalised secondary education refers to a curriculum which remains overwhelmingly general or ‘academic’ in nature, but which includes vocational or practical subjects as a minor portion of the students’ timetable during the secondary school course. Closely related terms are ‘diversified curriculum’ (Psacharopoulos and Loxley, 1985).

An integration and collaborated efforts between vocational institutes and secondary schools were found the students had achieved in learning “Pre-vocational Education” as there were three types of program; short course training, vocational short course training and vocational training certificate, upon agreement between each of the two counterparts. The overall performance of the students of the aforementioned three types of Pre-vocational Education programs as evaluated by the instructors from the involved vocational institutes appeared in the following results.

1. Short Course Training
   1.1 Wiang Pa Pao Technical Institute taught subject to 36 Lahu ethnic students (24 boys and 12 girls) in “small gasoline engines” to Doi Wiang Pha School passed with grade average fair (68.39%) and found that students could understand principles and function of small engine and able to check the condition, maintenance and provide services.

   1.2 Technology and Management of Pong Technical Institute taught subject in agricultural mechanic to the 30 Iu Mien students at Ban Mai Pang Ka School with passing grade excellent 16.67 %, very good 13.33%, good 43.33% and fair 26.67%. Overall assessment by the instructors found difficult to communicate with the students during initial training, 70% of students had knowledge in mechanics and able to work on basis repairment, felt having good attitude toward self-improvement.

   1.3 San Kampang Technical Institute taught subject in making local design souvenir from pieces of cloth for selling to tourists to 41 Hmong students at Chopper Luang Uppatham School. It has been evaluated by instructors that passing grade in excellent 31.71%, very good 14.63%, good 36.69%, and fair 17.08%. All students were able to produce souvenirs for selling to the tourists due to vicinity to the school is the tourist attraction.

2. Vocational Short Course Training
   2.1 Technology Commercial LannaTechnical Institute has assisted Suksa Songkhroh School taught small enterprises online selling to the 14 ethnic Hmong students at Suksa Songkroh School. By assessment of the instructors found passing grade with 57.14% excellent, 42.86% good. The students were able to operate group enterprise and could reach the desired customers on their demand.

   2.2 Karnjanapisek Technical Institute taught subject in elementary electronics to 17 Lahu, Iu Mien and Hmong students at Sahasartsuksa School found students with excellent 29.41%, very good 17.65% and good 52.94%. The students paid high attention and indicated for further training needs.
3. Vocational Training Certificate

3.1 Chiang Kham Technical Institute has arranged an agreed upon accounting vocational certificate to Mathayom Suksa level 6 to 15 Hmong and Iumien students at Fai Quang Vittaya School, simultaneously the students obtained vocational certificate and Mathayom Suksa certificate as well. It was found that 60% students passing grade with excellent, 33.33% very good, and 6.67 % good.

3.2 Dok Kham Tai Technical Institute has arranged accounting vocational certificate program to Mathayom Suksa level to 15 Hmong and Lu Mien students at Rajprachanukroh 24 School, simultaneously students obtained both certificates. It was found that 20% of the students with passing grade excellent, 6.67 % very good, 33.33% good and 40% fair. As evaluated by the instructors that students with passing grade less than 70% had to receive additional tutorial session because dual education system required good attitude and high competency toward professional skills.

Chiangrai Occupational Institute has provided vocational certificate in motorcycle training and small mechanic to 26 majorities of Tai Yai and other ethnic students, all male, at Ban Terd Thai School. It was found 46.15% of the student passed with excellent grade, 19.23% good, and 34.62 fair. The overall assessment found the students had paid special attention to the program and had good attitude towards the vocational occupation.

The results of the accomplishment of the students were illustrated as a summarization in the following Figure 2

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**Figure 2**: Summarization of collaborated efforts increasing basic skills and labour development in teaching and learning “Pre-vocational Education”
(3) Strengthening Mutual Accountability among Organizations Involved in Implementation of Pre-Vocational Education

To define the measure on equality and building opportunity for entering in vocational education and employment of the ethnic children.

The target in managing education for ethnic students on equal opportunity and equalities in education pertaining to strengthening basic skill and labour development for pre-vocational education in the remote secondary schools to prevent drop out and encouraging continuity of education and thriving on good attitude of the ethnic students is one of the utmost foundation for seeking alternatives for stable occupation. The important element in building equal opportunity and equalities in education is the strong commitment on the need for a long route and short route to accountability of the educational institutes meaning between schools and vocational education institutes. The implications to this is both schools and vocational institutes should undertake serious consideration in accountability-based perspective on participation and service provision by promoting market based service provision arrangement by involving the ethnic students as the target clients to learn how to do by themselves the pre-vocational education.

The Figure 3 could be taken as a measure that National Vocational Education Policy has been demonstrated as the long route accountability between students, parents and communities that the national implemented projects might not reach the far away target students. The solution, then, according to the logic of the vocational policy framework, is to change the nature of the relationship between government and the target students by removing the top down policy and given the ethnic students the upper hand to interact directly with service providers. This is accomplished through short route relationships by localizing service providers so they can be accountable for the quality of service delivered. As delineated in Figure 3 these local level, short route relationships are vocational institutes as the educational service providers on a set of mechanistic interactions enter into the schools as the receiving mechanism of the pre-vocational education service.

The key elements of shortened down the long route accountability in providing pre-vocational service close to the target ethnic students that the vocational education institutes and the schools should work on collaborated efforts in the development of the curriculum according to the needs of the students, parents, communities, firms and factories in the local areas, in order to build a strong accountability-based participation.
Conclusions and Recommendations

The ethnic children are among the most disadvantaged and facing with poverty in Thai society. The major factor contributing to the disadvantage position is the lack of quality education. Quality education requires the inclusion of children in quality teaching and learning processes. The curriculum has to reflect the cultural identity and history of the community. The education provided should fill the gap between the schools, socio-economic needs of communities and the responsible basic education organizations. Pre-Vocational Education is the most relevant tools in preparing the ethnic children for the world of work which providing them with more choices, help alleviate poverty, and empower individuals who would otherwise be marginalized. The important elements in building equal opportunity and equalities in education is the strong commitment in providing pre-vocational service close to the target ethnic children that the vocational institutes and the schools should work on the collaborated efforts in the development of the curriculum according the needs of the ethnic children, parents, communities, firms and factories in the local areas, in order to build a strong accountability – based participation.

The redefined synthesis approach utilizing three assessment indicators; (1) The Rights to Education and Training, (2) Enhancing Opportunity for Economic Development, (3) Strengthening Mutual Accountability among Organizations Involved in Implementation of Pre-Vocational Education, could be applied elsewhere for the policy implication and implementation in reducing inequality through promotion of Pre-Vocational Education to the rural poor ethnic children in upper northern Thailand and elsewhere in the region as the path to Sustainable Development Goals.
References

Return to Human-Centered Education in the Digital Age:
Human Flourishing as the Key for Sustainable Development and
21st Century Competency

Professor Ted Yuchung Liu, Ph.D.
Department of Education,
Founder of Board Game Learning Center and South Taiwan Experimental Education
Collaboration Center, National Pingtung University, Taiwan

Abstract

With the calling of preparing for our common future and a more sustainable
development global society, the public attention has been directed towards the
knowledge of sustainable development goals, and engaged with the efforts of
embodiment with concrete curriculum and learning program in educational
institutions. While such ends could contribute to the racial and fundamental change
of current dominant institutional setting of discipline-focused and content-based
knowledge and instruction, by shifting the mode of knowledge banking into more
trans-disciplined and process-based learning tasks design, however, ironically, the
means remain trapped in the presumption of human as the products, the containers of
knowledge, measured by so-called 21 century competency, rather than the process of
flourishing, the dynamic of knowledge creation process. In the Digital Age, the need
of reconsideration of our design of educational system is particularly urgent, for the
major routine and procedural missions could be accomplished by our artifact device.

This paper will try to clarify two different modes of educational design,
respectively driven by content knowledge-based and human flourishing-based teaching
and learning, and explain why we need to return to human-centered education
particularly in the digital age for sustainable development. Furthermore, the case
stories in High Education and Compulsory Education in Taiwan will be shared and
presented in this paper to show how we could probably approach such learning design
via board game learning process.

Keywords: sustainable development, education the digital age,
human-centered education, human flourishing, board game learning
Humanities Studies in India Getting Ready for a Reversal of the Story of Fragmentation and for a Fruitful Alignment with the Aspirational Goals of the 21st Century

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Abstract

After IMPRINT for STEM fields and IMPRESS for social sciences, the Indian Ministry of Human Resource Development has come out with a scheme called LEAF for the humanities under which the experts have identified ten challenges that motivate and inspire the humanities scholars to do the work they do and to align their efforts and scholarship with the tenets of the National Education Policy (NEP) that the Government of India is rolling out soon. The Draft NEP heralds a radically revamped education system in India covering different stages from Pre-Primary to the highest degree in Indian Universities. It focuses on multidisciplinarity, vocationalization, liberal arts education, and India-centered education for transforming India - a country with great diversity - into a super-power capable of sustainably managing the ten-trillion-dollar economy by the year 2030. This is in tune with various SDGs and the SDG4, in particular, that seeks to ‘ensure inclusive and equitable quality education and promote lifelong learning opportunities for all’ by 2030.

My presentation will focus on the LEAF initiative – I was a part of this – and the NEP and their impact on the future of humanities studies in India and how all this will align with various aspirational goals of the 21st century voiced in the SGD. In fact, the LEAF on a smaller scale and NEP on a vast scale have signaled the end of the story of fragmentation in higher education (modelled on the Western Systems in most of the countries). The historical split, i.e., the separation of the humanities from natural sciences that happened during the Renaissance, restricted the humanities to the classroom and barred them from practicing. The introduction of ‘book’ that dominated the educational scenario for more than six hundred years further confined the humanities to indoor libraries and individual pursuits with no collaborative research and almost no application. Some of the areas identified by the LEAF like Digital Humanities, Environmental Humanities, Public Humanities, and Internationalization of the Humanities through Collaborative Research indicate that the humanities studies in India are set for breaking these boundaries. The emphasis of NEP on Liberal Education and on the creation of world-class multidisciplinary higher education institutions across the country signal the end of the era that created rigid boundaries of disciplines and fields. Moreover, the effective implementation of NEP will accelerate the achieving of the Sustainable Development Goals (SDG) for 2030, adopted by the UN General Assembly in September 2015.

Keywords: humanities, LEAF, NEP, SGD, fragmentation, multidisciplinarity, collaboration, liberal education
Oral Presentation

Language, Linguistics and Literature
The Loan Words of Pali and Sanskrit in Isan Language

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Abstract

The research on “The Loan Words of Pali and Sanskrit in Isan Language” have the three objectives as 1) to study of original style and wording form of Pali and Sanskrit loan words in the Isan language, 2) to study of changing the format and meaning of loan words, 3) to study of classification of Pali and Sanskrit loan words in Isan language. It is research by studying and collecting the loan words of Pali and Sanskrit in the Isan language from dictionary, encyclopedia of Isan languages and important literature such as Sangsilchai, Seausawad, Phadeang-Nang Ai, Siton-Manora etc. Then the datum was analyzed, organized and presented by descriptive analysis. The result of research found that:

The original forms and words in Pali and Sanskrit were mixed in the Isan language with religious influence and beliefs, especially Buddhism. When it was brought, there will be many features of changes in term such as sound stretching, sound reduction, sound cutting, sound pranks and sound conversation, include using new words instead. In the meaning section, there were changing from the original less. In the changed part, it is still accept the original meaning. In the classification of loan words in Pali and Sanskrit in the Isan language, it was presented in a bibliography format for easy searching and checking.

Keywords: loan words, Pali and Sanskrit, Isan language

Introduction

The Origin and Importance of Problems

Language is communicational tool which was used by human to present the meaning for understanding each other in doing many activities. It is used through media which is symbolic sound in order to be accepted in society whose uses the same code. The symbolic must have certainly system and pattern, and have the relation with meaning system which can be understood seemly in that society.

Every language in this world is the importance for human being, and being cultural heritage which have the evolution so long from the past. Human knows how to create and determine the standard of language for using in own group of society, or receive the language of other group of society. Otherwise, language still is the tool of leaning and development of human thinking. Because human use the language in presentation of knowledge, conception and experience to each other, make human to have knowledge widely, increase the new idea, develop society better continuously. According to this reason, language is the important tool of society necessary.

There are many languages in this world, when we try for comparative analysis following the Philology or Linguistics, can collect and divide the four modes of languages as following: 1) Inflectional Language, 2) Agglutinative Language, 3) Isolate Language, 4) Polysynthetic Language. There are grouping of languages in this world as followings: 1) Inflectional language consist of the most languages of
the West, Arab and Indian language as Pali and Sanskrit, 2) Agglutinative Language consists of the Japanese, Korea, South Indian, Hungary, Turkey, South Africa, 3) Isolating language consists of Chinese, Thai, and the most other languages in South-East Asia, 4) Polysynthetic language consists of native languages in America continent and Eskimo language.

From the above, Thai language and Pali-Sanskrit is grouped in different mode of language or different family. Therefore what is Thai language borrow the words in Pali and Sanskrit with many causes have to change in both wording and meaning forms. The analytical study and grouping will be systematic building to support the leaning, searching and understanding in educational field together.

Group of Thai people in the area of Mekong River have language culture from ancient time. These regions have been the area of the great empire of Lanchang which is ruled by Khun Lou as the first king. Eastern boundary reaches Vietnam from China to Cambodia, western boundary reaches Lanna and Ayutthaya, Dongpayaphai Mountain, Petchbur Mountain, Northern boundary reaches Sibsongpanna in Yunnan of China, Southern boundary reaches Cambodia, Chaingtaeng down of Liphe rapids. There is Mekong River is in the middle of country. Thai-Lao people in Isan is the tribe moving from the Democratic Republic of Lao to Isan of Thailand caused by problem of national politics. In the 22-23st century, there was riot of taking throne in Vientiane, Phrakrupsamed and Phrawor-Phrata migrate to Isan as Ubon Rajathani, Yasothon, Roi-et, Mahasarakarm, Karsin, Mukdahan, Khonkan, Nakhonpanom, Nongkai etc. Another problem caused by international politics such as Thai army came to attack Lao twice. When Thai army took the victory and move forcibly people and captive to Thailand. The captive is people who speak Thai language. The Northern Isan consists of Karsin, Khonkan, Chaiyabhum, Nakonpanom, Nongkai, Udonthani, Sakolnakhon, Mahasarakarm, Roi-et, Leoi, Mukdahan, and Ubon Rajathani. The most of people in these areas speak the language as ‘Laothai or Thai-Lao’.

There are many conditions as characteristics of geography, historical situation and migration following Mekong River and settle down at the lowland of Mekong River. Otherwise Buddhism and Indian Civilization is the melting pot, conclude, creative and continue identical culture. The clearly existence and explained state is the loan words of Pali-Sanskrit in Thai, Khmer, Vietnam, Lao and Isan. Hence, these races received Buddhism same, each race have own language in the case of Isan language as Kasem (กะเสริม) become kraserm (กระเสริม), Boribun (บริบูรณ์) become Boribuon (บอระบูรณ์), Panya (ปัญญา) become Phaya (ผญา) etc.

The language is a symbolic which contains certainly forming system and relate to meaning system and accepted by society. It is the norm which was accepted and practiced by the most of people in society. Researcher interests ‘How is the loan words of Pali-Sanskrit in Isan language will be the former wording or change the meaning differently from the loan words of Pali-Sanskrit in Thai, Khamer and Lanna-Lanchang?’
The Objectives
1. To study of format and former of Pali-Sanskrit loan word in Isan language.
2. To study of changing of wording and meaning of Pali-Sanskrit loan word in Isan language.
3. To organize the mode of Pali-Sanskrit loan words in Isan language.

The Scope of Research
1. Researcher will study the wording of Pali-Sanskrit loan word in Isan language from encyclopedia of Isan and Isan literature published in educational and academic field.
2. Researcher will study and adding of Pali-Sanskrit loan word in Isan language to encyclopedia of Isan in volume ‘Intention of Somdej (Aon Tisso)’ and Isan literature which was accepted and published such as Sinchai, Phadeang-Nang Ai, Vessandorn, Seawsaward etc.

Method of Research
In this research, researcher has determined the step of progression as following:
1. Determining of researching framework.
2. Review the literature and research concerning the Pali-Sanskrit loan word in many language of Thailand.
3. Select and keep some words which are considered by researcher as Pali-Sanskrit loan word from encyclopedia of Isan-medium language and important Isan literature.
4. Survey the building of Pali-Sanskrit loan word in Isan language referenced to dictionary of Pali-Sanskrit.
5. Analyzed the changing of vowel and alphabet sound according to Linguistic Theory.
6. Grouping the meaning of Pali-Sanskrit loan word in Isan language.
7. Checking the datum and correction
Conceptual Framework of Research

The research concerning Pali-Sanskrit loan word in Isan language can conclude to be the conceptual framework as following:

1. The format and former word of Pali-Sanskrit in Isan language
2. The changing of format and meaning of Pali-Sanskrit in Isan Language
3. The grouping and meaning of Pali-Sanskrit in Isan language

Conclude the Result of Research

The research on Loan word of Pali-Sanskrit appeared in Isan language have three objectives:

1. To study of format and former words of Pali-Sanskrit loan words in Isan language
2. To study of changing of format and meaning of Pali-Sanskrit loan words in Isan language
3. Grouping of Pali-Sanskrit loan word in Isan language

Researcher study and collect Pali-Sanskrit loan world from Dictionary of Isan and the Middle in the volume of ‘Intention of Somdej (Aon Tisso)’, encyclopedia of Isan-Thai-English in the volume of Preecha Pinthong and Isan literature which was translated from Tainoi and Dham-isan alphabet to contemporary Thai alphabet. The main literature are Sinchai (Sangsilchai), Phadeang-Nang Ai, Champasiton, Vessandorn, Seawsaward, poet on grandfather and grandmother taught grandchild, Siton-Manora, including welcome poet in many activities. When researcher receive the words supposed to be the word from Pali and Sanskrit, bring it to prove with the word in Dictionary of Institute of Royal Scholar, Dictionary of Pali-Thai-English of Phrachuaboromvongther Kormprachanthaburinarunarth, include the checking of Pali words in Pali-English Dictionary of T.W. Rhys Davids, checking of Sanskrit words in A Sanskrit-English Dictionary of Sir. Monier-Williams to confirm the correction of words in both language, then researcher systemized and analyzed wording, meaning and grouping as following result:

5.1.1The format of former words and Pali-Sanskrit loan words in Isan language used the format of the words in both languages, some words was taken from the both language and applied both words, some words was taken only Pali or Sanskrit, some words taken both languages and divide using of meaning, there are the format in borrowing of words as follow :

5.1.1.1. pronounce according to former words such as Tathagata (เทวทูต) is pronounced ta-tha-ga-ta, puggala (ปุคฺคล) is pronounced pug-ga-la.
5.1.1.2 pronounce only front words, cutting of last words such as thira (ธีระ) is pronounced thir (ธีร), Intra (อินทรี) is pronounced In (อิน), Upasatha (อุปสัท) is pronounced Upo (อุปโภค).

5.1.1.3 using the last words as spelling such as Sima (สิมา) is pronounced Sim (สิม), Raja (ราช) become Rad (รัฐ).

5.1.1.4 cutting voice of front word, pronounce only last words such as Asana (อานะ) is pronounced Sana (สนา).

5.1.1.5 cutting of front word and last word, pronounced only middle word such as Abhiramaya (อับยีรามา) is pronounced bhihom (บัญชร).

5.1.1.6 word is spelled by ya (ยา), main language pronounced Un (อุ), Isan pronounced Ang (อัง) such as punchorn (ปัชชอร) become bangchorn (บังชอร), Unchari (อุช违纪) become Angchuri (อุช违纪ี), Muncha (มุข) become Mang (มัง), Punjala (พบจลา) become bangjal (บังจลา).

5.1.1.7 word have a vowel voice A (อา), Isan is pronounced U (อุ) such as Mongkol (มงคล) become Mungkul (มุนคุล), Narayana (นราเสก) become Sanar (สันนาร).  

5.1.1.8 word have a vowel voice A (อา), some Isan word is pronounced Ua (อว) such as Ganana (กานนา) become Guanana (กํานานา).

5.1.1.9 word have a vowel voice A (อา), Isan pronounce first word as Ao (อา) such as Marana (มาสะ) become Morana (มาสระ), Pavara (ปวรร) become Bovorn (บอ فرص).

5.1.1.10 Only Sanskrit loan words have format of loan word differently such as Sanskrit (สันสกฤต) become sonsakud (สุสมระ), Waruksa (วรวสุ) become Piksara (ปิกสระ), Rusi (รุสี) become Luesi (ลือสี) or rasi (รัสี) or rassi (รัสสี), Rudu (รุดุ) become Radu (รัฐดุ), Narayana (นราเสก) become Lahain (ละหารีน), Rouvanasura (ราวนาสุรา) become Habpanasun (หะบปานสุน).

5.1.1.11 Pali-Sanskrit have Pa (ปา) plus Ra (ร) or La (ลา) will be Pha (พ) such as Prachya (พราวศจ) become Phaya (พายา), Preta (ปเทีย) become phet (พื้น), Prasat (ปราสาท) become Phasat (พHASHAT), Prakot (ปราคก) become Phakot (พาคก).

5.1.2 Changing of word’s form and meaning, there are characteristics of Pali-Sanskrit in Isan language as following:

5.1.2.1 Changing of word’s form, there are changing in many characteristics as voice expending, voice reduction, voice cutting, voice moving, form’s changing, form’s moving. Hence, it is limitation of some unit of voice in Isan language such as there is no voice unit of R (ร), it is instead by voice unit of H (ห), voice unit of Ch (จ) instead voice unit of C (ค), voice unit of S (ส) instead voice unit of Sh (ช) such as Narok (นรก) become Nahok (นาขอก), Canga (ชางแง) become Chong (ชอง), Shattanta (ชัตตันต) become Sattan (สัตกาน).

5.1.2.2 Changing of meaning of Pali-Sanskrit loan word in Isan language, there are changing of meaning differently from the old meaning less, it may be said that there are nothing, because format will change or remove in order to pronounce which is maintained in 5.1.1, but the meaning still be same.
5.1.3 Grouping of Pali-Sanskrit loan word in Isan language, there are presentation which divide the study into four sections such as the first is the words of Pali and Sanskrit, the second is the Pali-Sanskrit words which are loan words in Thai language, the third is the loan words used in Isan language, and the fourth is meaning in communication and education which are presented as group following platform of dictionary.

Discussion of the Research Result

From the study, researcher found that using of Pali-Sanskrit words as loan words in Isan language have the changing of word differently from the old words in former language. The cutting of wording form, cutting of voice, changing of voice, removing of voice relate with research on “A Study of the Pali-Sanskrit Loan Words in Literature of ‘Mahabharat’ of Sunbhorn Phonchiwin” by Amornrat Amarabhithak, and research of Phramaha Thongsukh Nachaidee in the topic “A Study of Pali-Sanskrit Words in Literature of Native Isan.” There are such research result, it may be influence of pronunciation of language in native Isan which have the voice unit unconnected with Pali-Sanskrit and main language. For the example, main language use voice unit of R, Isan language use voice unit of H, main language use voice unit of C, Isan language use voice unit of Ch. Otherwise, Isan language is isolating language which like the main Thai language, when it borrows the words of Pali and Sanskrit which is inflectional language. It must have the cutting of voice or reduction of voice to relate with pronunciation of native speakers.

The study which found that changing of meaning of Pali-Sanskrit in Isan language less, because it keeps old meaning of Pali-Sanskrit, hence wording platform will be changing, which is related with research of Phramaha Prakob Samarnthong and research of Phramaha Thongsukh Nachaidee. As such as it may be Pali and Sanskrit words which are loan words in Isan language are the words concerning with religious teaching, especially Buddhism. It maintains the meaning of doctrine as truth, reality. Hence it was shipped to any language by alphabet of any country. The meaning is still sustainable, do not change, which may be differently as interpretation, explanation. It make some words having briefly and widely meaning, and some words remove the meaning in the presentation. But wording format is still present old meaning as well.

Suggestion

1. Suggestion on Policy

   The words in Pali-Sanskrit are language which recite and communicate religious doctrine and royal ritual of the royalty. On the other hand, the words in Pali-Sanskrit are used as royal technical terms, official technical term, including many auspicious names, therefore it should have development of educational system in study of Pali and Sanskrit to be central system of the nation.

2. Suggestion for the Next Research

   2.1 it should study the loan words in Pali and Sanskrit compared with language in Asean.

   2.2 it should study influence of Pali and Sanskrit to evolution of Thai language from Sukhothai period until the present.
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The Role of Literature and Literary Texts in an EFL Context: Cultural Awareness and Language Skills

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Abstract

This research was directed to discover the impact of literature and literary texts on cultural awareness and language skills in EFL undergraduate students. A blend of qualitative and quantitative research configuration was embraced. An abstract content was coordinated into an EFL class with 100 EFL who were concentrating in English major students at Buriram Rajabhat University is one of the universities in the Northeast of Thailand. The samples were chosen by simple random sampling methods. So as to gather information, semi-structured interviews were done with the illustrations by the analyst. The discoveries of the research uncovered consistency between the participant EFL students' points of view. They all pointed out the advantages of utilizing literature and literary texts by adding to students' cultural awareness and language skills.

Keywords: cultural awareness, language skills, literature, literary texts, Teaching English
A Korean Guidebook for Communication of Hotel Personnel in Hua Hin Sub-district, Prachuapkhirikhan Province

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Abstract

The research objectives of this study were 1) to develop a guidebook for Korean for communication of hotel personnel in Hua Hin Sub-district, Prachuapkhirikhan Province, 2) to study the needs of using Korean for communication of hotel personnel and 3) to evaluate the quality of the guidebook developed in this research. The research tools were evaluated and proofed by three experts before creating the guidebook. The research subjects were 254 hotel personnel, and the data were analyzed using the percentile, mean, and standard deviation (S.D). The research results were as the following.

1. The employees had the need to use the Korean language for communication in various situations at a high level (X = 3.60, SD = 0.798). And requesting assistance as the most (X = 3.98, SD = 0.722), the 2nd is the need to use Korean in greeting and self-introduction (X = 3.89, SD = 0.795).

2. The quality of the Korean language manual for communication for hotel staff in Hua Hin district, Prachuapkhirikhan Province was at a high level (X = 4.32, SD = 0.44). When considered individually, it was found that the average values in the top three were contents (X = 4.67 SD = 0.34), language and character (X = 4.47, SD = 0.19) and the value of the manual (X = 4.34, SD = 0.61).

Keywords: Korean for communication, the needs of Korean language for communication
Semantic Change of the Word /khraj^2/ ‘to love, to like’ in Thai

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Abstract

The purpose of this study was to study the semantic change of the word /khraj^2/ from Sukhothai to 2018 A.D. The Collected data were divided into 6 periods namely; 1) Sukhothai 2) Ayutthaya 3) the reign of King Rama I – III 4) the reign of King Rama IV - V 5) the reign of King Rama VI - VIII and 6) the reign of King Rama IX - 2018 A.D. The data were based on published documents from 1283 to 2018 A.D. The study revealed that /khraj^2/ is defined into 4 meaning: 1) ‘to love, to like’ 2) ‘to want, to desire’ 3) ‘to think, to cogitate, to examine’ and 4) ‘not, not all’. Other major 3 meanings at first were found since Sukhothai period. Meaning ‘to love, to like’ gradually changed to a negative sexual semantic feature. Meaning ‘to want, to desire’ could be used for polite requests and official documents at the reign of King Rama IX period. However, meaning ‘to think, to cogitate, to examine’ had the least semantic change. Meaning ‘not, not all’ appeared in / maj^2/khraj^2/ since the reign of King Rama I period and it had functioned similarly to negative marker.

Keywords: /khraj^2/ ‘to love, to like’, semantic change, Thai Language
A Development of English Coursebook Integrated with STEM Education and Analytical Creative Thinking for Students in Elementary Level

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Abstract

English Language learning integrated with STEM content and analytical thinking skills is the current educational trend for the 21st century. This research has sought to; 1) develop an English coursebook integrated with STEM education and analytical creative thinking for Thai elementary students, 2) examine the opinion of the English teachers toward the instruction with the coursebook to their students, and 3) determine the learning achievement in English, STEM and analytical creative thinking abilities performed by the students after being instructed with the coursebook. The study was conducted with a mix-method that included both qualitative and quantitative investigations. The informants were the samples purposively drawn from elementary school teachers and their students in 2018. The study resulted in three folds: firstly, a model layout of the English-STEM-analytical and creative thinking integration divided into fifteen units with science-based content under the core curriculum; secondly, the learning indicators are 65% English skills 50% STEM education, and 10% analytical and creative thinking; thirdly, The teachers’ competency needed for the instruction using the developed coursebook was overall at a high level including five aspects and the STEM education is needed the most. The students’ achievement after the experiment, both as overall and five main skills were higher than their pre-test scores significantly at 0.05 level.

Keywords: English-STEM education, creative thinking instruction, EFL coursebook for Thai children
Investigating EFL Students’ Perspectives on Using Digital Storytelling to Enhance Self-Directed Learning at Ubon Rachathani Rajabhat University

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Abstract

This quasi-experimental study aimed at investigating the students’ perspectives on using digital storytelling for improving self-directed learning in EFL learners at Ubon Rachathani Rajabhat University. Data was collected via semi-structured interviews from nine students classified into three groups with different English ability levels; high, moderate and low, studying English for Communication and Work in the third semester of 2016, and was analysed through content analysis. The findings indicated that learning through digital storytelling could improve self-directed learning: self-planning, self-finding resource, self-control, and self-reflection. Thus, instructors should encourage this learning strategy during instruction and integrate the strategy in every field of education and life if they would like to increase their self-directed learning.

Keywords: digital storytelling, self-directed learning, EFL students
Needs Analysis and ESP Course Designed for the Staff of Buriram Airport

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Abstract

The purpose of this research was to the needs for an ESP course for the staff of Buriram Airport. The populations were the staff of Buriram Airport. The samples comprised 40 informants, including five bureaucrats, five bureaucrat employees, 10 permanent employees, 20 temporary employees. In addition, 15 representatives of 40 samples. Sample, including two bureaucrats, two bureaucrat employees, four permanent employees, seven temporary employees were selected for a focus group discussion. They were selected by using a purposive sampling method. The research instruments consisted of a questionnaire, a focus group discussion. The descriptive statistics for analyzing the quantitative data were percentage, mean and standard deviation while the content analysis was conducted for analyzing the qualitative data. The research findings revealed that the samples needed to develop speaking and listening skills much more than reading and writing skills. They needed to study both the general terms and specific terms as well as both general conversations and specific conversations used in service and aviation aspects. Two appropriate innovations, i.e., manual and video were needed by the samples. The ESP course designed for the staff of Buriram Airport consisted of 11 topics. The research results will be used to design an ESP course and to develop an innovation on the next phase.

Keywords: need analysis, ESP course design, airport staff, Buriram Airport

Introduction

English is an important factor for living. Nowadays, English plays an essential role in business communication. People need good English skills in the work place in both public and private sectors.

Graddol (2006), the British applied linguist and author of “English Next” (2006) for the British Council, explored some trends in the use of English worldwide and its changing relationships with other languages. It mentioned that the trend in the future of the English learner will have continued growth. This research reflects the people’s awareness to know English in modern times.

English used for business in Thailand increases continuously. English communication becomes a necessity in Thailand business organizations. English is one of the qualifications a worker must possess. Some companies and organizations in Thailand have been using English as their medium language for communication, especially those who deal and do business internationally. One of them is airport business, which is an important element in the air transport system and is a key driver to the national economy. The airport is the infrastructure supplying for aircrafts, passengers, and cargoes with high level of service in terms of speed and safety.
Currently, airport businesses around the world continue to develop which focuses on developing English skills for the airport staff. English development for the airport staff is one of the key factors to improve the quality of airport services. Therefore, each airport must be giving the interesting to develop the airport staff in order to be advantageous in the airport business competitions.

Nowadays, aside from tourist attractions the northeastern provinces have to offer, Buriram province is one of its the provinces became one of the sport destinations in Thailand. Consequently, the number of local and international tourists traveling continuously increases in Buriram province. Buriram Airport is becoming more popular among tourists as many of them travel by air. In this reason, airport staff has to deal with many foreign passengers.

The researcher received basic information about the use of English at Buriram Airport by interviewing Mr. Sommai Chanyanich, the director of Buriram Airport. He stated that Buriram Airport has elevated from the Domestic airport to become the customs airport. Buriram Airport provides aircraft service flying abroad directly to Buriram Airport both domestic and international flight, that is the airport staff must coordinate with airlines, crew and passengers. This requires English as the main language of communication between airport staff and foreigner visitors. Mostly, airport officials still do not dare speak English to foreigners. They still lack confidence in speaking and use body language to help them communicate with foreigners. As a result, the use of the English language skills of staff at Buriram Airport is still one of the major problems of airport personnel development.

The researcher is interested in conducting a study in English relevant to the field of airport business. The researcher wants to know what English skills the airport staff need most and what English problems and difficulties are learned by them at their workplace. The findings from this study can provide useful guidelines for assessing and establishing specific English skills training course used in the routine jobs for the airport staff at Buriram Airport.

**Objective of the Study**

- to analyze the needs for an ESP course for the staff of Buriram Airport.

**Literature Review**

1. English for Specific Purposes (ESP)

Harmer (1983) states that ESP refers to situations where the student has some specific reasons to learn a language. Hutchinson & Waters (1992) define that ESP is an approach to language teaching in which all decisions as to content and methods are based on the learner’s reason for learning. If we know why learners need English, the content of the language can be adjusted accordingly and the teaching process will focus on these needs. Dudley-Evans et al (1998) gives a similar definition of ESP and both authors cooperated to offer absolute and variable characteristics of ESP. Robinson (1991, p.3) divides the manner of English for specific purposes into four ways: 1) English for Specific Purposes focuses on learning of the students. 2) The course for English for Specific Purposes must be appropriate for the time. 3) Curriculum for English for Specific Purposes for a particular course must be based on the learners’ needs and goal. And 4) most students learning English for Specific Purposes are the adult.
2. Need Analysis

Richards, Platt and Platt (1992, pp. 242-243) mentioned Need analysis, also known as need assessment, is the process of determining the needs for which a learner or a group of learners acquires a language and arranges the needs according to priorities. West (1994) specifies that Need analysis is essentially a pragmatic activity focused on specific situations although grounded on general theories, such as the nature of language and curriculum.

Hutchinson and Waters (1987) proposed an analysis framework of learning needs as follows:

1. Why are the learners taking the course? - Compulsory or optional; apparent need or not; Are status, money, promotion involved?; What do learners think they will achieve?; What is their attitude towards the ESP course?; Do they want to improve their English or do they resent the time they have to spend on it?

2. How do the learners learn? What is their learning background? What is their concept of teaching and learning? What methodology will appeal to them? What sort of techniques bore/alienate them?

3. What sources are available? Number and professional competence of teachers; attitude of teachers to ESP; teachers' knowledge of and attitude to subject content; materials; aids; opportunities for out-of-class activities.

4. Who are the learners? Age/sex/nationality; What do they know already about English?What subject knowledge do they have? What are their interests? What is their socio-cultural background? What teaching styles are they used to? What is their attitude to English or to the cultures of the English speaking world?

Altman (1980, p.9) explains the types of learner needs based on individual differences within the framework of learner-centered language teaching. Learners should be placed properly based on their age, level of language proficiency, maturity and time available.

Importance of Need Analysis ESP Course. Bowers (1980, p.67) notes the importance of needs as a guide in syllabus development, materials and examination. Hawkey (1980, p.81) says that needs analysis is a tool for a course designer. According to Jordan (1997, p.22), needs analysis should be the starting point for devising syllabus, course materials and classroom activities.

3. Importance of Need Analysis to ESP Course Design

Clowes (1994) analyzes language needs of industry by interviewing people working in the industry to find out their perceptions of needs. Christison and Krahinke (1986, p.63) state that structured questionnaire is used to find out the students' language learning experience during the program. A convenient way to gather information on the ways in which learners prefer to learn is through need analysis (NA). NA enables the teacher to gather information about his learners' wants, lacks, and needs to be able to prepare for the ESP syllabus (Kandil, 2002). Needs Analysis collection methods depend entirely on the learners. They are submitted to questionnaires, interviews, discussions, assessments, and observations. Using questionnaires is considered "the least consuming" ways of collecting data. A current trend in teaching is to take into account learners' wants: they might want or need to carry out a variety of communicative tasks in the target language (Kavaliauskienė and Uzpaline, 2003, p.3). Needs Analysis appeared first in Munby's book "Communicative Syllabus Design" which was first published in 1978. In this book the
term NA was first mentioned as a procedure for the language planning course or course design. His approach focuses on aspects of communication. He emphasizes the assumption regarding the behind of his design” (Phan, 2005, p.11). Brown (2006, p.102) states that needs analysis is the systematic collection and analysis of all subjective and objective information necessary to define and validate defensible curriculum purposes that satisfy the language learning requirements of students within the context of the particular institutions that influence the learning and teaching situation. Jiajing (2007, p.2) confirms that NA is analyzing the specific needs of a particular group. This analysis serves to prelude to an ESP course design, because it determines the 'what' and 'how' of an ESP course.”

4. Buriram Airport

Buriram Airport is one of the 28 airports which operate under the Department of Airports (DOA). In 1985, former member of the House of Representatives proposed that the construction of the airport. That can serve both Buriram and Surin provinces. Therefore, Buriram province had procured land public include: Khok Samet forest, Khok Phrik subdistrict, Krasang district. But there is a problem about the people and the area is not enough. December 1989, Buriram province offering land in Khok Chot National Forest Reserve, Satuk district, Buriram province. With an area of approximately 2500 Rai to the Department of Aviation. Which is the cabinet approved to build the airport. From 1993-1996, start construction the airport. The Department of Civil Aviation DCA has allocated the budget year 1993 construction total 376.20 million baht. Completed about October 1996. Buriram Airport has been declared as a licensed airport on 14th October 1996 and has been announced as a customs airport on 13th November 2017.

Location of Buriram Airport

Buriram Airport is located in Ron Thong sub district, Satuk district, Buriram province 31150, there is 30 kilometers away from Mueang district, Buriram province and 75 kilometers from Mueang district, Surin province.

Personnel of Buriram Airport

There are total of 75 persons by Buriram Airport consisting of five bureaucrats, five bureaucrat employees, 13 permanent employees and 52 impermanent employees.

In addition, under the position of the director, the airport staff also has many positions as follows: transport technical officers, finance and accounting officers, parcel officers, public relations officers, driver officers, inspectors of weapons and hazardous materials, rescue and firefighting officers, electricians, mechanical technicians, civil technicians, handymen.

Conclusion: currently, there are 75 personnel working in Buriram Airport, they are not included the airline staff and the other companies within the airport.

Giving service to Buriram Airport

Start for giving service since 5th December 1998. At present, there are 2 airlines that provide service: Nok Air and Air Asia. There are 10 daily flights round-trip in route Bangkok (Donmueang)-(Buriram –Bangkok )Donmueang. Its were divided into four flights by Air Asia and six flights by Nok Air. Moreover, the airport also service to private flights, charter flights, training flights, and government service flights. In addition, Buriram Airport able to service the international flight (Non schedule flight).


Passenger statistics
Statistics of passengers who used to service at Buriram Airport both arrival and departure aspects from year 2015-2019 (January-March) (as follows):

According to the statistics of the number of passengers who used to have service at Buriram Airport as shown above, the number of passengers is steadily increased. In addition, there are 20-30 percentage of passengers are foreigners in each flight. Department of Airports forecasted that in the next three years Buriram Airport will have more passengers than this year at the rate of 20 percent and conducting to infrastructure development of airport for according to the growth of Buriram Province and compliance with standard of international aviation. Therefore, Buriram Airport needs to develop both infrastructure and human resource aspects, especially, developments English communication skills of human resource is an important in conducting airport business in globalization era, (Digital Age).

Therefore, the researcher is an interested in conducting the research entitled “Needs Analysis and ESP Course Designed for the Staff of Buriram Airport” in order to survey their English needs and design the ESP course and innovation suitable for them and assist them to be able to communicate in English with foreigners with self-confidence. It is noted that no one has conducted the research on this title before.

Research Methodology
1. Populations
The populations were the staff of Buriram Airport, which are bureaucrat, bureaucrat employees, permanent employees, and impermanent employees.

2. Samples
The samples of the study consisted of two main groups: The first group was composed of 40 informants including five bureaucrats, five bureaucrat employees, 10 permanent employees, 20 temporary employees. The second group comprised 15 representatives of 40 samples including two bureaucrats, two bureaucrat employees, four permanent employees, seven temporary employees were selected for a focus group discussion. They were selected by using a purposive sampling method.

3. Research Instruments
Two research instruments were employed: 1) set of questionnaires, one for 40 informants, and 2) focus group discussion form. There were six parts of the two sets of questionnaires: 1) The first part is concerned with the general information of the respondents: sex, age, educational background, their business types, and country. It was observed that the items about the business types were used to ask the Thai subjects while the items about the country were for the foreign informants. 2) The second part of six questions was about the samples’ opinions toward the needs of English use. 3) The third part of six questions was concerned with their opinions toward the English necessary content for the staff of Buriram Airport. 4) The fourth part of four items was about their opinions towards the appropriate innovation for learning English. 5) The fifth part was about 11 topics needed in the English course. And 6) The sixth part focused on their other suggestions and recommendations.
There were three parts of a focus group discussion: 1) Participants’ general information, 2) their opinions about problems and needs of communicative English for the staff of Buriram Airport, covering six questions, and 3) their other suggestions.

1. The steps of developing two sets of questionnaires and a focus group discussion questionnaire were shown in Figure 1:

![Figure 1: Steps of developing two sets of questionnaires and a focus group discussion question](image)

4. Data Collection
   1) The research tools were developed in line with the theories obtained from literature review.
   2) The research instruments were tried out with non-sample group in order to obtain the reliability.
   3) The questionnaires were distributed to 40 subjects. The data was collected by the researcher himself at the research area.
   4) The focus group discussion was carried out with 15 subjects at the target area. And about 2 hours were allocated for this discussion.
   5) The 40 informants were recruited to fill out the questionnaire towards the designed ESP course and the develop English innovation.

5. Data Analysis
   The statistics of frequency, percentage, mean, and standard deviation were used to arrive at usable conclusions derived from the responses to the questionnaires while the data obtained from a focus group discussion was analyzed and descriptively presented. Moreover, tables or figures were used for describing the findings. The constructed research tools were examined by three experts in order to prove the content validity, and the tools’ index of item-objective congruence (IOC) were between 0.67 and 1.00. This confirmed the instruments’ validity that could be utilized in this research.
Results of Research

The results and interpretation of data obtained from the subjects were presented in line with the research objectives as follows:

Objective: To analyze the need for ESP of the Buriram Airport staff

1. The details of six questions about the samples’ opinions toward the needs of English use were presented in Table 1:

Table 1
The samples’ opinions toward the needs of English use

<table>
<thead>
<tr>
<th>No.</th>
<th>Samples’ Responses</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>English is important for becoming an International Airport for the staff of Buriram</td>
<td>4.65</td>
<td>0.62</td>
</tr>
<tr>
<td>2</td>
<td>English is essential for the staff of Buriram airport</td>
<td>4.57</td>
<td>0.59</td>
</tr>
<tr>
<td>3</td>
<td>Speaking skill is very essential for the staff of Buriram airport</td>
<td>4.35</td>
<td>0.70</td>
</tr>
<tr>
<td>4</td>
<td>Listening skill is very essential for the staff of Buriram airport</td>
<td>4.30</td>
<td>0.72</td>
</tr>
<tr>
<td>5</td>
<td>Reading skill is very essential for the staff of Buriram airport</td>
<td>4.15</td>
<td>0.80</td>
</tr>
<tr>
<td>6</td>
<td>Writing skill is very essential for the staff of Buriram airport</td>
<td>3.75</td>
<td>0.81</td>
</tr>
<tr>
<td>7</td>
<td>Grammatical rules are necessary for the staff of Buriram airport</td>
<td>3.70</td>
<td>0.88</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>4.21</td>
<td>0.53</td>
</tr>
</tbody>
</table>

As shown in Table 1, they very strongly agreed with English is important for becoming an International and essential for the staff of Buriram airport of which item 1 (X=4.65) was most found, and item 2 (X=4.57), respectively. The respondents needed four aspects of English use, i.e., item 3 (X=4.35) and item 4, (X=4.30), 5 (X=4.15), item 6 (X=3.75), respectively. As well as, the last item, grammatical rules are still necessary for them of which item 7 (X=3.70).

It was clear that the topic that had an average of 4.21 was selected, and it was assumed that these topics were needed by the staff of Buriram Airport.

Table 2 showed the details of five questions about the samples’ opinions toward the English necessary content for the staff of Buriram Airport as follows:
As shown in Table 2, they strongly agreed with five content requirements of which item 1 ($X=4.40$) was most found, item 2 and item 3 ($X=4.35$), item 4 ($X=4.28$) and 5 ($X=4.23$) respectively.

3. Table 3 presented the details of four questions about the samples’ opinions toward the appropriate innovation for learning English as follows:

As shown in Table 3, it revealed that Thai subjects agreed with two most appropriate types of innovation i.e. A manual of English ($X=4.25$) and video ($X=4.17$) respectively.

4. The details of the questions about the samples’ opinions toward 11 topics needed by the staff of Buriram Airport were presented in Table 4.
Table 4
The samples’ opinions toward 11 English topics needed

<table>
<thead>
<tr>
<th>No.</th>
<th>Samples’ Responses</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Greetings and Welcoming</td>
<td>4.55</td>
<td>0.68</td>
</tr>
<tr>
<td>2</td>
<td>Polite Refusal</td>
<td>4.55</td>
<td>0.60</td>
</tr>
<tr>
<td>3</td>
<td>Apologizing</td>
<td>4.53</td>
<td>0.72</td>
</tr>
<tr>
<td>4</td>
<td>Asking for and Officering Help</td>
<td>4.50</td>
<td>0.60</td>
</tr>
<tr>
<td>5</td>
<td>Thanking and Saying Goodbye</td>
<td>4.48</td>
<td>0.68</td>
</tr>
<tr>
<td>6</td>
<td>Introducing Buriram Airport</td>
<td>4.38</td>
<td>0.71</td>
</tr>
<tr>
<td>7</td>
<td>Asking and Giving Directions</td>
<td>4.30</td>
<td>0.79</td>
</tr>
<tr>
<td>8</td>
<td>Giving Information</td>
<td>4.27</td>
<td>0.68</td>
</tr>
<tr>
<td>9</td>
<td>Dialogues with foreign officer of airline</td>
<td>4.25</td>
<td>0.84</td>
</tr>
<tr>
<td>10</td>
<td>Asking about Accommodation</td>
<td>4.20</td>
<td>0.69</td>
</tr>
<tr>
<td>11</td>
<td>Dialogues for Complaints</td>
<td>4.13</td>
<td>0.79</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>4.38</td>
<td>0.51</td>
</tr>
</tbody>
</table>

As shown in Table 4, respondents very strongly agreed that 4 topics and strongly agreed 7 topics were needed. Moreover, the item 1 and item 2 (กรุณาตอบว่า: 4.55) was most found and followed by item 3 (รวมค่า: 4.53) and item 4 (รวมค่า: 4.50) respectively.

The data obtained from a focus group discussion were presented as follows:

1. As for participants’ general information, 60 % were females and 40 % were males. Their age range was from 18-35 years old (66 %). 60 % graduated bachelor degree, and 40 % graduated diploma degree.

2. Their opinions about problems and needs of communicative English for the staff of Buriram Airport were presented in line with the following questions:

   2.1 Do you have any problems of English communication? And what skill is the most problematic for you?

   The participants answered that they had problems of English communication in four skills, but they needed to practice speaking and listening skills much more than the other two skills of reading and writing because they always interacted with foreign passengers asking their information and services.

   2.2 Do you think if the staff of Buriram Airport need to learn English? Why?

   They all agreed that English was very necessary for them because the foreigner passengers talking with them by English. They added that if they could speak English well, it might make their job good better and becoming to creating the first impression to foreigners.

   2.3 Do you think if English is necessarily learned to preparation for becoming to an international airport?
They confirmed that English is very essential to prepare for becoming to an international airport because English need to every career in the future and for universality. Moreover, English is also regarded as the working language of aviation industry.

2.4 What English topics in the English course should be studied by the staff of Buriram Airport, for instance, Greetings and welcoming, Thanking and Saying Goodbye, etc?

They agreed with 11 English topics proposed by the researcher. However, 11 topics were recommended and needed by the participants. These topics were: 1) Greetings and Welcoming, 2) Polite Refusal, 3) Apologizing, 4) Asking for and Officering Help, 5) Thanking and Saying Goodbye, 6) Introducing Buriram Airport, 7) Asking and Giving Directions, 8) Giving Information, 9) Dialogues with foreign officer of airline, 10) Asking about Accommodation, 11) Dialogues for Complaints.

2.5 Do staff of Buriram Airport need English innovation for helping them learn English? Why?

The participants needed to have English innovation as a portable learning tool that can be used anytime and anywhere, they are free. They believed that the English innovation would assist them in improving English, but it also has a part of thinking of the all of participant show that it does not need to have any innovation, because nowadays, they have all of smart phone mobile to use in their job which also can be used to learn English as well.

2.6 What kind of English innovation is needed by the staff of Buriram Airport, for instance, booklet, brochure, video, tape and CD?

Most opinion of them need to use the video as an innovation in order to use in studying English for the staff of Buriram Airport, followed by a manual, tape CD, booklet, data file and brochure, respectively. According to the opinion of the most respondents by questionnaires. Regarding their other suggestions, they did not have any suggestions.

**Discussion**

The research results were discussed as follows:

1. The staff of Buriram Airport needed to practice speaking and listening much more than the other two skills and grammar because the staff of Buriram Airport have to meet with the foreign passengers every day. They have to use talking with foreign passengers more than reading and writing. This could be explained that they have to listen to foreign passengers and speak while giving information in order to communicate with them for clearly understanding.

2. They needed to study the content relating to their jobs, that is, the specific terms and conversations used in a daily life and for working in each position or by work group. This reflects the fact that the content was relevant to their jobs. The content was also more useful and necessary for them as same as other general English content. This was similar to the framework of learning needs of available source including suitable learning aids and materials (Hutchinson and Waters, 1987).
3. Two types of innovations, manual and video, were appropriate for the staff of Buriram Airport to practice and improve English. The findings confirmed that an A4 size manual is a convenient and portable learning tool that can be used anywhere and anytime they are free. They can also listen and watch the video to practice speaking and listening skill and get familiar with a foreigner’s English accent. This was the same as the idea that the learning need is equated to the route of learning with the concerned things, such as, how learners learn the language, why they learn it, and what resources are available to help them learn (Hutchinson and Waters, 1987). Learning materials, mode of learning and time allocations are adapted to suit different individual preferences (Altman, 1980).

4. They needed 11 ESP topics because all of these topics are relevant to their job and in a daily use. So, the ESP course must be designed in line with the samples’ needs. The course covering 11 English topics must be included in the English innovation, a manual and a video. The finding is similar to the learners’ needs analysis based on the concepts and theories of need analysis proposed by many scholars, for instance, Hutchinson & Waters (1987) and Richard, Platt & Platt (1992) who state that English for Specific Purposes (ESP) is an approach to language teaching based on the learner’s learning and needs. The ESP content and course design should only be determined by a comprehensive need analysis (Robinson, 1991, Wright, 2001). ESP is based on a particular context and on the learners’ specific needs (Dudley-Evans et all, 1998).

5. The innovation consisted of 11 units, each unit must be consisted of two conversations with the words and phrases at the end. The innovation must also be having evaluated by the experts, the innovation will be found at a high level in an overall aspect. This might be the reason that the innovation had been developed through the right process from the first stage of the samples’ need analysis to the last stage of the experts’ evaluation.

**Recommendations**

Based on the findings of this study, the researcher recommends that:

1. The research results must be brought to inform with the staff of Buriram Airport for giving them to acknowledge what have to improve for their English skill and prepare to be the participants for training.

2. In the next phase, the ESP course designing for the staff of Buriram Airport must be covered contents and topic base on the finding of this study as well as must be passing the methodology research process likewise needs analysis phase.

3. The ESP training workshop should be organized for the learners regularly in order to help them build self-confidence in using English.

4. For further studies, the research on need analysis of different ESP topics for different professionals and careers such as tourism police officers, immigration officers, customs officers, disease screening officers, or plant and animal quarantine officers, should be conducted.
References


The Language Structure and Language Used in Paul Adirex’s Fiction

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Abstract

This study aimed to find out the translational analysis on the language structure and language used in Paul Adirex’s fiction, Until the Karma Ends written in 1996 translated into Thai version by Wipada Kittikowit, a favorite Thai translator. The data was scrutinized the language in the literary interpretation on language structure and language used aspects. It is focusing on the Language Structure and its used techniques disclosed in Paul Adirex’s fiction and also concentrates on how the author has brought out the use of stylistic features in his verbal art with these three main topics: 1) Phonological Feature of Style classified into Phonological Reduction, Phonological Stress and Intonation with the Statements in the Form of Exclamation and Questions, 2) The Morphological Features of Style classified into the Modified Physical Appearance of Words with Capitals and Hyphens, Language Mixing divided into Use of English and Use of Transliterated form: English into Thai, Use of Coupling Word, Use of Reduplicated Word, Use of Thai Archaic Words, Use of Connotation, Use of Proverb, Aphorism and Use of Onomatopoeia and 3) The Syntactic Feature of Style classified into Negative Sentences, Missing Question Mark in the Sentences and Use of Question Tags. Accordingly, all techniques point the main methodology lied to study in identifying and analyzing Paul Adirex’s fiction in the various language features of translation with respect to the content and context in the literature survey taken for the study. The results of this study bring to light the evidence of the language structure and language used in Paul Adirex’s fiction which gives a significant contribution in three areas of the language field consisting of in the area of literature, in the area of linguistics and in the area of translation.

Keywords: language structure and language used, fiction
An Analysis of Thai into English Translation of Thai Comics by Northern University English Major Undergraduates based on Bell’s Model (1991) and Gile’s Model (1995)

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Abstract

The study “An Analysis of Thai into English Translation of Thai Comics by Northern University English Major Undergraduates based on Bell’s Model (1991) and Gile’s Model (1995) aimed to 1) analyze the translation procedures of Thai comic books into English by the 4th Year English Major students based on translation process (Bell’s Model, 1991) and Gile (1995) and 2) to investigate equivalence in Thai comic books into English by the Northern University English Major Undergraduates. Eighty-two undergraduates subdivided into 20 groups, a group of four. Twenty Thai comic books as the research instruments were assigned to each group to do a translation (Source language – Target language). A data record form designed based on Bell's and Gile’s translation process was employed for assessing the translation process. Findings revealed that each group followed three - translation process proposed by Bell and Gile. At the analyzing stage, an analysis of a comic title, the body of the text focusing on a translation unit (TU) was conducted by each group with different translation strategies. At the drafting stage, a comic title was replaced with Formal Equivalence, and most of the translated works were replaced with the cultural equivalence of the targeted language, which is quite hard to do. At the Revising stage, each group made corrections and adjusted various defects derived from spelling, grammar, and style and presented the final version which was not distorted from the original version.

Keywords: Thai comics, equivalence, Bell’s model and Gile’s model
Strategies Used for Translating Subtitle of TV Series Riverdale

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Abstract

The purpose of this research was to analyze strategies used in translating TV series Riverdale form English into Thai. The population of this study is divided into two versions. The source text, English version, Riverdale, whereas the target text was translated into Thai version “ริเวอร์เดล”. It consists of 13 episodes. Two episodes out of 13 episodes were selected as the research samples via a purposive sampling method. The translation strategies of Gottlieb (1992) were employed to deal with the different language styles and structures in TV series. Moreover, all chapters were coded and examined by three experts and advisors for finding out the Index of Item-Objective Congruence. The research results revealed that the following translation strategies proposed by Gottlieb (1992) were as follows: transfer, paraphrase, imitation, deletion, expansion, condensation, and transcription.

Keywords: translation strategies, subtitle, TV series, Riverdale

Introduction

The changing of an era is caused by the progressive development of innovation and technology associated with communication affecting language usage of people across the world. English is considered an international language and mostly used in conversations. It is consistent with the explanation of Naved (2015) showing that students studied subjects using English as a medium language in order to access more and wider knowledge contents. In Thailand, English is accepted as an international language since it influences on various dimensions, such as education, international business, technology and innovation, cultural exchange, and economy. Besides, English is not only important to those mentioned aspects, but also it still has influenced on promoting the prevalence of entertainment industry in Thailand.

The data of the Thai National Federation of Motion Pictures and Contents Associations (2012) shows that an average revenue of Thai movie industry is 26,992.95 million baht. The result of an industry survey of PwC’s Global Entertainment and Media Outlook (2018) suggests that the revenue from digital media, including online media, social media, and media from various internet communication plays an important role in the future growth of Thai media and entertainment industry.

Indeed, it is worth to mention Netflix, a famous and successful company in the global entertainment industry. Currently, Netflix provides more than 100 movies and series in over 190 countries around the world with over 100 million paid memberships. It is considered the world’s most influential media with many outstanding works. Series that made Netflix famous with huge followers across the
world are House of Cards, The Crown, Stranger Things and 13 Reason Why (SM Magazine, 2018). And the series that gain worldwide popularity from the international audiences is Riverdale.

Riverdale is very popular and admired as “One of the Best Teen TV Shows on Netflix” (Thrillist Entertainment, 2019: 1). It gains 87% score on Rotten Tomatoes ranking of the top best movies (2017). Riverdale series was created and developed from Archie Comics written by Roberto Aguirre-Sacasa. It presented stories about gender, love, school and family in enjoyable, exiting, and enthralling manners. Riverdale not only impressed viewers, but also was given many awards that can guarantee its quality in 2017. Therefore, it is not more surprising why many viewers followed the series. However, this TV series has been translated into Thai by Jiranan Wongsombat, who is an expert in translation.

One of the important components make Riverdale deserve to be popular in Thailand is language, translated and adapted by a translator. It can help characters to communicate a story with appropriate and beautiful wording. Thus, language is considered an important mechanism to enable viewers to better understand the story and characters. Learning how to communicate languages is important for the usage of existing languages in today’s world because it can help sender encoded the message and receiver decoded the message so that they can understand each other. However, there are still differences between languages. (Gottlieb, 1992: 166) classified 10 strategies to manage and solve problems of language difference as follows: 1) Expansion 2) Paraphrase 3) Transfer 4) Imitation 5) Transcription 6) Dislocation 7) Condensation 8) Decimation 9) Deletion and 10) Resignation.

Due to the complexity of language translation, this study aims to clarify the strategies used in the translation. Therefore, the popular series, Riverdale on Netflix has been used as an example. As a result, this research can further develop translation principles in Thailand.

The study objectives

The study purpose was to analyze strategies used in translating TV series Riverdale from English into Thai.

Literature Review

1. Translation

Diller and Kornelius (1978, as cited in Lörscher (1991) state that translation is considered adequate when it has the same reference, predication and inference as the original. A source language (Henceforth: SL) text and a target language (Henceforth: TL) text can only be equivalent in meaning when they are semantically, pragmatically and stylistically the same. Weber (1984) defines translation as the transposition of a text written in a source language into a target language. The translation must completely contain all meaning of the original and must be written in a clear and graceful language that can easily be understood by the reader. It accords with (Newmark, 1984: 7) states that translation is “a craft consisting in the attempt to replace a written message and/or statement in one language by the same message and/or statement in another language.” Thus, this term is defined similarly as a way to transfer the meaning from one language to another language by endeavoring to keep the original meaning.
2. Translation Methods

Catford (1974) divides translation methods into three aspects that are extent, level, and ranks.

1. Extent refers to the quantity of text in the translation process. There are two features below:
   1. Full translation, translating the whole text.
   2. Partial translation, translating some part of a text.

2. Level refers to phonology, graphology, and grammar and lexis of the source language into the target language. There are two features as below:
   1. Total translation, all levels in the source language are translated into the target language.
   2. Restricted translation, only one level in the source language is translated into the target language.

3. Rank refers to units of language in the text: morpheme, word, clause, and sentence. There are two features as below:
   1. Rank-bound translation (Word-for-Word translation), the source language unit is translated into the target language unit at the same rank.
   2. Unbound translation is divided into literal translation and free translation. For the former, the meaning in the source language is preserved but it relies on natural forms of the target language while for the latter, Word-for-Word that is the forms of the source language is preserved as much as possible.

Newmark (1988) categorizes translation methods into two types: the source language emphasis and the target language emphasis.

1. The source language is divided into four types as follows:
   1. Word-For-Word translation: the lexical words in the source language are translated word by word into the target language without changing the grammatical structure of the source language.
   2. Literal translation: the lexical words in the source language are translated literally but the grammatical structure of the source language is adjusted to the target language.
   3. Faithful translation: the translator must preserve the idea of the author truthfully.
   4. Semantic translation: the target language grammatical restrictions have to retain the source language contextual meaning as close as possible.

2. The target language is divided into four types as follows:
   1. Adaption: the source language text is translated and rewritten into the target language.
   2. Free translation: Translators add more information in the target language text. Meaning of the source language may be changed.
   3. Idiomatic translation: Using idioms instead of the word existed in the source language.
   4. Communicative translation: reproducing the exact conceptual meaning of the source language into the target language. The content and language of the target language are comprehensible.

1. Free translation is a way of reproducing the context without the form of the original.

2. Literal translation is a way of translation by keeping the meaning of the word without linking to its context, which results in the misrepresentation of its intended meaning.

According to Catford (1974) Newmark (1988), and Saibua (1995), translation strategies are classified into three groups as follows:

1. Word-for-Word translation
2. Free translation
3. Literal translation

3. Translation Process

(Newmark, 1984: 144) states that “there are three basic translation processes: a) the interpretation and analysis of the SL text; b) the translation procedures, which may be direct, or on the basic of SL and TL corresponding syntactic structures, or through an underlying logical ‘inter-language’ (the tertium comparationis); c) the reformulation of the text in relation to the writer’s intention, the readers’ expectation, and the appropriate norms of the TL, etc.” In addition, Nida and Taber (1982 as cited in Kongrith, 2016: 10) describe the process of translation as follows: 1) analysis, in which the surface structure i.e., the message as given in language. The source text is analyzed in terms of the grammatical relationships and combination of words, 2) transfer, in which the analyzed material is transferred in the mind of the translator from source language to target language, and 3) restricting, in which transferred material is restructured in order to make the final message fully acceptable in the target language.

4. Translation Strategies

The following are the strategies proposed by the theorists.

Baker (1992) identifies eight translation strategies of non-equivalence at word level which are used by the professional translator as follows: 1) Translation by more general word (subordinate): especially in the field of the propositional meaning. 2) Translation by more neutral/less expressive words: whenever there is no equivalent in the target text, the source text will be replaced by a near equivalent in the target language. 3) Translation by cultural substitution: replacing a culture-specific item or expression with a target language item which is unavailable the same propositional meaning. 4) Translation using loan words or loan words plus explanation: used to contend with culture-specific, modern concepts and buzz words. 5) Translation by paraphrase using related words: when the concept expressed by the source language is lexicalized in the target language, this strategy will be used in a different form or when a certain form of the source language used harder than would be natural in the target language. 6) Translation by paraphrase using unrelated words: when the concept expressed by the source language is not lexicalized in the target language, this strategy is applied. 7) Translation by omission: when the expression is not crucial enough for the development of the text, this strategy is employed, and 8) Translation by an illustration: when the word lack of an equivalent in the target language refers to physical existence, this strategy tends to be used.

Newmark (1988) proposes the following translation strategies: 1) Word for word translation: Each SL lexical item is translated word by word with simple meaning into TL lexical items. Grammatical structures of SL are maintained. 2)
Literal translation: SL lexical items are translated literally as word for word translation but the grammatical structure is adapted to TL. 3) Faithful translation: SL lexical item is translated into TL by preserving SL contextual meaning while the grammatical structure is adapted to TL. The main aim of faithful translation is straight forward to the idea of the author, and 4) Semantic translation: SL contextual meaning is retained within TL grammatical restriction but the translator can add personal idea to the translated text.

According to Gottlieb (1992), there are 10 translation strategies as follows:

1. Transfer refers to the strategy of translating the source text completely and accurately.
2. Imitation maintains the same forms, typically with names of people and places.
3. Transcription is used in those cases where a term is unusual even in the source text, for example, the use of a third language or nonsense language.
4. Expansion is used when the original text requires an explanation because of some cultural nuance not retrievable in the target language.
5. Paraphrase is resorted to in cases where the phraseology of the original cannot be reconstructed in the same syntactic way in the target language.
6. Dislocation is adopted when the original employs some sort of special effect, e.g., a silly song in a cartoon film where the translation of the effect is more important than the content.
7. Condensation would seem to be the typical strategy used, that is, the shortening of the text in the least obtrusive way possible.
8. Deletion refers to the total elimination of parts of a text.
9. Decimation is an extreme form of condensation where perhaps for reasons of discourse speed, even potentially important elements are omitted.
10. Resignation describes the strategy adopted when no translation solution can be found and meaning is inevitably lost.

Concisely, these strategies were created by expert translators for dealing with problems while translating a text as well as to reduce nonequivalence of languages.

5. TV Series and Translation

The popularity of television series has been increasing within a few years and there are many researchers studying subtitling strategies. For example, Bąk and Gwóźdź (2016) study “Analysis of Henrik Gottlieb’s Translation Strategies Adopted by the Internet Group Hatak in the Translation of the First Episode of “House of Cards”. Form the study, it was found that the translator applied different translation strategies to render the source language message into the target language message. However, the highest frequency of translation strategies found is ‘transfer. This technique is a faithful transmission of the source language into the target language. It can be noted that the Hatak translator endeavors to preserve the meaning of the original text as much as possible.

6. Summary of Riverdale

The beginning of the story started with the tragic death of Jason Blossom. Archie Andrews, who was an American teen, was passionate in music but he had a deep relationship with a young music teacher, Ms. Grundy. On the Fourth of July, they heard the gunshot that may have killed Jason. The fact of their relationship came to light, when Veronica and Betty found that the real name of Ms. Grundy was
Jennifer Gibson and she tried to conceal her identity. Betty’s mom, Alice, threatened her to expose, if she didn’t leave from this town as soon as possible. After that, Archie looked for a new music mentor and he turned to Josie McCoy who was the leader of Pussycats. Jughead Jones was the best friend of Archie. During the summer, he wrote a novel that retells the events and describes what happened between Archie and him. He was confused when his accommodation, Drive-in, was closing. After that, he knew the truth of his father, F.B., was the head of the Southside Serpents. Moreover, he was terrified again when he knew F.B. was the suspects of murdering Jason. Because the police found a gun in F.B. trailer. Archie and Veronica assumed that someone was framing F.B. for Jason’s death. Meanwhile, Betty grew closer to Jughead, when they restarted the school newspaper the Blue and Gold for investigating the Jason’s death. This situation brought them face-to-face with Betty’s sister, Polly. They also knew that Polly was pregnant. When Polly knew that Jason had been killed, she decided to escape from a home for troubled youth and went back her home. However, the Cooper family encountered awful circumstances again, Alice banished Betty and Polly’s father, Hal, out of the Cooper house, after she knew that Hal frightens Polly with an abortion. Even so, Polly decided to move to the Blossom house to examine the evidence of Jason's death. She discovered her own engagement ring in Penelope’s jewelry collection but they told her that Jason threw it away by himself. On the other hand, Hal confessed the secret of his family to Betty and Alice that the Coopers, Polly and the Blossoms, Jason were related by blood. Thus, Hal tried to hinder them because they should not be a complete spouse. Meanwhile, Betty and Jughead informed the police that they found a car which contained drugs and Jason’s belongings, but an unknown culprit stalked them and ruined all evidence. In the end, the investigation of Betty and Jughead leaded to find the important evidence. They found a thumb drive in the pocket of Jason’s varsity jacket. It recorded Cherly and Jason’s dad, Clifford, murdered Jason by himself because Jason found out that Clifford was in the drug business and Jason also tried to stop his business. Nonetheless, Clifford had hanged himself, before the police went to arrest him. (Archieverse Wiki, 2017).

7. Profiles of Author and Translator

1. Author’s Profile

Roberto Aguirre-Sacasa was born on November 15, 1975. He grew up in Washington, D.C. He joined Georgetown Preparatory School in North Bethesda, Maryland. He was interested in playwriting while he was studying at Georgetown University. Afterwards, he acquired a Master Degree in English literature from McGill University and graduated from the Yale School of Drama. He created many works. In 2003, he produced The Mystery Plays, which had won a writing award from the Kennedy Center, and also hit production of Say You Love Satan at the 2003 New York International Fringe Festival. He was as a writer for the HBO series Big Love. In 2010, he wrote the book for the musical adaption of the novel American Psycho. In 2011, he was approached to help rewrite its script Spider-Man: Turn Off the Dark. And in the same year, he was hired as a co-producer and writer of Glee. Later, he was hired to write the comic book Archie meets Glee, published in 2013. In addition, he was the series developer of Riverdale, the series that made him be a famous writer (Revolvy, n.d.).
2. Translator’s Profile

Jiranun Wangsombat was a Thai translator. She graduated with a Bachelor’s Degree from Chiang Mai University in Thailand, majoring in English and having a minor in Mass Communication. She was specialized in translation (Thai/English), and familiar with English language school businesses including teaching English, sales and events coordinating and social media. In 2012-2014, she used to be a personal tutor and center event coordinator at Wall Street English. And then, in 2015-2017, she was an account executive and digital content editor at Wright English production for 2 years. In 2017 – present, she was a translator of CM Media. She had been responsible for translating English subtitles to Thai in movies and T.V. shows for foreign customers, such as Iflix and Netflix. However, she had been a freelance translator of SDI Media or the world’s leading localization provider of the dubbing and subtitling services since 2014-present, the main customers were Netflix, Sony AXN, Hallmark, Paramount, Fox, Universal, etc. Thus, there were many works created by Wangsombat including Riverdale, the popular TV series of Netflix (Linkin, n.d.)

Research Methodology

1. Population

The population of this study was divided into two versions. The source text, English version, Riverdale, was written by Roberto Aguirre Sacasa whereas the target text was translated into Thai version by Jiranun Wangsombat. In this season 1, it consisted of 13 episodes.

2. Samples

The samples were selected based on a purposive sampling method. The samples were composed of chapter 1 (The River's Edge), 47.09 minutes, and chapter 13 (The Sweet Hereafter), 42.50 minutes.

3. Research Instruments

The research instruments were the translation strategies used to deal with the difference in language style and structure in TV series Riverdale (Source language) and ริเวอร์เดล (Target language). The following translation strategies proposed by Gottlieb (1992) were analyzed:

4. Data Collection

The researcher collected data from the TV series Riverdale season 1, the original version and ริเวอร์เดล ซีซัน1, the translated version. The procedures to collect the data were as follows:
1. The researcher analyzed the main idea of the story.
3. The researcher chose episode 1 and 13 as the samples from both the source text and target text.
4. The researcher collected data by copying the source text (English version) and the target text (Thai version) appeared on the screen. The data collection was done three times to ensure that all information of both subtitles were infallible.
5. The source text was compared with the target text, sentence by sentence, phrase by phrase and word by word, and then listed it into the table.
6. The procedure of coding was made based on the theoretical framework of Gottlieb (1992).

7. The researcher submitted to advisors and three experts for verifying the accuracy of the coding.

8. All chapters were coded and examined by three experts and advisors for finding out the Index of Item-Objective Congruence (IOC).

9. The Index of Item-Objective Congruence (IOC) was between 0.5-1.0, it was acceptable. Nonetheless, if the IOC was lower than 0.5, the items had to be readjusted and rechecked by advisors.

5. Data Analysis

1. The source text was compared with the target text sentence by sentence for identifying what strategies were applied by the translator, and the researcher found out the relevant strategies for each sentence by using the theoretical framework of Gottlieb (1992). The coding was estimated to possess the accuracy through the inter-rater dependability by the three experts. And then, the researcher and advisors rechecked the reliability of the obtained data.

2. The Index of the Item-Objective Congruence (IOC) was calculated by three experts for assessing the content congruence of the analyzed items against the theoretical framework. If the IOC of items is between 0.5-1.0, it is acceptable. On the other hand, if the IOC is lower than 0.5, this will be readjusted. And the last, the percentage of frequency of each strategy was indicated through the table for source text and target text.

Research Result

The analysis of the data assembled in the present study revealed that the subtitle of the TV series under the study have applied different strategies to transfer the meaning of the original TV series. Seven translation strategies were founded in this study. The following were seven translation strategies with examples presented in tables:

<table>
<thead>
<tr>
<th>Translation Strategy</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transfer Strategy</strong></td>
<td><img src="#" alt="Table 1: Examples of “Transfer” strategy" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source language</th>
<th>Target language</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Our story is about a town. A small town. And the people who live in the town.</td>
<td>1. เรื่องราวของเราเรียกว่าเมืองนี้ เมืองเล็กๆ และผู้คนที่อาศัยอยู่ในเมือง</td>
</tr>
<tr>
<td>2. The name of our town is Riverdale.</td>
<td>2. ชื่อของเมืองของเราคือริเวอร์เดล</td>
</tr>
<tr>
<td>3. What does your heart say?</td>
<td>3. หัวใจนายบอกว่าอะไรล่ะ?</td>
</tr>
</tbody>
</table>

From the table 1, it was noted that “Transfer” conveyed the full expression. Every single piece of source languages was transferred to target language accurately and completely, for example, the expression in the source language “One story is
"about a town" was completely transferred to the target language “เรืองราวของเราเกียวกับเมืองหนึง”

**Table 2**
**Examples of “Paraphrase” strategy**

<table>
<thead>
<tr>
<th>Translation Strategy</th>
<th>Example</th>
<th>Source language</th>
<th>Target language</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Paraphrase Strategy</strong></td>
<td>1. I just need you to be smart, okay? And stay focused.</td>
<td>แม่แค่อยากให้ลูกทําตัวฉลาดเข้ าใจนะ แล้วก็อย่า ว่อกแวก</td>
<td>1. แม่แค่อยากให้ลูกทําตัวฉลาดเข้ าใจนะ แล้วก็อย่า ว่อกแวก</td>
</tr>
<tr>
<td></td>
<td>2. I’m filled with dread.</td>
<td>ฉันกลัวมากเลย</td>
<td>2. ฉันกลัวมากเลย</td>
</tr>
<tr>
<td></td>
<td>3. To use this as an opportunity to become maybe, hopefully….….a better version of myself.</td>
<td>ใช้โอกาสนีเพือหวังว่าจะได้เป็นคนทีดีกว่านี</td>
<td>3. ใช้โอกาสนีเพือหวังว่าจะได้เป็นคนทีดีกว่านี</td>
</tr>
</tbody>
</table>

From the table 2, it was shown that “Paraphrase” was the alteration of source language message into the target language by using a different word in order to create the identical impression and comprehension in the target audiences. It considered a sense for sense rather than a literal translation, for instance, the phrase in the source language “And stay focused” was paraphrased to the target language “แล้วก็อย่า ว่อกแวก”

**Table 3**
**Examples of “Imitation” strategy**

<table>
<thead>
<tr>
<th>Translation Strategy</th>
<th>Example</th>
<th>Source language</th>
<th>Target language</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Imitation Strategy</strong></td>
<td>1. I was like Cheryl.</td>
<td>ฉันเป็นเหมือน เชอรีล</td>
<td>1. ฉันเป็นเหมือน เชอรีล</td>
</tr>
<tr>
<td></td>
<td>2. Takes me back here. To work for you in Riverdale</td>
<td>พาผ่อมกลับมาทีนีทํางานให้พ่อในริเวอร์เดล</td>
<td>2. พาผ่อมกลับมาทีนีทํางานให้พ่อในริเวอร์เดล</td>
</tr>
</tbody>
</table>

From the table 3, it was revealed that “Imitation” was the strategy used in case of proper nouns (name and place) and other words, such as, the word in the source language “Riverdale” was transliterated to the target language “ริเวอร์เดล” because it was the proper name of the place.
### Table 4
Examples of “Deletion” strategy

<table>
<thead>
<tr>
<th>Translation Strategy</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deletion Strategy</td>
<td><strong>Source language</strong></td>
</tr>
<tr>
<td></td>
<td>1. I mean, did he even know what that was?</td>
</tr>
<tr>
<td></td>
<td>2. Well, you haven’t seen our big finish yet.</td>
</tr>
<tr>
<td></td>
<td>3. You’re a little more dangerous than you look, aren’t you?</td>
</tr>
</tbody>
</table>

From the table 4, it was presented that “Deletion” was used to deal with filler words, tag question. The important message was leaved to be expressed intact in target language. Moreover, it is also employed to contend with non-verbal content, conjunction, adverbial expression, and some word, for instance, the word in the source language “I mean” was deleted because it was a filler word.

### Table 5
Examples of “Expansion” strategy

<table>
<thead>
<tr>
<th>Translation Strategy</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expansion Strategy</td>
<td><strong>Source language</strong></td>
</tr>
<tr>
<td></td>
<td>1. So I’ll study with Ms. Grundy.</td>
</tr>
<tr>
<td></td>
<td>2. This one’s for you, JJ.</td>
</tr>
<tr>
<td></td>
<td>3. And I swear, that’s all it’ll be.</td>
</tr>
</tbody>
</table>

From the table 5, it was noted that the message of the source language is expanded to a larger message in the target language for making more acceptable and understandable, such as, the word “ครู” was added in the target language for expanding the word “กรันดี”.

### Table 6
Examples of “Condensation” strategy

<table>
<thead>
<tr>
<th>Translation Strategy</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condensation Strategy</td>
<td><strong>Source language</strong></td>
</tr>
<tr>
<td></td>
<td>1. Is that all it is? Just friends?</td>
</tr>
<tr>
<td></td>
<td>2. Ladies, where’s the heat? Where’s the sizzle?</td>
</tr>
<tr>
<td></td>
<td>3. A blissful evening with not one, but two newly-minted River Vixens.</td>
</tr>
</tbody>
</table>
From the table 6, it was revealed that the messages of source languages were shorten in the target language but the meanings were not lost, for example, the expression in the source language “not one, but two...” was condensed to the target language “สองสาว...” in the target language.

Table 7
Examples of “Transcription” strategy

<table>
<thead>
<tr>
<th>Translation Strategy</th>
<th>Source language</th>
<th>Target language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transcription Strategy</td>
<td>It’s game time at Chez Blossom, kiddies</td>
<td>ได้เวลาเล่นเกมแห่งบ้านบล๊อสซัมแล้วเด็กๆ</td>
</tr>
<tr>
<td></td>
<td>2. Now, brace yourself, the apartment’s small, a pied-à-terre</td>
<td>เตรียมใจไว้นะ อะพาร์ตเมนต์เล็กเท่ารูปนู</td>
</tr>
</tbody>
</table>

From the table 7, the France languages or the third languages used in the source language and translated into target language, for instance, the word in the source language “Chez” was transferred into “บ้าน” and “a pied-à-terre” was transferred into “อะพาร์ตเมนต์”.

Discussion

The research results indicated that, there were seven out of ten translation strategies proposed by Gottlieb (1992) which were applied by translator to analyze the English – Thai subtitling of TV series, Rivaerdale. ‘Transfer’ strategy was found in this study. It conveyed the full expression. The whole message of source language was transmitted into target language completely and accurately. So, the target audiences received the complete information. In other words, this strategy focused on literal translation rather than sense for sense as ‘Paraphrase’. Furthermore, ‘Imitation’, ‘Deletion’ ‘Expansion’, ‘Condensation’ ‘Transcription’ were also found in this study. This might be the reasons why the meanings of the target languages were explicit and intelligible because translator employed these kinds of strategies. In the other hand, decimation, dislocation, and resignation did not appear in this analysis. Due to there were no the different expressions or content of untranslatable elements. The finding of this research was similar to the learner’s translation analysis based on the concepts and theories of translation analysis proposed by many scholars, for instance, Ghaemi (2011) studied conducted research entitled Strategies Used in the Translation of Interlingual Subtitling. The main purpose was to investigate the interlingual strategies in the English-Persian subtitles by using the theoretical framework of Gottlieb (1992). The results indicated that the most frequently used strategy was ‘Transfer’ and the least frequently used strategies were ‘Transcription’ and ‘Decimation’. In addition, Sharif (2015) also did the study on To What Extent the Strategies That Gottlieb Offered in His Subtitling Typology Are Applicable into Persian-to-English Subtitling? This article intended to examine the translation strategies in Persian into English subtitling of TV series “Madar-e Sefr Darajeh” by employing the Gottlieb’s (1992) translation strategy. The result of the study revealed that ‘Transfer’ was the first most
common strategy and ‘Paraphrase’ strategy was the next common whereas ‘Resignation’ was the least common.

**Recommendations**

1. This finding of this research could be a practical guideline for people who are interested in the translation strategies.
2. The results of this study could be an example research for researchers who want to study in the field of translation.
3. This research is applicable and useful for beginners to establish knowledge of translation.
4. This research focused on the translation strategies only, so the next research should cover the frequency and percentage of each strategy found in the translation analysis.
5. This research studies the translation strategy in the TV series. The further research relevant to other medias such as, novel, poems, movie should be carried out.

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The Challenges of English Teachers in Thailand for Promoting University Students’ English Skills to be the Effective ASEAN Citizens

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Abstract

The official establishment of ASEAN Community in 2015 has become the center of global interest during the past few years. As a member of ASEAN, Thailand has been influencing by this establishment. Whereas, English language is considered as one of the most important keys towards the development of Thailand, in order to keep pace with the growth of ASEAN Community. Since, it was stipulated in the ASEAN Charter, Article 34, that “The working language of ASEAN shall be English” (Association of Southeast Asian Nations, 2008b: 29). As a result, using English as a means of communication in the ASEAN community has become an important issue.

Despite Thai government efforts to promote English education in Thailand. It was obvious that the English proficiency of Thai students was relatively low compare to some countries in ASEAN. This article described English language in Thai context and indicated the major causes of English teaching-learning problems in Thailand, such as, the teacher factor, the student factor, the curriculum factor, and other factors. The author also proposed a guideline for the university to promote English proficiency among the students who would become the efficient workforce for ASIAN in the future.

Keywords: ASEAN, English, English teacher, ASEAN citizen, University English teaching, University students, English language problems in Thailand, English teaching in Thailand, English problems of Thai students, Thai students English proficiency, developing Thai students English proficiency
Synthesis of Research on Blended Learning in English Reading: A Meta-Analysis

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Abstract

The objectives of this research were 1) to synthesize research in blended learning on English reading 2) to analyze the value of effect size of English reading achievement in blended learning. The 21 researches and dissertations were the total of population and all of them were published during 2007-2018. The sampling group of this research were 10 research randomly selected for calculating the effect size in English reading achievement. The recorded research form and analysis form were the research instruments in this study. The statistics of this research were percentage, mean and effect size.

The result of this research has been shown that the research were mostly found in Thailand and the university mostly conducted these research were Chulalongkorn University, Silpakorn University, Islamic Azad University and A Rosetta Stone Company in Faculty of Education in English/Teaching English, major in English. The research were mostly published in 2017, and they were experimental research and quasi experimental research. The most research purposes were focused on reading English achievement in blended learning, and they were non-directional hypothesis. The variables mostly found in these research were English reading. Purposive sampling and university students were sampling. The experimental design mostly took on one semester and the sample group was distributed into experimental and control groups. Most of researches used the tests. Average, Standard Deviation and T-test were used to analyze data. The technology used for blended learning were E-learning, M-Learning, Online Learning and Moodle. The result of this study has been implied that teaching blended learning was better than conventional teaching methods in English reading achievement.

Keywords: synthesis of research, blended learning on reading English, A meta-analysis

Introduction

The rapidly changing of technology could help instructors bring the technology into their classes for teaching and learning in the 21st century. The technology could develop educational management, therefore it was popular and widely used among educators (Daniel, 2010; Smaldio, Lowther, & Russell, 2014; Bates, 2015). Blended learning is one of popular teaching methods that was a combination between teaching and learning in classroom and online learning. Students can do some activities with their teachers in the classrooms (face-to-face), and they also study through technology (online). It is good for students to learn
anywhere and anytime for distance education. They could control their study time by themselves and they also have the opportunity to choose the content of the study (Hew, & Cheung, 2014; Keengwe, & Agamba, 2015; Taylor, Atas, & Ghani, 2017). The technology used in blended learning were computers, tablets, smartphones and social media. These technology consisted of text, images, animation video, and this technology could facilitate the students to access conveniently. (Wankel, 2011; Stein, & Graham, 2014). Therefore, blended learning is popular and widely used in this century.

Blended learning has been implemented in a variety of subjects, especially in English teaching in reading skills. Reading skill is very important to find some information on the internet and people around the world connect and communicate with each other by internet, online, email, Line chat, Facebook, Instagram, and Twitter. Reading skills is the most necessary skills to improve (Lapp, & Fisher, 2011). Blended learning was designed to develop reading skills through Moodle courses, E-learning, Mobile Learning, Virtual Classroom and Learning Management System (LMS) (Allan, 2007; Hillar, 2010). The process of blended learning research in English reading has been done for decades. However, the result of the research has both the same and different results. The finding from this study might be useful to employ as a guideline for developing researches and teaching methods in blended learning by using synthesis and meta-analysis from related researches. The synthesis of research is the process to identify the same topics and detail or related variables, while meta-analysis is the method to find the effect size of researches (Wolf, 1986; Rosenthal, 1991).

Objectives of the Study
1. To synthesize blended learning on English reading researches.
2. To analyze the value effect size of the research in blended learning on English reading achievement.

Research Methodology
21 researches were analyzed and synthesized. All of these researches were blended learning in English reading conducted from 2007-2018 in Thailand and foreign countries. They were research and development, experimental research, quasi-experimental research and quantitative research. The variables were consisted of countries, institutions, faculties, departments, majors, year of doing research, research levels, research plans, research objectives, hypothesis, reading types, sample groups, sampling, period of experiment, samples used in the experiment, instruments, statistics and data analysis, media and technology used in blended learning, English reading achievement and effect size. 20 variables were found in this study.

1. Population and sampling
The population of this research were 21 blended learning researches of English reading and the results identified the variables. The sampling were 10 blended learning research of English reading to find the effect size.

2. Instruments
The instruments used in this research were the form of recorded research and the form of data analysis.
3. Data Analysis

21 researches were analyzed by percentage and 10 researches were analyzed by average and Meta-analysis based on Glass (Glass, McGaw, & Smith, 1981).

Results

Table 1
Number and percentage of Country, Institution, Faculty, Department, Majors, year of publication research

<table>
<thead>
<tr>
<th>Variables</th>
<th>Type of Variables</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
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<td>6</td>
<td>28.57</td>
</tr>
<tr>
<td></td>
<td>USA</td>
<td>4</td>
<td>19.05</td>
</tr>
<tr>
<td></td>
<td>Iran</td>
<td>3</td>
<td>14.29</td>
</tr>
<tr>
<td></td>
<td>Indonesia</td>
<td>2</td>
<td>9.53</td>
</tr>
<tr>
<td></td>
<td>Jordan</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td></td>
<td>Kuwait</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td></td>
<td>Saudi Arabia</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td></td>
<td>South Korea</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td></td>
<td>Turkish</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td>Institution</td>
<td>Chulalongkorn University</td>
<td>2</td>
<td>9.53</td>
</tr>
<tr>
<td></td>
<td>Islamic Azad University</td>
<td>2</td>
<td>9.53</td>
</tr>
<tr>
<td></td>
<td>Silpakorn University</td>
<td>2</td>
<td>9.53</td>
</tr>
<tr>
<td></td>
<td>Rosetta Stone Company</td>
<td>2</td>
<td>9.53</td>
</tr>
<tr>
<td></td>
<td>Anadolu University</td>
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</tr>
<tr>
<td></td>
<td>Arab Open University</td>
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<td></td>
<td>Baghdad University</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td></td>
<td>College in Pekanbaru</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td></td>
<td>Isfahan Institute of Higher Education</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td></td>
<td>King Mongkut's University of Technology</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td></td>
<td>North Bangkok</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Liberty University Isfahan</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td></td>
<td>Naresuan University</td>
<td>1</td>
<td>4.76</td>
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<tr>
<td></td>
<td>New Hampshire</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td></td>
<td>Seoul Women’s University</td>
<td>1</td>
<td>4.76</td>
</tr>
</tbody>
</table>
Table 1 shows that the highest rate of researches were blended learning in English reading research that found in Thailand (28.57%). Chulalongkorn University, Silpakorn University, Islamic Azad University and Rosetta Stone Company were mostly conducted the researches (9.53%). Faculty of Education were the highest rate in doing these researches (42.86%) and the Department of English / Teaching English were also the highest rate (33.33%). The highest rate of majors was in English major (46.63%) and the highest rate in conducting researches was in 2017 (38.08%).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Level of variables</th>
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<th>Percentage</th>
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<tr>
<td>Yarmouk University</td>
<td></td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td>University Ma Chung</td>
<td></td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td>Faculty</td>
<td>Faculty of Education</td>
<td>9</td>
<td>42.86</td>
</tr>
<tr>
<td>Faculty</td>
<td>Faculty of Language</td>
<td>4</td>
<td>19.05</td>
</tr>
<tr>
<td>Faculty</td>
<td>Lexia Learning Institute</td>
<td>2</td>
<td>9.53</td>
</tr>
<tr>
<td>Faculty</td>
<td>Faculty of Arts and Sciences</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td>Faculty</td>
<td>Faculty of Economics and Business</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td>Faculty</td>
<td>Faculty of Egyptian</td>
<td>1</td>
<td>4.76</td>
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<tr>
<td>Faculty</td>
<td>Faculty of Humanities</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td>Graduate School</td>
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<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td>Faculty not mentioned</td>
<td></td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td>Department</td>
<td>Department of English/Teaching English</td>
<td>7</td>
<td>33.33</td>
</tr>
<tr>
<td>Department</td>
<td>Department of Curriculum and Instruction</td>
<td>3</td>
<td>14.29</td>
</tr>
<tr>
<td>Department</td>
<td>Department of Education</td>
<td>2</td>
<td>9.53</td>
</tr>
<tr>
<td>Department</td>
<td>Department of Computer Education</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td>Department</td>
<td>Department of Educational Technology</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td>Department</td>
<td>Department of Management and Accounting</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td>Department not mentioned</td>
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<td>6</td>
<td>28.57</td>
</tr>
<tr>
<td>Major</td>
<td>Major in English</td>
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</tr>
<tr>
<td>Major</td>
<td>Major in Computer Technology</td>
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</tr>
<tr>
<td>Major</td>
<td>Major in Curriculum and Instruction</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td>Major</td>
<td>Major in Education</td>
<td>1</td>
<td>4.76</td>
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<tr>
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<tr>
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</tr>
<tr>
<td>Year of production</td>
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<td>14.29</td>
</tr>
<tr>
<td></td>
<td>2017</td>
<td>8</td>
<td>38.09</td>
</tr>
<tr>
<td></td>
<td>2016</td>
<td>2</td>
<td>9.53</td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>2</td>
<td>9.53</td>
</tr>
<tr>
<td></td>
<td>2014</td>
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</tr>
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<tr>
<td></td>
<td>2007</td>
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</table>
Table 2
Number and percentage of research level, research plan, research objectives, hypothesis, reading type variable

<table>
<thead>
<tr>
<th>Variables</th>
<th>Level of variables</th>
<th>Number</th>
<th>Percentage</th>
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</thead>
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<tr>
<td>Research level</td>
<td>Research</td>
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<td>52.38</td>
</tr>
<tr>
<td></td>
<td>Doctoral degree dissertation</td>
<td>6</td>
<td>28.57</td>
</tr>
<tr>
<td></td>
<td>Master degree dissertation</td>
<td>4</td>
<td>19.05</td>
</tr>
<tr>
<td>Research plan</td>
<td>Experimental</td>
<td>8</td>
<td>38.09</td>
</tr>
<tr>
<td></td>
<td>Quasi experimental</td>
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<td>38.09</td>
</tr>
<tr>
<td></td>
<td>Research and development</td>
<td>3</td>
<td>14.29</td>
</tr>
<tr>
<td></td>
<td>Quantitative</td>
<td>2</td>
<td>9.53</td>
</tr>
<tr>
<td>Research objectives</td>
<td>To study the results of blended learning with English reading</td>
<td>13</td>
<td>61.90</td>
</tr>
<tr>
<td></td>
<td>To develop a blended learning model with English reading</td>
<td>5</td>
<td>23.81</td>
</tr>
<tr>
<td></td>
<td>To compare the blended learning with English reading</td>
<td>3</td>
<td>14.29</td>
</tr>
<tr>
<td>Hypothesis</td>
<td>Directional hypothesis</td>
<td>4</td>
<td>19.05</td>
</tr>
<tr>
<td></td>
<td>Non-directional hypothesis</td>
<td>9</td>
<td>42.87</td>
</tr>
<tr>
<td></td>
<td>No specify the research hypothesis</td>
<td>8</td>
<td>38.09</td>
</tr>
<tr>
<td>Reading type variable</td>
<td>English reading</td>
<td>14</td>
<td>66.67</td>
</tr>
<tr>
<td></td>
<td>English reading comprehension</td>
<td>6</td>
<td>28.57</td>
</tr>
<tr>
<td></td>
<td>Critical English reading</td>
<td>1</td>
<td>4.76</td>
</tr>
</tbody>
</table>

Table 2 shows that the highest rate in blended learning in research level were found in research (52.38%). The experimental and quasi experimental were mostly conducted for the research plan (38.09%). The objective of doing research was to study the results of blended learning with English reading (61.90%). 42.87 percent were non-directional hypothesis. The highest rate in reading type variable was English reading (66.67).
Table 3
Number and percentage of sample group, sampling, period of experiment, samples used in the experiment.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Level of variables</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample group</td>
<td>University students</td>
<td>14</td>
<td>66.67</td>
</tr>
<tr>
<td></td>
<td>Secondary students</td>
<td>2</td>
<td>9.53</td>
</tr>
<tr>
<td></td>
<td>Elementary students</td>
<td>5</td>
<td>23.81</td>
</tr>
<tr>
<td>Sampling</td>
<td>Purposive Sampling</td>
<td>11</td>
<td>52.38</td>
</tr>
<tr>
<td></td>
<td>Simple random Sampling</td>
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<td></td>
<td>Stratified random sampling</td>
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</tr>
<tr>
<td></td>
<td>Do not specify sampling</td>
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<td>9.53</td>
</tr>
<tr>
<td>Period of</td>
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<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td>experiment</td>
<td>6 week</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td></td>
<td>7 week</td>
<td>1</td>
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<tr>
<td></td>
<td>8 week</td>
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<td></td>
<td>12 week</td>
<td>2</td>
<td>9.53</td>
</tr>
<tr>
<td></td>
<td>1 semester</td>
<td>7</td>
<td>33.33</td>
</tr>
<tr>
<td></td>
<td>9 month</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td></td>
<td>1 year</td>
<td>3</td>
<td>14.29</td>
</tr>
<tr>
<td></td>
<td>Do not specify period</td>
<td>3</td>
<td>14.29</td>
</tr>
<tr>
<td>Samples used in</td>
<td>1 group</td>
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<td>38.09</td>
</tr>
<tr>
<td>experiment</td>
<td>2 group</td>
<td>11</td>
<td>52.38</td>
</tr>
<tr>
<td></td>
<td>3 group</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td></td>
<td>Do not specify sample group</td>
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<td>4.76</td>
</tr>
</tbody>
</table>

Table 3 shows that the highest number of sample groups were found in university students (66.67%) and purposive sampling were mostly found in the research (52.38%). The highest rate in period of experiment were spending on one semester (33.33%). The highest rate of samples used in the experiment were 2 groups (52.38%).
Table 4
Number and percentage of instruments, statistics and data analysis, media and technology used in blended learning

<table>
<thead>
<tr>
<th>Variables</th>
<th>Level of variables</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruments</td>
<td>Tests</td>
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<td>95.24</td>
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<tr>
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<td>Questionnaires</td>
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<td>38.09</td>
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<tr>
<td></td>
<td>Interviews</td>
<td>4</td>
<td>19.05</td>
</tr>
<tr>
<td></td>
<td>Lesson plans</td>
<td>5</td>
<td>23.81</td>
</tr>
<tr>
<td></td>
<td>Blended learning model with English reading</td>
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<td>19.05</td>
</tr>
<tr>
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<td>Record form</td>
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<tr>
<td></td>
<td>Exercises</td>
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</tr>
<tr>
<td></td>
<td>Manual</td>
<td>2</td>
<td>9.53</td>
</tr>
<tr>
<td></td>
<td>Portfolio</td>
<td>2</td>
<td>9.53</td>
</tr>
<tr>
<td></td>
<td>Evaluation form</td>
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<td>4.76</td>
</tr>
<tr>
<td></td>
<td>Books</td>
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<td>9.53</td>
</tr>
<tr>
<td>Statistics and Data analysis</td>
<td>Average</td>
<td>17</td>
<td>80.95</td>
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<tr>
<td></td>
<td>Standard Deviation</td>
<td>17</td>
<td>80.95</td>
</tr>
<tr>
<td></td>
<td>T-test</td>
<td>17</td>
<td>80.95</td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
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<td>47.63</td>
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<td></td>
<td>Content Analysis</td>
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<td>$E_1:E_2$</td>
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<tr>
<td></td>
<td>Alpha</td>
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<td>19.05</td>
</tr>
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<td></td>
<td>ANOVA</td>
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<td>9.53</td>
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<tr>
<td>Media and technology</td>
<td>E-learning, M-Learning, Online Learning and Moodle</td>
<td>9</td>
<td>42.87</td>
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<tr>
<td></td>
<td>Multimedia, PowerPoint, E-book and Game</td>
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<td>28.57</td>
</tr>
<tr>
<td></td>
<td>VDO clip/Audio clip</td>
<td>6</td>
<td>28.57</td>
</tr>
<tr>
<td></td>
<td>Chat, Massage and E-mail</td>
<td>6</td>
<td>28.57</td>
</tr>
<tr>
<td></td>
<td>Web board, Blog and Black board program</td>
<td>7</td>
<td>33.33</td>
</tr>
<tr>
<td></td>
<td>Website and Internet</td>
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<td>28.57</td>
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<td>Facebook and WhatsApp</td>
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<td>19.05</td>
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<td></td>
<td>Virtual classroom</td>
<td>1</td>
<td>4.76</td>
</tr>
</tbody>
</table>

Table 4 shows that the most instruments were found in tests (95.24%). For statistics and data analysis, average, Standard Deviation and t-test (80.95%) were mostly used for data analysis. E-learning, M-Learning, Online Learning and Moodle were mostly conducted by the research (42.87%).
Table 5
Number and effect size of blended learning with English reading

<table>
<thead>
<tr>
<th>Variables</th>
<th>Number</th>
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<td>1.08</td>
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<td>0.149</td>
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<tr>
<td>Total &amp; Average</td>
<td>10</td>
<td>0.166</td>
</tr>
</tbody>
</table>

Table 5 shows that the English reading achievement effect size of the elementary students were 0.41, while university students were 1.08 and average of effect size was 0.149. English reading achievement effect size of English reading comprehension were 1.20, English reading 0.46 and average effect size 0.166, respectively.

Chart 1: Effect size of blended learning with English reading

Chart 1 has been shown that the effect size of English reading achievement from university students was higher than elementary students and English reading comprehension was higher than English reading.
Discussion

The research on blended learning in English reading were mostly found in Thailand and from 3 universities in Asia. The researches were in the Faculty of Education, the Department of English / Teaching English in the major of English. Blended learning in English reading research were mostly found in the universities form Asia. It could be implied that most Educational Institutions tried to increase and encourage their students to improve English reading skills because English is an important language to communicate in a borderless world. The research found in 2017 were experimental and semi-experimental research. The purpose of the research is to study the results of blended learning with English reading. For hypothesis, it was non-directional hypothesis. Focusing on variables, it was found that they were sample groups of university students, and randomly selected by purposive groups. The research was conducted for 1 semester and the student groups were control groups and experimental groups. The tools used in the research were test, average, Standard Deviation and T-test. It could be noticed that these element were popular to use because it could be proved that the research results are reliable and could be used to test the experiment. These processes were the experimental research based on educational research so the results were reliable and then the results were useful to apply for teaching and learning in classroom effectively (Schreiber, & Asner-Self, 2011). The media and technology used in the blended learning were E-learning, M-Learning, Online Learning and Moodle. All of these were called Learning Management System (LMS) that is definitely designed based on theories of instructional design, that is the reason why blended learning is popular (Khlaitsang, & Koraneekij, 2016).

The results of finding implied that the effect size affected to efficiency in English reading. The results identified that the effect size of elementary level was lower than university level and the effect size of reading was lower than reading comprehension. The gap between the score of posttest from university students was higher than elementary students. It affected to the lower effect size from elementary students. Similarly with reading and reading comprehension, the effect size of reading was lower than reading comprehension. It could be concluded that university students can have ability in reading comprehension better than elementary students.

Recommendations

1. From the results of the research, it could be used as a guideline for the development of research or teaching to read English with blended learning on the right way and make learners to have higher reading achievement.

2. Further research should be a synthesis of research on blended learning in other English skills such as listening, speaking and writing to use as a guideline in the development of English language teaching.
References


Thai Language Usage in English Classroom by Foreign Teachers at Buriram Rajabhat University

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Abstract

Students’ mother tongue (L1) usage by foreign teachers is code-switching that is people have language environments to use more than one language to communicate. This paper aims to investigate when, why and how foreign teachers speak Thai in English classroom. It is English and Thai code-switching by foreign teachers in English classroom (EFL). The finding of interview with two foreign teachers who can speak Thai at Buriram Rajabhat University is code switching plays a positive role in the process of teaching and learning. L1 usage is an important factor to facilitate foreign language learning (L2) for students. And code-switching is used as little as possible, depended on group of students, situations and language environments. This is the opinion of foreign teachers only, it will be more useful to education and further research with expression of students’ opinion.

Keywords: official language (L1), foreign language (L2)

Introduction

One of Buriram Rajabhat University mission is to support the quality development of graduates with academic and professional standards. And eight foreign teachers teaching English as a foreign language in Buriram Rajabhat University have emphasized this mission. Some of them can communicate Thai to students while teaching English as a foreign language in English classroom. It may help students to understand what foreign teachers explain in English classroom. And foreign language learning in Buriram Rajabhat University is supplemented by activities of language learning, for example Vietnamese, Laos, Cambodian (Khmer), Bahasa Malayu, Chinese and English, to the instructors and students.

In a language learning environment, change of teaching method is one of the development of language pedagogy to renew language teaching (H.H. Stern, 1993). And teachers also need to know how to improve their teaching methods in which they can share the information and ideas to students. So researcher, one of colleagues with foreign teachers working here, have noticed, talked and consulted with the foreign teachers about language teaching, and interest to investigate Thai language usage by two foreign teachers in the classrooms.

The Importance of Mother Tongue in Education

Students’ mother tongue usage (L1) in foreign language classroom has long been a crucial issue for language teachers in non-target language environment. And most teachers use the L1 in an appropriate situation based on their own experiences,
they think that giving input to students in the L1 as a convenient and useful tool to facilitate communication with students (Tomoko Kaneko, 1991).

Carole Benson (2004) expressed opinion to the importance of mother tongue-based schooling for educational quality as the following issues:

1) Educational development objectives; mother tongue usage for education in some countries is clear with development goals, for example, Cambodia has begun to follow up on the mother tongue usage in non-formal education and community schools, it is particularly in the eastern highlands, (Thomas 2003, cited in Kosonen 2004).

2) Human resource development; teacher training for bilingual schooling should be undertaken with serious consideration in-service training to understand the bilingual teaching methodologies. It is to train teachers proficient in the L2.

3) Educational decision-making in countries with linguistically diverse regions; it should consider variation in language usage. The local areas may require more creative classroom organization models although they are relatively homogeneous with L1. With the same model, it might not work elsewhere but this way will not be suspended with ambiguities.

4) Classroom participation, positive affect and increased self-esteem; children can express their knowledge, experience and competence through L1, which is a pedagogical approaches which Piaget and Vygotsky explained that Constructivist Theory offers the cognitive development in children modifying the collected knowledge for their own understanding that is cognitive structure (Richardson, 2001).

**Instruction of English as a Foreign Language**

Teaching English as a foreign language in Thailand (EFL) is used in the same way as other countries where English is not national language or official language, and English is not a second language used for communication in the countries i.e. India, Nigeria, Philippines etc. (Source: @Top Ten Countries That Speak English As a Second Language), English is a second language used for communication in these countries, meanwhile, English language in Thailand has supplemented in education since the primary school including international school and English Program school with the paradigm of communicative language approach for development of learners communicative English ability (Ministry of Education 2010, Phaisit Boriboon 2011). Strategies of English instruction reform in Thailand is a significant policy of Ministry of Education to operate and succeedurgently as the following approaches;

1) It is guided by The Common European Framework of Reference for Languages (CEFR).

2) Change of learning and instruction; the approach emphasizes on communicative language teaching (CLT).

3) Supplementing the professional English instruction

4) Enrichment of English ability, offer English Program (EP), Mini English Program (MEP), International Program (IP), English Bilingual Education (EBE), English for Integrated Studies (EIS) and Enrichment Class.

5) Managing instruction corresponding to communicative language teaching (CLT) and following in line of The Common European Framework of Reference for Languages (CEFR).
6) Information and Communication Technology should be used for developing the language ability of teachers and learners. By this policy, it refers that English in Thailand is a foreign language using for communication to foreigners who cannot speak Thai and Thailand dialect languages with different purposes such as education, politics, medical profession, economic, trade or tourism (English Language Institute, Office of the Basic Education Commission, 2014)

**Definition of Terms**

Thai language refers to the official language (L1) using in school instruction. English is a language subject taught as a foreign language (L2).

**Purposes of the Paper**

This is to investigate when, why and how foreign teachers speak Thai in English classroom.

**Research Questions**

1. When do foreign teachers speak Thai in the English classroom while instructing?
2. Why do foreign teachers speak Thai in the English classroom while instructing?
3. How do foreign teachers teach in Thai?

**Methodology and Instrument**

Data were collected from interviewing four foreign teachers, who can speak Thai, teaching English at Buriram Rajabhat University. The populations of this paper are foreign teachers, who can speak Thai at Buriram Rajabhat University, selected by purposive sampling. The instrument used to collect the data was an interviewing and analyze data with descriptive process.

**Findings**

The finding of interview was found that these foreign teachers graduated M.A. in English major, have taught for more five years in education institutes. Even if the teachers can speak Thai, however students regard the teachers as a foreigner. By teachers’ observation in classroom, there are two groups of students; one group want the teachers to speak only English because they want to improve their English (L2), other group want the teachers to speak both Thai and English (L1 and L2) which help them understand teachers’ explanation. Students’ mother tongue usage is not used every time, depend on group or situation because mistake may occur between foreign teacher and students in English (L2) classroom. Although English language in Thailand is used as a foreign language (L2) for international communication with the different purposes but foreign language (L2) instruction by foreign teachers tend to concern with language environment, for example, some students regard accent of teacher coming from the countries using English as national language or non-national language. However some students are proud of themselves to be able to communicate with foreign teacher through foreign language (L2). Phaisit Boriboon (2011) summed up the method of English instruction in Thailand that is English teachers’ paradigm.
should base on EIL ideology, English as an International Language (EIL) focusing on listening and speaking skills. For the tertiary education, English language (L2) instruction emphasizes international and intercultural communication, should not be confined the native speakers as the best, should pay attention to capable Thai or other person to teach language for real international and intercultural communication.

Students’ mother tongue usage by foreign teachers is code-switching (L1 and L2) to supplement instruction when students cannot understand English language (L2) well, students’ mother tongue (L1) usage is for explanation of instruction based on English teaching (L2). Weinreich (1970) commented that code-switching is a common phenomenon that people use to convey a complete idea. When students are unable to conceive an appropriate word within a limited amount of time, code-switching, in some cases, allows them to express themselves more fluidly.

Students’ mother tongue usage can help students to understand meaning of foreign language (L2). This supports Weng Pei-shi’s research (2012) indicated that English learning success involves students’ ability to use English effectively, which means students can understand the teacher’s input and try to intake the knowledge the teacher provides in class.

Thai usage, code-switching, is spoken in English classroom due to these reasons; instruction or command and explanation. Code-switching is used for instruction or command such as เงียบหน่อย quiet please, สนใจฟังหน่อย pay attention. And it is used for explanation, especially grammar or syntax instruction such as word order in a sentence, for example; beautiful sky, Adjective “beautiful” must be placed in front of the noun in English, while it is changed position in Thai syntax as sky beautiful which is ungrammatical in English.

<table>
<thead>
<tr>
<th>Thai</th>
<th>English</th>
<th>Notice</th>
</tr>
</thead>
<tbody>
<tr>
<td>เงียบหน่อย</td>
<td>quiet please!</td>
<td>Use for command</td>
</tr>
<tr>
<td>สนใจฟังหน่อย</td>
<td>pay attention!</td>
<td></td>
</tr>
<tr>
<td>ทำอย่างไร</td>
<td>Beautiful sky</td>
<td>Use for explanation</td>
</tr>
<tr>
<td>มันคืออะไร</td>
<td>Do you understand what I mean?</td>
<td>Asking for opinion</td>
</tr>
</tbody>
</table>

The sample of code-switching shown that mother tongue usage (L1) is an essential element for communicative language teaching, it means that students’ conceptualization will be expressed through their mother tongue (L1) while learning foreign languages (L2).

**Discussion**

Thai usage in English classroom is code-switching, George Keller (2016) studied Code Switching in Teaching English to Speakers of Other Languages referred to Redouane (2005) indicated that Weinreich (1953) defined bilingual individuals as persons who switch from a language to another based on proper changes in the speech situation.
This paper may impact on the opinion to language instruction i.e. first aspect is an even worse pedagogical strategy due to foreign teacher should teach in English as a native speaker. And second aspect is code – switching facilitated English learning to students to develop conceptualization of language learning process with relaxing, reducing pressure and express their language competence through mother tongue (L1). Anyway educators should comprehend the meaning of English as a foreign language or English as an international language which plays role as lingua franca used for communication among speaker of other languages.

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The Effects of Communicative Grammar Activities on English Grammar Competency of University Students

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Abstract

Teaching English in Thailand has placed an emphasis on English grammar from primary to tertiary levels. However Thai university students have not been able to apply grammar learnt in real life situations. Thus, this experimental research aimed to implement communicative activities and authentic contexts into the grammar classroom and investigate students’ attitudes toward this method. The present study explored changes in English grammar competency of 86 first year English majors after attending communicative grammar activities. Using a mixed methods design, the study collected data from their gain scores in the pre-test and post-test and interview responses. The findings confirmed the hypothesis that Communicative Grammar activities enhanced students’ English grammar competency. In addition, most high and low competent students had positive attitudes toward learning through communicative grammar activities in 4 aspects: learners, the grammar teacher, learning activities, and classroom environment. The activities motivated them to participate more, created stress freed classroom environment as well as supported good relationship among learners and between learners and the teacher. Implications as ice-breaking activities or for developing other language skills for teachers and activity planners can be made based on the findings.

Keywords: communicative Language Teaching (CLT), communicative grammar activity, speaking skill, university students, attitude
Guidelines for Using Videos to Promote Student’s Autonomous Learning Attitudes

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Abstract

Teachers can use videos to motivate students with favorable language learning activities. Videos allow students to experience learning regarding the world outside and also provide a sense of being-there to them. When developing students’ language proficiency, teachers can employ videos to design tasks requiring students to practice their language skills. Videos can serve as great tools for teachers to promote students' autonomous learning attitudes. This paper aimed to discuss about what autonomous learning is, review the literature on autonomy in language teaching and learning, describe the pedagogical benefits of videos for teaching and learning, and then suggest some guidelines for using videos to promote student’s autonomous learning attitudes.

Keywords: videos, autonomous learning, student’s attitudes

Introduction

In digital age, technologies are used both inside and outside classrooms. Technologies play major roles in language teaching and learning. Students use technologies in active learning, knowledge construction, inquiry, and exploration while technologies also allow teachers and students to have remote communications including data sharing (Cambridge Assessment International Education, 2019). Since the roles of students and teachers have changed, the role of a teacher is no longer limited to the traditional one in the classroom setting; the role is now to guide the students and point out where the students can access and evaluate information, rather than be the source of knowledge (Grand-Clement, 2017). Teachers are expected to become technologically oriented and responsible for their teaching and their students’ learning and they are required to be facilitators facilitating their students to make judgments about the quality and validity of new sources and knowledge (Amin, 2016). Teaching and learning activities can take place anytime, anywhere via technologies in the digital context (Zhu et al, 2016).

One of these technologies is a video. There are many benefits of using videos in teaching and learning. Salman Khan (2011) from Khan Academy gave a talk in TED Talk about “Let’s use video to reinvent education”, he described the transformative way that video can impact on teaching and learning in the digital age. He also encouraged teachers to consider the flipped classroom model where students can digest lecture content gained from videos at their pace and explore content more deeply during class time. The students can learn autonomously and can review the content from videos as many times as they would like to. And they can use “pause” feature to pause the videos when they would like to as well (Khan, 2011). Moreover,
by doing this, it gives the students a sense of controlling over their own learning. The ability to take charge of their own learning is a key characteristic of self-directed learning or autonomous learning (Macaskill and Denovan, 2013).

Teachers can use videos to motivate students with favorable language learning activities. Videos allow students to experience authentic learning opportunities. When developing students' language proficiency, teachers can employ videos to design tasks requiring students to practice their language skills. Videos can serve as great tools for teachers to promote students' autonomous learning attitudes. So, it is important for digital age teachers to know about autonomous learning, the literature on autonomy in language teaching and learning, the pedagogical benefits of videos for teaching and learning, and some guidelines for using videos to promote student’s autonomous learning attitudes because the digital age teachers will be able to apply these guidelines in their teaching to promote their students’ autonomous learning attitudes.

**Autonomous learning**

Holec (1981) was the first person who used the word ‘autonomy’ in his report: he defined it as learners’ taking responsibility for their own learning. Learner’s autonomy not only involves learning but also learning how to learn (Little, 1994). Autonomy refers to the ability of taking control of one's own learning, independently or in collaboration with others and an autonomous learner will take more learning responsibility and is likely to be more effective than a teacher-reliant learner (British Council, 2019). Autonomous learning is believed to make learning more personal and focused and consequently achieve better learning outcomes because learning is based on needs and preferences of the learner (Richards, 2012). Autonomous learning is about learners taking more control over their learning both inside and outside classrooms (Benson, 2001). In autonomous learning, the learner is responsible for goal setting such as setting objectives for learning, planning such as determining ways and means of learning, and action in a learning situation (Derrick, 2001; Richards, 2012), including reflecting on and evaluating what the learner has learned (Richards, 2012). The learner is in control of the learning (Holec, 1980). The autonomous language learner is expected to be an independent agent in the learning (Holec, 1981). As can be seen from the definitions provided above, autonomous learning is about the learner taking responsible for one’s own learning such as goal setting, planning, and action in learning situation where the learning activity can take place anytime, anywhere both inside and outside classrooms. The learner should take a maximum responsibility for what they learn and how they learn it. Since the autonomous learner is in charge of one’s own learning, the learner is expected to be more effective than the traditional teacher-directed learner and the learner should achieve better learning outcomes because this type of learning is based on needs and preferences of the learner.

**Autonomy in language teaching and learning**

Autonomy in language teaching and learning has been of interest in the field of English language circle as shown in several decades. Benson (2010) has written a great deal about learner autonomy and described five principles for achieving autonomous learning: 1) active involvement in student learning, 2) providing options and resources, 3) offering choices and decision-making opportunities, 4) supporting
learners, and 5) encouraging reflection. Other characteristics of autonomous learning included 1) the teacher becomes more of a facilitator and less of a teacher-centered teacher, 2) students should not rely on the teacher as the main source of knowledge, 3) students’ capacity to learn for themselves should be promoted, 4) students are encouraged to make decisions about what they learn, 5) students’ awareness of their own learning styles should be developed, and 6) students’ own learning strategies should be developed (Richards, 2012).

Nunan (2003) presented 9 steps to promote learner autonomy as follows: 1) make instruction goals clear to learners, 2) allow learners to create their own goals, 3) encourage learners to use their second language outside the classroom, 4) raise awareness of learning processes, 5) help learners identify their own preferred styles and strategies, 6) encourage learner choice, 7) allow learners to generate their own tasks, 8) encourage learners to become teachers, and 9) encourage learners to become researchers. This 9 step procedure is for moving learners along the continuum from dependence to autonomy: step 1-3 are more content oriented and 4-9 focus on learning process.

It can be seen from the above principles, characteristics, and steps regarding autonomy in teaching and learning that it grounded in notion of learner-centeredness where the learners should be able to involve with teaching and learning goal setting, to choose their own choice, to identify own preferred styles and strategies of learning while teachers are facilitators, not the source of knowledge. The use of technologies provides the students with in direct learning opportunities (Grand-Clement, 2017).

Previous studies related to autonomy and language learning

Many researchers have conducted their studies regarding technology implementation in the classroom and their effects on the student autonomous learning. Lander and Kuramoto (2013) summarized the current literature in the field of technology and education, blended learning, and how technology and education and blended learning can be integrated to make students to become more autonomous and independent learners. They pointed out that the use of blended learning provides positive impacts on students’ autonomous learning and their English language abilities. They have proposed their framework in 3 phases: 1) face-to-face classroom instruction, 2) blended learning technologies, and 3) learner autonomy. Face-to-face classroom means students will be instructed in a classroom setting. Students will be told about ways to complete the instruction goals in the alternative basis to what they may be used to. Blended learning technologies will be introduced to aid the students to achieve their learning goals both individually and collaboratively. Learner autonomy means the students will independently work and complete the similar goals. The students are inquired to use the technologies introduced in blended learning technologies phase to complete their goals autonomously.

Budianto (2014) attempted to describe how students of his university handle the use of online sources. The results indicated that the informants felt positive about using online sources to perform learning tasks because there are some benefits as follows: 1) students can work at their own pace based on their individual needs, interests, and learning preference, 2) students with specific learning needs can access to appropriate supporting resources, 3) students can learn autonomously, 4) authentic communication activities can be done through group work including the use of
authentic materials, and 5) students can increase their computer literacy skills through the use of new technologies such as translation packages, electronic dictionaries etc.

Sayadi et al (2018) investigated whether Podcasts have an effect on Iranian autonomous and non-autonomous learners’ listening comprehension ability at pre-intermediate level through an experimental research. It was found that Podcasts have a positive effect on both groups. Moreover, learners should be provided with appropriate materials in which they can learn English language. By using podcasts, opportunities to listen to native speaker’s speech were provided. The finding showed that using podcasts in teaching listening leads to a better performance of language learners in second language listening accuracy tests. The students enjoyed using podcasts and appreciated that podcasts can be used anytime, anywhere. They viewed podcasts as an effective tool that can be used to improve their English in terms of listening and also speaking.

Limsiriruengrai (2018) investigated digital native students’ perceptions covering both advantages and disadvantages of technology implementation in their EFL classroom. The results showed that for the pros, the digital natives perceived that technology in the classroom helps boost engagement and motivation at a high level (3.97), students can concentrate more because they can learn by themselves using their own methods (3.91); they can access authentic materials to supplement their learning experience (3.91); and there are countless resources for enhancing education and making learning more fun and effective (3.85); respectively. For the cons, students perceived that technology in the classroom can be distractions at a high level (3.58); sometimes it is hard for them to receive interactive lessons (3.44); and technology in the classroom encourages plagiarism (3.41), respectively.

Wiengnil (2016) examined the students’ participation in out-of-class English language learning activities and the perception towards the effectiveness of the out-of-class English language learning activities to their English language development. The finding revealed that listening to English songs, watching English movies, watching movies with English subtitles, talking with friends in English, watching English lessons on Youtube, and playing English online games were the out-of-class English language learning activities that over 50 percent of the participants have participated in respectively. The participants viewed that the out-of-class English language learning activities were effective and can be used to develop their English.

From the literature above, it can be seen that autonomous learning can be done both inside and outside classroom. There are some steps to follow to prepare the students to learn autonomously from guided activities to self-directed activities by using technologies through activities called the out-of-class activities such as listening to English songs, listening to Podcasts, watching English movies, watching movies with English subtitles, talking with friends in English, watching English lessons on Youtube, playing English online games, using online resources such as using translation packages, and using electronic dictionaries etc. It should be pointed out that from these studies, the students viewed that there are some positive impacts on their learning when using technologies in language learning: technologies help boost engagement and motivation, boost concentration because they can learn by themselves using their own methods; the students access authentic materials, and there are countless resources for enhancing education and making learning more fun.
and effective. They also suggested that the selected technologies used in the studies were effective and can be used for developing their English.

**Pedagogical benefits of videos for teaching and learning**

There are many benefits of using videos for teaching and learning such as facilitating thinking and problem solving, assisting with mastery learning, inspiring and engaging students, providing authentic learning opportunities, and networked learning. The details of each benefit are as follows:

**Facilitating thinking and problem solving**

Videos can be used to motivate students and improve topics’ debate and debate can facilitate thinking and problem solving. After viewing the videos, students will have some ideas towards what they have seen, and will be able to share and discuss their ideas. They can agree or disagree with the topics found in the videos. They can use their critical thinking to make decisions and eventually find the good solutions. Videos can generate and promote discussion. Videos are particularly effective facilitators for analysis (Pappas, 2015).

**Assisting with mastery learning**

Videos can be employed in students’ self-learning. Students can use videos for catching up with concepts making a self-review of these concepts. They can view videos as many times as they need to, so videos are enhancing learning efficiency. Different from other learning technologies, videos provide the benefit of using the visual perception: a moving image can help someone to see a process or realize how something works, moves, or performs (Moss, 1983). Moreover, clear and straightforward descriptions can be presented through videos and videos help explain difficult topics (Goodyear & Steeples, 1998). In some cases, videos are good in communicating facts or demonstrating procedure to assist in mastery learning where students can view complex procedures such as clinical or mechanical procedure as many times as they need to. In addition, interactive features of modern web-based media players can be used to enhance active learning (Beheshti, Taspolat, Kaya & Sapanca, 2018).

**Inspiring and engaging students**

Teacher can use videos to introduce a topic, explain an activity, motivate students, or simply extend the information conveyed by the course (Pappas, 2015). There is strong evidence that videos reporting can inspire and engage students when incorporated into student-centered learning activities in terms of increasing students’ motivation, enhancing learning experience, getting higher marks, developing potential for deeper learning, learning of the subject, developing learner autonomy, enhancing team working and communication skills, developing skills for interviews, providing learning resources, and providing opportunities for staff development (Willmot et al, 2012).

**Providing authentic learning opportunities**

With the beliefs and perceptions of both students and teachers from a study of Kearney & Schuck (2006) entitled “Authentic Learning through the use of Digital Video” clearly showed that digital video can be utilized to develop authentic learning. Students design their own projects, produce them and evaluate them. Many are motivated by this, especially if their friends are the target audience. Student autonomy
in the use of digital video was noticeable, skills in visual and digital literacy were
enhanced and many students seemed to feel that what they had learnt using digital
video would be of value in the future. Jordan (1997) listed sources of cultural
information and video is on the list because videos are a good visual source of cultural
information. Students can learn cultural information through authentic materials and
get authentic learning opportunities through the videos.

Networked learning

Networked learning is a collaborative online learning form of where
technologies are used to help students connect with each other, with their teachers,
with valued learning resources (IGI Global, n.d.). Young and Asensio (2002) added
that the seamless integration of digital video with other tools offers an opportunity to
experiment with video as a focus for networked learning. They developed the Three
I’s outline (Image, Interactivity and Integration) to support teachers with the
pedagogic design and development of video streaming.

Guidelines for using videos to promote student’s autonomous learning attitudes

The existing literature provides some guidelines to promote students’
autonomous learning attitudes. Bonk (2008) conducted a survey of over 1000
participants and found that short videos between one and four minutes area ideal
when used for teaching purposes. It was found that videos that are informative,
humorous, current, interesting and engaging are most preferred by students and it was
recommended that instructors choose a video based on its instructional value, not
simply due to its humorous content (Bonk, 2008). However, clear goals should be set
and the learning steps should be done by moving leaners along the continuum from
dependence to autonomy (Nunan, 2003).

Duffy (2007) recommended that videos should be played in short segments,
allowing students to ask questions or to think critically about the content they just
viewed. Students should also be encouraged to take notes while watching videos.
Students take notes on the first viewing and then replaying and checking the notes
(Duffy, 2007). Using the ‘pause’ function on video to allow the students to predict
what might happen or to recall the information from the video is great. Another
strategy that Duffy (2007) suggested is playing the video with the sound off because
by doing this the students can focus on the visuals of the video and an instructor can
narrate. Finally, it is important for the students to be assigned roles or responsibility
when viewing a video. This keeps the students on task for achieving the learning
goals/objectives of the lesson. The video should also have an activity to go along with
it to make the content more clear and meaningful (Duffy, 2007). After being trained to
use videos, students can follow similar steps autonomously by playing short
segments, keeping their tasks and goals of viewing videos in mind, taking notes,
doing some activities assigned, and asking questions. They can pause when they need
to and turn the sound off to focus on the visuals.

Videos are the most useful tools in cognitive processing and memory. From a
study, it was found that students can remember 80% of the video content after an hour
watching it, compared to the content of a lecture where they can only recall 25% of it
and it is recommended that teachers should use videos as teaching materials both
inside and outside the classroom in order to increase variety to the learning
environment and to attract the learners’ attention (Anyarge & Anyarge, 2009).
Teachers can assign students to watch videos outside classroom and discuss about the videos in the class time (Khan, 2011).

Pappas (2015) suggested some reasons for using videos as follows: 1) Teachers can use videos to introduce topics, explain activities, motivate students, or simply extend the information the students have learned from the course. 2) Through a discussion after watching videos either with teachers or on their own, everyone can comment, contribute, and share their opinions and ideas. Teachers can encourage discussion by asking students to add their personal insights such as what did they like about the video? Was there anything they did not understand? How did the video relate to their personal experiences and feelings? Teachers can also ask students to share other videos references to extend discussions. 3) Mobile learning can be done through the use of videos because students can access videos and view them on the go via their smartphones and tablets. 4) Using videos for micro-learning ensures that the complex procedures and demonstrations of specific skills are delivered in small quantities, which enhances knowledge retention. Furthermore, because videos are available on all devises, so students can watch videos in short segments whenever they like and take their own time to absorb the information being offered. 5) Finally, asking students to be involved in a video production, as part of a group assignment will help them ensure that they can use the important information they have learned and develop their visual literacy and creativity. Teachers should consider providing students with clear guidelines to know exactly what is expected of them and the necessary tools and resources. Teachers can also use the videos to promote feedback exchange (from peer to peer): the feedback exchange encourages discussion and boosts knowledge retention.

**Personal experiences in using videos to promote students autonomous learning**

In public speaking course or listening and speaking course, first, clear instruction goals must be established. Then, as facilitators, teachers can introduce TED Talks videos to students. Teachers can guide the students how to use TED Talks videos to improve their listening, speaking, and public speaking skills. The students can learn the techniques to catch the audience’s attention from the videos. In analyzing the moves of TED Talks videos, the students will learn move structures of the videos. Move analysis is used to help language learners in studying discourse used in authentic contexts and to produce them in communication. The students can apply the knowledge from the analysis when giving their own talks. They can also examine the scripts of TED Talks videos to learn vocabulary used in public speaking such as sentences used in the introduction, the body, and the conclusion of each talk. After learning in the classroom with the teacher’s guidance, the students should be encouraged to use TED Talks to practice their pronunciations and accents outside the classroom. The students can spend their time learning from the videos about the correct pronunciations and various accents and they can imitate the correct pronunciations of native speakers and they can also hear different accents in order to learn the world Englishes. The contents of TED Talks are various: the students can learn about the outside world through the videos. Finally, the students should be given the chance to produce their own videos such as giving a speech in TED talks.

In reading class, the class goals must be set. Teachers can make use of videos which are in line with the class objectives from YouTube in pre-reading activities to catch the students’ attentions. The videos can be used for pre-reading activities.
instead of teacher-directed pre-reading such as in making prediction and integrating prior knowledge activities. Instead of teaching reading skills, teachers can show the students videos of different types of reading skills: skimming, scanning, extensive reading, and intensive reading. The student can spend their time digest the information they receive from the videos at home and they can watch the videos as many times as they would like to. And they can also pause and review when they need. The videos can be used again in post-reading activities when discussing, summarizing, making questions, answering questions, listening to other related materials, and role-playing. The students should be encouraged to watch videos related to the course materials, so they will understand more. However, at their own pace, they should be given opportunities to work based on their individual needs, interests, and learning preference to promote their autonomous learning attitudes.

**Conclusion**

Teachers can motivate students by using videos with their favorable language learning activities. Videos provide students learning experiences about the world outside including a sense of being—there for them. While developing students' language proficiency, teachers can use videos in designing tasks for students to practice their language skills. Videos can be used as great tools for teachers to promote students' autonomous learning attitudes. The videos should be informative and in line with the goals and activities of the lesson. The students should involve in goal setting. The students should be trained to be able to learn autonomously from guided activities to self-directed activities. Students should take notes while watching to videos for their future references. This will help knowledge retention. There are some useful features in interactive features of modern web-based media players can be used to enhance active learning such as pause feature. Students should be encouraged to use while watching videos, so they can absorb the information better and they can also take their time to digest the information. After learning from the videos, it is suggested that students should use their second language outside the classroom through activities such as discussion. Teachers should raise awareness of learning processes and help students to be able to identify their own preferred styles and strategies. Students should be able to choose what and how to learn, so in designing the course, teachers should prepare activities that allow them to choose such as generating their own tasks. Students can produce their own videos to show how they understand the topics learned from other people's videos. They can be teachers and researchers through video production project.

**References**


Teaching Practicum: The Good and the Bad in the First Half of the First Semester of trainee teachers’ Experiences

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Abstract

This paper presents the quantitative and qualitative study of trainee teachers from English Program, Faculty of Education, Buriram Rajabhat University as they reflected on their teaching experience, language skills and future plans during their teaching practicum in secondary and primary schools in Buriram, Thailand. Convenience sampling was used. Data were collected through group discussion and survey questionnaire on the day students attended the mid-semester meeting on campus. The findings indicate that fifth year students go through mixed experiences including positive and negative aspects of their professional training. To counter some of the concerns, suggestions are made to help make trainee teachers’ experiences at work more positive and worthwhile. Even though most of the trainee teachers rated their teaching experience quite high, they tend to face with excessive workload from in and outside of the English Program as well as challenges in the classroom regarding students with diverse backgrounds. Classroom management and ‘difficult’ students affect their ability to maintain their teacherly efficiency. Support from colleagues especially their mentors and ‘bosses’ is found to be very significant. It is imperative that teaching practicum needs well-designed preparation and collaboration between schools and supervisory teams.

Keywords: trainee teacher, teacher education, teaching practicum
An Analysis of Syntactic Errors in Free Composition Writing: A Case Study of the Third Year Students of Rajabhat University

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Abstract

The purposes of this research were 1) to analyze syntactic errors found in free composition writing, and 2) to investigate these errors. The samples consisted of 30 third year English majors studying at Buriram Rajabhat University. They were selected using a purposive sampling method. The research tool was free composition titled “The experience in my life” with 100-150 words. The samples were assigned to write the free composition about these titles. Moreover, errors and errors classification found in their free composition were analyzed in line with the criteria proposed by Dulay et al. (1974), and the causes of making these errors were analyzed using the criteria proposed by Richard. (1971). The research results revealed that: 1) Four main syntactic errors were found in free composition, ranged from high to low level as the following: Error in word order with the frequency of 58 (33.7 %), The use of incomplete sentence structures with the frequency of 49 (28.5%), Error in the use of ‘there’ structure with the frequency of 18 (10.5 %), and Error in the use of parallel structures with the frequency of 14 (8.1 %), respectively. 2) Three main causes of making errors were found in this research: mother tongue interference, incomplete application of grammar rules, and false of concepts hypothesized.

Significance of the study

English is recognized as a second language and it is used as a medium of instruction in University level Yahya, M.Y. and Hashim, N.H (2013). The usage of English language has become significant in our daily life. Nowadays, it is a fact that English Language is used globally in the world. Especially, communication will be verbalism, gesture, and writing. However, writing is considered the most difficult of all skills because students take much time to analyze a complex structure of reviewing and editing before producing a finished piece of writing. Thus, analysis is essential for students in order to grammatically correct Aungwattanakul, S. (1997). That is why, many educational institutes offer English as elective and compulsory courses to serve students’ needs.

The four skills in learning a language, namely listening, speaking, reading and writing, writing is the most common problems because students usually translate Thai into English literally and grammatical structure that is a problem for students because sentence structure of Thai and English are very different Wariwongwaropakron, W. (2019). Also, Chinnawongs (2001) says the most common mistake in students' writing
is grammar, followed by vocabulary. These problems is a result of their different educational background.

The major problem of students at Buriram Rajabhat University is insufficient background knowledge about using English. Likewise, Pongpuehee S. (2012), who study an error analysis of English composition written by English major students at Buriram Rajabhat University, he found that the students made the errors in all three main categories: errors in grammatical, vocabulary and sentence structure. Accordance with the study of Som-in S. (2014). The three main errors were found in the essay writing: grammatical errors, structural errors and errors in word order.

The researcher were interested in studying the problem of errors in student free composition writing and investigating the causes of errors in the writing of the third year English major students at Buriram Rajabhat University. The following points of writing errors were studied: the sentence structure, there structure, the use of parallel structure, word order, the use of voice, the use of comparison. The causes of those problems were also emphasized. It would be beneficial for effectively developing students' writing competency.

Research Objectives

Two objectives were studied in this research:
1. To analyze the syntactic errors from the free composition writing of the 3rd year English students at Buriram Rajabhat University
2. To investigate the cause of errors found in their composition writing

Research Methodology

1. The population was 72 students from 2 classes of English major in Humanities and Social Sciences, Buriram Rajabhat University in the first semester 2017
2. The samples were 30 students from class 1 of English major in Humanities and Social Sciences, Buriram Rajabhat University. Purposive Sampling was employed because those students had already studied these courses: Grammar in Context, and Essay Writing. Moreover, they taught by the researcher.
3. In this research, the researcher defined a 100-150 word writing content for the story entitled The Experience in my Life with 1 hour given.
4. The Analysis of students' writing errors focused on sentence structure, there structure, the use of parallel structure, word order, the use of voice, and the use of comparison. The error analysis was proposed by Dulay et al. (1974), and the error classification proposed by Richards (1971) were applied in this research.
Research Instruments

The research instruments were 1) an essay titled *The Experience in my Life* as it is appropriate and simple for students to use their feeling and experiences, 2) One of the following topics: *My Happiest Moment, My Favorite person, My Favorite Place, My Happiest Moment, the Experience in my Life, the Scariest Moment, the saddest moment, My Scariest Experience, My Excited Experience, My Funny Experience* and *My Twin*. These stories were selected from the books related to their curriculum.

Data Collection

Once the students finished their essay titled *the Experience in my Life*, the researcher opted out the works that were shorter than 100 words, and selected only 20 pieces of free composition writing for the research samples.

Data Analysis

1. Error coding
   The researcher checked all students' writing tasks for errors and marked the errors in every piece of work. Error classification table for error analysis in this research was adapted from the analysis table of Dulay et al. (1974).

2. Error classification
   After checking and recording errors, the researcher classified and coded the errors into the following categories: The sentence structure, there structure, the use of parallel structure, word order, the use of voice, the use of comparison. Error counting and error recording were done in the designed table. The statistics i.e., frequency and percentage were used to calculate the errors found in the students’ essays.

3. Record of causes of error making
   The causes of error making were analyzed and coded using the criteria proposed by Richard (1971). The coding results were supervised by the experts and corrected in accordance with their feedback.

4. Identification of causes of error making
   The researcher checked, coded, and counted the causes of making errors, then recorded all errors in the table categorized as referred in item 3.

Research Results

1. Types of syntactic error
   Four syntactic errors were found in the students’ writing, ranged from the highest to the lowest frequency as the following: Error in word order, The use of incomplete sentence structures, Error in the use of ‘there’ structure, and Error in the use of parallel structures, respectively.

   1.1 Error in word order
   Error in word order was the most frequently made with the percentage of 33.7. There were four subcategories as the following: Misplaced verb (43.1 %),
inappropriate word order (27.6 %), Misplaced adverb (20.7 %) and Misplaced adjective (8.6 %).

1) Misplaced verb

The examples of the misplaced verb in this case were presented in the following sentences:
He weight is in 75 kilograms. The verb is was the mistake used in this sentence. It should stand before the word weight. In the sentence, when I took already it off, the cow ran into me. The verb took should be put behind adverb already.

2) Inappropriate word order

The example of error of inappropriate word order was presented in the sentence I and my sister went to shopping in the mall. The Error in word order in this sentence is the word I and my sister. The word I in this sentence should be alternated with the word my sister as my sister and I.

3) Misplaced adverb

The example here was the case of misplaced adverb as in the sentence It is the only place that I want really to go. Since this sentence was wrong in misplaced of adverb really. So that, the word really should be put in front of the verb want. More example of misplace of adverb, in the sentence I lost the way always, so I never went shopping alone in a new place again. The underline word is placed in the wrong position. It should be put after verb to be or in front of main verb. In this sentence, the word always should be placed in front of the verb lost.

4) Misplaced adjective

The example of misplaced noun object as in the sentence He looks like a killer, he has the hair curly, short and black. Since this sentence was wrong in misplaced of adjectives curly, short and black. So that, these words should be put in front of the noun hair.

1.2 The use of incomplete sentence structures

The use of incomplete sentence structures was the second most frequently made with the percentage of 28.5. There were three subcategories as the following: Omission of subject (36.7%), the use of fragment (32.6 %), and Omission of verbs (26.5 %), respectively.

1) Omission of subject

The example in this case was as in the sentence second, .... like my brother, I’m hard working. The sentence was missed out the subject. It should be Second, I’m like my brother, and we’re hard working. More example, the sentence my father told was a funny, and laughed very loud. The example here was a compound sentence with a conjunction like and. For avoiding from the confusion, we should add the subject in the last sentence. My father told me a funny story and I laughed very loudly.
2) The use of fragment

The example of the use of fragment was as in the sentence outside my city. It is silent, calm, and fresh. This sentence is not complete because it is incorrect of period (.). It should be Outside my city, it is silent, calm, and fresh.

3) Omission of verbs

The example here was when I got back, my parents laugh to me, but they soothe that I…safe. I will not …… to cows to corral again. In this sentence it was missed out the verb. It should be when I went back home, my parents laughed to me, but they soothe that I was safe. I will not took my cows to corral again.

1.3 Error in the use of ‘there’ structures

The error in the use of ‘there’ structure was the third most frequently made with the percentage of 10.5. There is only one subcategory as the following: Confusion of anticipatory “there + be” with “verb to have”.

The example of the use of ‘there’ structure was there have grasses, lamp post on the wayside and have the little bridge. The confusion of the use between “there + be” and “verb to have” always occurred in the composition writing. It should be wrote as there are grasses and lamp post on the wayside. And there is the little bridge.

More example, Buriram doesn’t have sea and island but Buriram has Lam Nang Rong Dam. This sentence should be rewrote as There aren’t the sea and the island in Buriram but there is Lam Nang Rong Dam.

1.4 Error in the use of parallel structures

The error in the use of ‘there’ structure was the fourth most frequently made with the percentage of 8.1. There is only one subcategory as the following example:

The example here was a simple sentence with two object which use a conjunction like and as in I can often hear wind blow and birds singing in the garden. The same verb form was required when connecting with and. The sentence should be I can often hear wind blowing and birds singing in the garden. More example, the cow ran closely to me, I am scared and I was cried. The sentence should be The cow ran closely to me, I was scared and I cried.

2. Causes of making errors

Three main causes of making errors were found in this research: mother tongue interference, incomplete application of grammar rules, and false of concepts hypothesized.

2.1 Mother tongue interference

Mother tongue interference was the main cause of making error. It occurred when the students wrote free composition. Before writing, students always thought in the structure of their mater tongue and followed with that structure. Here was the
example of mother tongue interference she cooks Somtum delicious. It should rewrite the sentence as Papaya salad that she cooks is delicious.

2.2 Incomplete application of rules
Incomplete application of rules was the second highest frequently found. Although was not the main cause of making error in students’ free composition writing, it still had the effect on student writing. Example, I bought one ticket for 30 Baht, when I went inside…. I was screaming loudly. From the example, we could see that students wrote the incomplete sentence. They didn’t really know the structure of the sentence. They used incorrect punctuation and period (.). The sentence should be I bought one ticket for 30 Baht, When I went inside, I was screamed loudly.

2.3 False concepts hypothesized
False concepts hypothesized was the third highest frequently found. This type of error was caused by a faulty of students’ concept towards the differences between their mother language and English. They always wrote the sentence by using literal translation from Thai to English. Here was the example of false concepts hypothesized I was scare from heights. But it began to be very fun. I finally got experience. I learned my lesson and I won’t be afraid of heights in a new place. The sentence should be I was scared from a height point but it began to be very funny. I finally got an experience. So, I had get the experience and I never felt afraid of the height point in a new place.

Discussion
According to the research results, three types of error were found as the following:

Error in word order, The use of incomplete sentence structures, Error in the use of ‘there’ structure, and Error in the use of parallel structures, respectively.

1) Error in word order
The results revealed that the third year English major students studying Buriram Rajabhat University lacked knowledge of word used word order. This was due to a lack of interest and attention to self-study in the use of word as word choice and word order. This was consistent with the research of Chada (2014) the result revealed that the most frequent type of errors were word order errors, followed by the error in sentence structure and, subject argument respectively. Reid (1999), also stated that when the writer practices to write he or she should choose word that would reflect a concern for the reader and put it in the correct order, the composition written by the student would become sensible to his/her reader.

2) The use of incomplete sentence structures
The use of incomplete sentence structural was a secondary mistake found in their free composition writing of the students. Because of the lack of structure knowledge, the students sometimes failed to include a subject or a verb in sentences. They could not write the long complicate sentence. However, incapable learners used run on structure and fragmented in wrong way. The result was consistent with the research of Som-in, S. (2018) who affirmed that the most frequent error found were the error of grammatical error, structural error and lexical error. Norish, (1983) stated that a good writing or composition should consist of appropriate varied range of
sentence structures. One sentence should be completed with subject and verb. Kuhn, T.S. (1970) asserted that those students who have the problem of writing good sentences structures were unable to produce longer sentences requiring subordination and coordination.

3) Error in the use of ‘there’ structures
   Error in the use of ‘there’ structures was a third mistake found in their free composition writing of the students. Because the students confused on the use of *there + verb to be* and *verb to have*. This error type was caused of mother-tongue interference. That meant the learners used mother language to produce the target language directly as, *Buriram doesn’t have sea and island*. In this sentence, the students confused the use of *there + verb to be* and *verb to have*. It should be changed to the correct structure as, *there wasn’t sea and island*.

4) Error in the use of parallel structures
   Error in the use of parallel structures was a fourth mistake found in their free composition writing of the students. It was the one of syntactic error. The students were mostly used incorrect because they used the incomplete rules. In the sentence, if the adjective or noun was connected with the conjunction *and* it must accorded with the other as, *he is a lawyer and politician*. The word *politician* should be changed to *politician* which conceded with the word *lawyer*.

Implications

1. Teachers can utilize the results of this research as a guideline to improve their teaching because the results revealed the types and causes of errors found in students’ free composition writing.
2. For further study, researchers should include the study of complications that can possibly cause mistakes in student essay writing as well as the development of tools or innovations to help solve the problems arising from their writing tasks.

References


Assessing Pragmatic Competence of Thai EFL Learners

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Abstract

Pragmatic competence is particularly essential in real life communication. Assessing pragmatic competence has always posed daunting challenges to researchers and practitioners. The purposes of this study were to 1) explore the components of assessing pragmatic competence for Thai EFL learners, and 2) examine the quality (validity, reliability and discrimination power) of the test of English pragmatic competence for Thai EFL learners. The samples were 67 fourth year English major students studying English Pragmatics Course in the first semester of academic year 2018 at Buriram Rajabhat University, Thailand. The research instruments were the questionnaire and Multiple Choice Discourse Completion Test (MDCT). The statistics used to analyze the collected data were frequency, percentage, mean, and standard deviation. The findings revealed that the components of assessing pragmatic competence included learners’ sociopragmatic and pragmalinguistic abilities which are focused on speech acts, presuppositions, implicatures and routines. The validity of the constructed MDCT was 0.96, reliability of 0.86, and discrimination index between 0.26-0.88.
Educational Innovation to Enhance the Potential of Thai Conversation for Foreign Students

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Abstract

This article aimed at presenting an idea on the educational innovation to enhance the potential of Thai conversation for foreign students. Here, educational innovation on Thai conversation means any newly created product for Thai conversational problems solution or help foreign students develop their Thai conversational skill. Such the educational innovations are derived from idea, model approach, procedure or different media for learning Thai conversation. Particularly, instruction of Thai conversation for foreign students must be done through the concerned principle that related with other art. For the technological and educational innovations which are created to enhance the potential of Thai conversation for foreign students can be divided into two categories namely; 1) Innovative model, technique and Thai instructional method 2) Innovative product or inventions such as Thai instructional books/package, exercises and cartoon etc., which instructor created to enhance the potential of Thai conversation for foreign students. For example; three instructional books/package entitled Thai conversation in everyday life, Thai conversation in different situations I and Thai conversation in different situation II written by Kowit Pimpuang. It can be said that such the educational innovation in foreign students’ learning has enabled many opportunities for their educational development.

Keywords: educational innovation, Thai conversation, foreign students
Using Vocabularies to Develop Writing Skill of First-Year Students in B.A. Communicative Thai for Foreigners Program, Kasetsart University

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Abstract

Humans use language as a tool to communicate and create understanding between the same ethnic groups and different groups. Learning other languages as a means of communication today has received a lot of attention. Because the students will understand the social and cultural aspects while also learning the language. When learning a foreign language, learning vocabulary is very important if students cannot remember vocabularies, thus problems in communication may occur. The Communicative Thai Language for Foreigners Program Kasetsart University therefore uses basic Thai vocabularies that foreign learners must know from Associate Professor Rungruedi Prangsorn’s research totally 300 words verbally for students to practice composing sentences. The study indicated that in writing skills, many mistakes have been found. The researchers will use the results to organize training for students in the next project.

Keywords: Thai vocabulary, writing skill, sentences
The Role of Punctuations in the Signalling of Discourse Structure

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Abstract

In written language, punctuation has failed to get due attention, even though it is perhaps one part of the most important structural elements to understand the meaning of the text clearly. In the present paper, punctuations used in the selected articles are observed to find out types of punctuations and rhetorical relations to punctuations to fulfil the objectives of this research: (i) to investigate the distribution of rhetorical relations of punctuations that signal the relationships in the research articles through RST, (ii) to explore the role of punctuations that specify rhetorical relations in the research articles semantically through RST. Ten research articles published in 2013 by Myanmar Academy of Arts and Science (MAAS) are selected to be analysed according to Rhetorical Structure Theory (RST) by (Mann & Thompson, 1999). In investigating Rhetorical Relations to punctuations, varieties of rhetorical relations have been found with Rhetorical relations of elaboration is mostly found while rhetorical relation of cause is the second most dominant figure. It can be interpreted that the writers of Arts and Science articles used punctuations to indicate degrees of rhetorical balance and specify rhetorical relations semantically. The implications of this dissertation includes raising awareness of researchers on the proper use of punctuation.

Keywords: punctuations, rhetorical relations, research journal, rhetorical structure theory (RST)

Introduction

Punctuations are essential tools in any form of writing. Many researchers have approached the study of writing contrastively, as a mode of linguistic expression alternative to speech. According to Bloomfield (1949), “Writing is not language, but merely a means of recording language by means of visual marks.” Writing and speech have been regarded as distinct linguistic systems. Speech has been characterized as interpersonal, ephemeral, spontaneous, loosely structured and informal while writing has been described as planned, highly structured, durable, monologic, and formal (Chafe & Danielewicz, 1987). In spite of that, the written language is still very much defined and legitimated by reference to the prosperities of the spoken language. In the same way, the discipline of psycholinguistics has been devoted almost exclusively to language as embodied speech. Tracing the evolution of punctuation assists in monitoring the changing symmetry between speech and writing in the history of written English. The extent to which the literate community views speech and writing as independent or interdependent modes of language is, on some level, reflected in the rhetorical or syntactic nature and character of punctuation featured in writing of a given period (Baron, 2001; Jones, 1996 and Baron, 2001), examining the history of
punctuation, suggests that the tangible marks of punctuation can be used to gain a window on the historical interplay in the relationship between speech and writing.

Certainly, different authors may use punctuation in somewhat different ways. Also, it is obvious that punctuation involves conventions, but the conventions evolve from some information that is important to the way writing is presented. That is what a clue to what punctuation does to language that makes it a sensible and necessary addition to written English.

In many ways, punctuation is used to patch up an inadequate writing system. The more punctuation is encountered in a writing system, the more likely it is that the writing system is a poor representative of the speech system. English is alphabetic, but as it evolved, it also has had to adapt in some ways that have required punctuation and changed some of the conventions as the language changed.

According to Numbeg (1990), it is important to show that the rules of punctuations are at once more complex and more systematic than handbook expositions. They are not accessible to casual introduction section; and that they are organized along lines that suggest the influence of the principles that underline the structure of other natural – language systems, as opposed to the sorts of rational principles that people bring to bear when that set about designing artificial languages of various sorts. Moreover, the study of written language as a system in its own right is appropriately that of as a part of the study of graphical representation in general.

The punctuation features listed are symbols. That is, they have no independent meaning of their own. Any meaning that they have to convey a reader is purely a learned convention. Obviously, these symbols are both used and misused. Every aspect of a writing system can be used as an element of style whether it involves a spelling, a word, word order, a punctuation feature, sentence length, or anything else (cited in Krahn, 2014).

According to Nordquist (2016), Punctuation is a set of marks used to regulate texts and clarify their meanings, principally by separating or linking words, phrases and clauses. Punctuation plays a central role in contemporary society as communicative teaching and learning are conducted every day. Punctuation allows people to avoid misunderstanding and render a particular meaning, express the attitudes and opinions. Punctuations are important in reading; it aids the readers in understanding the writer's intended message. The uses of punctuations make reading easier and help comprehend the writer’s ideas. However, some marks can completely change the intended meaning. Depending on where they are placed or they are used, they affect the intended meaning of a sentence. Moreover, using punctuations correctly makes writing easier for the reader to understand.

There have been a variety of dissertations that explore the importance and detailed functions of punctuations. One of the most significant current discussion in this paper is to explore rhetorical relations to punctuations in research articles of Arts and Science journals published in Myanmar by the use of Rhetorical Structure Theory (RST) by (Mann & Thompson, 1999). The objectives of the present study are (i) to investigate the distribution of rhetorical relations to certain punctuations of research articles through RST and (ii) to explore the role of punctuations in the signaling of discourse structure through RST. Proper use of punctuation is essential in written English to enable the reader to understand what he is trying to say. Spacing with
punctuation is also important to make the written text readable. Besides reading and writing, when someone is speaking, pauses and gestures can be used to clarify the meaning. However, punctuations, the symbols that assist the readers’ understanding of a written text, have not been studied much by researchers. Punctuations such as hyphen ( - ), quotation marks (“……”), comma ( , ), semicolon ( ; ) are frequently neglected and this creates a serious problem in misunderstanding the meaning of a text. If the punctuation is applied indignantly, it may cause serious problems, and inconveniences, and missing certain punctuations out can even make humorous effects on an attentive reader.

The lack of commas sometimes can change the sense of the whole sentence and reading a text or giving a speech without pausing does not allow the one to catch the breath, the speech flow. And then, it becomes monotonous and tedious and speech without pausing is not as good for comprehension as a person who reads a paragraph is not sure where to stop for his listeners to gain a better insight. If the rules of punctuation can be applied in daily correspondence writing and speaking, it is sure to succeed in communication. Apart from choosing the right words in the right order, using the right punctuation is also important in formal writing in English. Punctuations help to show the pauses and emphasis on certain ideas or thoughts that are discussed in the text. The accurate use of punctuation is necessary in academic writing as it helps to strengthen the information in the text. As research articles often contain complex ideas and long sentences, proper punctuation within the sentences is very important. Punctuations can remove any potential confusion the sentences may have in the research articles. Some authors of the articles and learners do not know the correct use of the punctuations. The ideas for doing this paper is to make the authors and learners become familiar with punctuations in English writing and enables them to write clear and more understanding sentences.

This research will attempt to answer the questions: (i) “How does the distribution of rhetorical relations of punctuations signal the presence of particular relationships in the selected research articles?” and (ii) “Which roles do the punctuations take to indicate rhetorical relations semantically, guiding the readers in the interpretation of progressions of the research report?”

Literature Review

According to Kuiper and Luke (1992) Punctuation consists of cue marks for joining and separating words, phrases, clauses, and sentences. The purpose of punctuation is to clarify what otherwise would seem vague or confusing to a reader (cited in Krahn, 2014).

Rhetorical Structure Theory (RST)

According to Mann (1999), RST was originally developed as part of studies of computer-based text generation. In about 1983, part of the team, (Mann & Thompson, 1999) noted that there was no available theory of discourse structure or function that provided enough detail to guide programming any sort of author. RST was developed out of studies of edited or carefully prepared text from a wide variety of sources to respond this lack. It now has a status in linguistics that is independent of its computational uses.
**Texts, Coherence and Structure**

In ordinary usage, a text has a kind of unity that arbitrary collections of sentences. RST explains the coherence of texts. One formulation of coherence is that it is the absence of non-sequiturs and gaps. That is, for every part of a coherent text, there is some function, some plausible reason for its presence, evident to readers, and furthermore, there is no sense that some parts are somehow missing. RST focuses on the first part -- an evident role for every part.

**Structures**

The purpose of RST is to describe texts. It posits a range of possibilities of structure -- various sorts of "building blocks" that can be observed to occur in texts. These "blocks" are at two levels, the principal one dealing with "nuclearity" and "relations" often called coherence relations in the linguistic literature.

RST relations can be taxonomized in the following ways.

**Relation Classification on Subject Matter / Presentational Basis**

- Elaboration
- Circumstance
- Solutionhood
- Volitional Cause
- Volitional Result
- Non-Volitional Cause
- Non-Volitional Result
- Motivation
- Antithesis
- Background
- Enablement
- Evidence
- Justify
- Concession
- Purpose
- Condition
- Interpretation
- Evaluation
- Restatement
- Summary
- Sequence
- Contrast
- Otherwise
- Interpretation
- Evaluation
- Restatement
- Summary
- Sequence
- Contrast
- Otherwise

**Nucleus: Satellite Relations**

The most frequent structural pattern is that two spans of text (virtually always adjacent, but exceptions can be found) are related such that one of them has a specific role relative to the other. As an example, a claim followed by evidence for the claim. RST assumes an "Evidence" relation between the two spans. It also says that the claim is more necessary to the text than the particular evidence, and this necessity is represented by calling the claim span a nucleus and the evidence span a satellite. The order of spans is not constrained, but there are more likely and less likely orders for all of the relations.

Other comparable sorts of pairs have also been identified:
If a relation does not have a particular span of text which is more central to the author’s purposes, it is called Multinuclear. An example is the neutral Contrast relation. In RST, nothing would force the observer to find some structural role for every element of the text. Even so, for carefully written texts, virtually every text has an RST analysis that provides a structural place for every element of the text.

**Research Methodology**

This research focused on dash ( - ), semicolon ( ; ), colon ( : ), parentheses ( ). Data were collected from ten articles of Arts and science journal. The aim of this research is to investigate rhetorical relations to punctuations in the articles of Arts and Science journal published in Myanmar by the use of RST. To fulfill the purpose of this study, the distribution of punctuations for research articles was explored to find out the role of punctuations that specifies rhetorical relations in the research articles through RST.
Data Analysis of Rhetorical Structure Theory

In the present research, the rhetorical relations for five common punctuations (Colon, Dash, Semicolon, Parentheses and Comma) are investigated and analysed. The data are collected from ten selected articles from Myanmar Academy of Arts and Science (2013) according to Rhetorical Structure Theory (RST) by Mann & Thompson (1999). Among the ten articles, the sample analysis of Research Article 1 on Arts through RST is presented.

Analysis of Research Article 1 on Arts through RST

The following figure is the use of rhetorical structure found in English article from vol. XI, No. 8 June (2013).

The above figure illustrates that the punctuations of Research Article 1 on Arts signal the relation of elaboration, motivation, purpose, result, antithesis, evidence, consequence and summary.

The following table demonstrates the use of rhetorical relations; Circumstance, Solutionhood, Elaboration, Background, Enablement and motivation, Evidence and justify, Relations of cause, Antitheses, Condition and Otherwise, Interpretation and Evaluation, Restatement and Summary and Other Relations.
### Table 1

**Distribution of rhetorical relations found in Arts and Science Articles**

<table>
<thead>
<tr>
<th>Sr. no</th>
<th>Rhetorical Relations</th>
<th>Research Articles on Arts and Science</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Arts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>Circumstance</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Solution hood</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>Background</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Enablement and motivation</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Evidence and justify</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Relations of cause</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>Antitheses</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>Condition and Otherwise</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>Interpretation and Evaluation</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>Restatement and Summary</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>Other Relations</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>Total</td>
<td>15</td>
</tr>
</tbody>
</table>

The researchers of the selected articles conveyed the information of the articles by the use of punctuations. Therefore, punctuation plays a significant role in conveying the information. Among the punctuations the researchers used, comma is the most prominent mark to signal the rhetorical structure. According to the data collection, the rhetorical relation of elaboration is the most significant.

The commas in this sentence, "While taking the meal, knowingly and wishing to find fault, taking the food which has not been made the act of atiritta of the left-over food to the monk and saying “Here, bhikkhu, chew or consume this”, the one who invites the monk who has turned down or offered of further food incurs a dukkata." show the relation of consequence.

The relation of enablement by using commas can be found in the sentence, "From the experimental results of XRD and SEM, it was found that the growth mechanism used in this study exhibited the technical simplicity and easy adaptability."

The commas in the sentences, "In addition, the collected data suggest that high percentages of people around the world believe that environmental problems are among the most important social problems of the day (Dunlap, 1991). Solving these problem required changes in mind and behavior. Psychology, as the science of behavior, therefore, can have an important role in the amelioration of these problems, and it is important to study the factors that influence environmental behavior." can signal the relation of solutionhood.

Besides, commas are used to set off words or phrases in apposition or in contrast as in the sentence “A few studies, however, have yet been empirically conducted to examine the correlations among human values, personal obligation to environment and pro-environmental behavior in Myanmar.”
To elaborate the importance of writing in the sentences, dash is used in “(1) The process by which direct instruction is imagined as working is sometimes characterized as ‘jug and mug’ the knowledge being poured from one receptacle into an empty one.”, “(2) Writing well is not just an option for young people it is a necessity.” Motivation relation of comma can be seen in the sentence, “Teaching and learning the English grammar as a preparatory course for the coming PhD (prelim), level, with an aim to enabling the candidates to write their doctoral dissertation in English hopefully in the near future (a goal set perhaps much too high for some monks), especially on a specific line of discipline such as Buddhism, truly amounted to doing a task which may not be something totally inconceivable but definitely something most challenging for all those involved in this matter.” Commas in the sentence, “Hence, it is only after quite some time that writing skill gets well developed, and therefore definitely not a success readily achieved overnight for the validity and reliability of any conclusion(s) drawn out of things derived from interpretations based on solid data.”, indicate the relation of consequence.

Semicolons in the sentence, “According to Ditto Dhammathat the five duties of the wife towards the husband are: - preparing his meals or causing them to be preparing so as to have them ready in good time; supporting the relatives of the husband; remaining faithful to him; saving the property acquired by him; and assiduously performing the household duties.” elaborate the five duties of the wife towards the husband. In the sentence, “The procedures for Teaching experiment Group were presented (see Appendix F).”, the relation of evidence for parentheses can be found. Commas in the sentence, “The results of the present study strongly support the previous conceptual model among human values, personal obligation to environment, and pro-environmental behavior as proposed in Hypotheses.”, also describe the evidence of the results of the present study. The parentheses in the sentence, “Damage of rice in flowering stage was observed in Hakha and Htantalong. In Phalum rice damage due to rat occurred in booting and ripening stage (Table 5).” show the relation of evidence. In the sentence, “In Myanmar, however, there is still lacking necessary empirical research concerned with environmental beliefs, values, obligations, attitudes and behavior.”, the commas show the relation of antithesis. Parentheses in the sentence, “The source of contamination may be due to the dense population and from excretion of warm blooded animals near the studied area (Kawliya Dam, Bago Region).” interpret the source of contamination.

Parentheses in the sentence, “Field experiment was conducted in November 2007 to February 2008 (winter), June to October 2008 (rainy) and March to June 2009 (summer) at the field of Dagon University Campus”, show the relation of circumstance. In another sentence, “The observed diseases of melon in winter were powdery mildew, downy mildew, Cercospora leaf spot and cucumber mosaic virus (CMV).”, parentheses evaluate the observed diseases of melon in winter. Moreover in the sentence, “In conclusion, the insect pests and diseases infection were higher in rainy season due to lower temperature, higher rainfall, humidity and wet condition.”, the commas summarize the information of the whole paper.
Discussion

The roles of punctuations in the signaling of discourse structure were explored according to rhetorical structure theory (RST) by (Mann & Thompson, 1999). By using RST diagram for selected research articles, the roles of punctuations in the signaling of rhetorical structure were investigated. All the researchers of the Arts and Science articles applied all the types of the relations such as Elaboration, Circumstance, Solutionhood, Relation of cause, Background, Enablement and Motivation, Evidence and justify, Antithesis and Concession, Condition and Otherwise, Interpretation and Evaluation, Restatement and Summary and Other Relations. They all mostly employed the relations of elaboration to elaborate the information of their papers. Only the author of Botany article applied the relation of consequence. The second most dominant relations in the Arts and Science articles are relations of cause and relations of evidence and Justify to convey the results of the papers. According to the result, it is found that the use of punctuation marks such as commas, parentheses, colons, semicolons and dashes signal rhetorical structure of the sentences in the various contexts of the research articles. According to Zahri et al., (2015), the usage of rhetorical relations is capable to enhance many applications such as text summarization, question answering and natural language generation. Therefore, most of the researchers of the selected articles could enhance many applications such as text summarization, question answering and natural language generation of their research paper. In conclusion, punctuations can signal the rhetorical relations and give semantic meaning. Punctuations are used to understand the written and reading texts. Although the researchers of ten articles could not apply all the types of rhetorical relations and all the functions of punctuations, it can be said that the researchers of the arts and science articles could use effectively the rules of punctuations and rhetorical relations. Having a sound knowledge of using punctuations is very important for a learner to acquire a foreign language systematically. So, understanding the use of punctuations will help a learner to become more interested in his learning process. And, it will provide the guideline on how to present their research papers systematically in using punctuations.

Recommendations

According to Nunberg (1990), punctuation has syntactic function; adjunctive punctuation and conjunctive punctuation. Dale (1991) also suggested that punctuation has semantic function: lexical function, discursive function and pragmatic function. The current research has explored semantic and discursive function of punctuations. There is the possibility of strengthening the theoretical contribution of the present work in several directions. Future research can be done concerning syntactic, lexical and pragmatic function of punctuations especially in newspaper reporting as the language of newspaper reporting presents a wider range of linguistically distinctive. According to Nasuk & Omolola (2016), there is no significant improvement in the use of punctuation marks by the newspaper. Thus, there is a serious need to revisit the issue of appropriate use of punctuation marks by the newspaper reports for effective communication. The right use of punctuation marks in newspaper writing can helps readers to know the importance of punctuation marks in a written discourse.
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Internet Sources

https://www.researchgate.net/publication/222168236_Commas_and_canaries_The_role_of_punctuation_in_speech_and_writing


University Students’ Attitudes toward Learning English Language in Myanmar

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Abstract

There must be some sort of motivation to learn a second language, because most people learn at least one language, and often children from a bilingual home learn two languages, apparently with ease. Moreover, these people speak the language, they understand the language, and often they both read and write it, so why should motivation be important. Language is an essential part of growing up, have to communicate and participate in our environment. There are many advantages for knowing other languages but they are not absolutely necessary, and as a consequence, motivation can play an important role in learning a second language. Moreover, there are many things that can affect this motivation. It is importance to motivate in second language acquisition and to demonstrate that it is more complex than merely wanting to learn the language. The aim of the research is to show affirmative attitude towards the culture of the English speaking world and to investigate the students' attitudes toward learning English Language at tertiary level in Myanmar. The main objectives of this research are to investigate the emotional, the cognitive and the behavioral aspects of language attitudes of the tertiary level students in Myanmar. This finding reveals that the participants have a positive attitude towards learning English. In addition, the scores of the three aspects of attitudes towards English among the respondents differ. The participants show the higher percentage at the cognitive aspect of attitude than the emotional aspect of attitude and the behavioral aspect of attitude. For that reason, the affective perspective, especially attitude, should be considered in language research.

Keywords: attitude, emotional, cognitive, behavioral, tertiary level

Introduction

It is argued that language learning is regarded as the cornerstone of human existence. Knowing the language can help us to express our opinions, hopes, and even our dreams (Tavil, 2009). In foreign Language learning context, there are various factors that influence the learning process such as motivation, attitudes, anxiety, learning achievements, aptitudes, intelligence, age, personalities, etc. The matter of learner’s attitude is acknowledged as one of the most important factors that impact on learning language (Fakeye, 2010). This research looks into the concept of attitude as one of the major affective factors for success in learning a foreign language. More specifically, it investigates the tertiary level, the post and undergraduate students’
attitudes towards learning English Language, taking into consideration the three aspects of attitude i.e., emotional, cognitive, and behavioral. Additionally, it attempts to determine the influence of students’ demographic profile i.e., gender, year and field of study on their attitudes towards learning English. Kara (2009) stated that attitudes towards learning besides opinions and beliefs have an obvious influence on students’ behaviors and consequently on their performance. It is argued that those students who possess positive beliefs about language learning have a tendency to increase more positive attitudes towards language learning. Conversely, negative beliefs may lead to class anxiety, low cognitive achievement, and negative attitudes. The teachers’ role is basically to transmit information to their students effectively. There exists little knowledge about the best strategies to develop the students not just cognitively but also behaviorally and emotionally. Meanwhile, the controversial concern is why some students attain higher grades in English Language exams than others who are under the same conditions and situations. The concern on the learners’ attitudes towards the target language was emphasized by Gardner (1985). He stated that the learners’ attitudes towards learning another language play a key role in enhancing and motivating them to learn that language. This, in turn, affects on their performance, too. In second or foreign language learning and teaching researches have been carried out regarding the students' attitudes, motivation, the relationship between the students' attitudes towards learning English Language and so on. For example, concerning the students' attitudes, motivation and anxiety towards the learning of English, Shams (2008) did a research and the objectives are to discover the students' attitudes towards learning English, to explore the level of their enthusiasm and to study the relationship between the attitudes of the students in learning English and how they value English Language efficiency in their daily life. Momani (2009) also did a research and the aim of his research is to investigate the secondary stage students' attitudes towards learning English as a foreign language and their achievement in reading comprehension. The objectives of his research are to discover whether the students have positive attitudes towards learning English and to explore whether there is correlation between the students' attitude towards learning English and their performance in reading comprehension. Al-Tamimi and Shuib (2009) on petroleum Engineering students' motivation and towards learning English revealed that they had positive attitudes towards the use of English in the Yemeni social and educational contexts. The aim of their research is to show affirmative attitude towards the culture of the English speaking world. In a research on the gender variable done by Fakeye (2010), the aim is to investigate the correlation between attitude and achievements in English among senior secondary students. The objectives of his research are to study whether there is the relationship between the attitudes and achievement, to explore whether the students' attitude is gender-related or not and to discover whether the attitudes of the male students and those of female students are different or not. The aim of this research is to investigate the students' attitudes toward learning English Language at tertiary level in Myanmar. The main objectives of this research are as follow:
1. To investigate the emotional aspect of language attitudes of the tertiary level students in Myanmar.

2. To explore the aspects of cognitive and behavioral attitudes of the tertiary level students in Myanmar.

**Methodology**

This research aims to investigate the students' attitudes toward learning English Language at tertiary level in Myanmar.

As shown in table (1), the responses regarding the emotional aspect of attitude towards English are quite different from these of cognitive aspect and from those of behavioral aspect. The emotional aspect represents that the highest score of attitude towards English is 135 and the lowest score is 4.

It is found that 57% of the students feel proud when they study English Language. They can get knowledge a lot by studying it. Moreover, they can share their opinions and thoughts by communicating.

It is also found that 54% of the students feel excited when they communicate in English with others. Therefore, they should be given language exposure to be practiced. Then, they can be interested in participating.

It is known that 31% of the students are not anxious when they have to answer a question in their English class. Thus, teachers should guide them to have more confident and to help the weaker ones.

It is found that 85% of the students enjoy studying foreign language like English. A person who speaks foreign languages can get knowledge a lot and can share his opinions and points of views.

It is also found that 42% of the students can study English well by being inquisitive and by communicating with others.

It is known that 33% of the students can have good emotions by studying English. Therefore, teachers should give them language exposure to participate. Then, they can share their opinions and points of view for the language.

It is also found that 56% of the students are interested in studying English and they want to speak it fluently. Thus, teachers should create the good activates to share their opinions freely.
Table 1
The emotional aspect of students’ attitude towards English language

<table>
<thead>
<tr>
<th>Sr No</th>
<th>The students’ emotional aspect of attitude</th>
<th>Students’ responses</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Agree</td>
<td>Not Sure</td>
<td>Disagree</td>
</tr>
<tr>
<td>1</td>
<td>Students feel proud when they study English Language.</td>
<td>57%</td>
<td>24%</td>
<td>19%</td>
</tr>
<tr>
<td>2</td>
<td>Students feel excited when they communicate in English with others.</td>
<td>54%</td>
<td>19%</td>
<td>27%</td>
</tr>
<tr>
<td>3</td>
<td>Students are not anxious when they have to answer a question in their English class.</td>
<td>31%</td>
<td>22%</td>
<td>47%</td>
</tr>
<tr>
<td>4</td>
<td>Students enjoy studying foreign language like English.</td>
<td>85%</td>
<td>11%</td>
<td>4%</td>
</tr>
<tr>
<td>5</td>
<td>Students can study English well by being inquisitive and by communicating with others.</td>
<td>42%</td>
<td>21%</td>
<td>37%</td>
</tr>
<tr>
<td>6</td>
<td>Students can have good emotions by studying English.</td>
<td>33%</td>
<td>8%</td>
<td>59%</td>
</tr>
<tr>
<td>7</td>
<td>Students are interested in studying English and they want to speak it fluently.</td>
<td>56%</td>
<td>12%</td>
<td>32%</td>
</tr>
</tbody>
</table>

As shown in table (2), the cognitive aspect represents that the highest score of attitude towards English is 140 and the lowest score is 2. The findings indicate that the majority of the respondents show a positive attitude.

It is found that 89% of the students accept that studying English is important because it will make them more educated. Thus, teachers must guide them to be educated persons and to help the weaker ones to be educated ones.

It is known that 66% of the students want to be good at English because it will help them study other subjects well. Therefore, students are guided to be good at English and to have more confident for further studies.

It is believed that 81% of the students get more knowledge and more understanding by studying English. Thus, teachers should give them language exposure to get more knowledge and to help the weaker ones.

It is found that 71% of the students want to study more English in the future and they are delight to study English so much.

It is also found that 68% of the students can get new information by studying English. Moreover, they are useful to link to the previous knowledge.

It is known that some students cannot summarize the important points in English by themselves. Therefore, they should be guided to summarize the important points. Teachers must be skilful in English to help the students improve their ability.

It is also found that 34% of the students want to study English just to pass the exam. They have to be remained that it is disadvantage point of future. Moreover, teachers can guide them to avoid it.

It is found that 90% of the students believe people who speak several languages can get knowledge a lot. They should be guided that the more languages they can speak, the more knowledge they can get.
It is found that 69% of the students can communicate well each other by studying English. They can get new information by communicating. Thus, they should be guided to study English for communicating.

It is known that 53% of the students cannot apply their knowledge from English subject in their real life. Thus, teachers should teach them to apply their knowledge in a particular situation.

It is found that 22% of the students are able to create new thoughts by studying English. Therefore, teachers should give them language exposure to create new thoughts and to share their opinions and points of view for the lessons.

It is found that 49% of the students are able to think and analyze the content in English Language. They should be guided to analyze the content in English language.

It is also found that 31% of the students are satisfied with their performance in the English subject. They do not feel worried and excited when they speak English. Then, teachers should guide them to help the weaker ones improve their ability.

It is known that 61% of the students find English Language difficult and complicated to learn. Therefore, teachers should help them interested in it by using interesting methods. Then, they can be interested in it and they are earnest to learn it.

It is found that 96% of the students believe that English is the main subject that covers many fields of knowledge. That is why, teachers should teach them English well to get knowledge and new information.

Table 2
*The cognitive aspect of students' attitude towards English language*

<table>
<thead>
<tr>
<th>Sr No</th>
<th>The students' cognitive aspect of attitude</th>
<th>Students' responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Studying English is important because it will make us more educated. Students want to be good at English</td>
<td>Agree: 89% Not Sure: 6% Disagree: 5%</td>
</tr>
<tr>
<td>2</td>
<td>Students get more knowledge and more understanding by studying English. Students want to study more English in the future and they are delight to study English so much. Students can get new information by studying English. Moreover, they are useful to link to the previous knowledge. Students want to study English just to pass the exam. Students believe people who speak several languages can get knowledge a lot. Students can communicate well each other by studying English. Students cannot apply their knowledge form English subject in their real life.</td>
<td>Agree: 68% Not Sure: 18% Disagree: 14%</td>
</tr>
<tr>
<td>3</td>
<td>Students want to be good at English because it will help them study other subjects well.</td>
<td>Agree: 66% Not Sure: 11% Disagree: 23%</td>
</tr>
<tr>
<td>4</td>
<td>Students get more knowledge and more understanding by studying English. Students want to study more English in the future and they are delight to study English so much. Students can get new information by studying English. Moreover, they are useful to link to the previous knowledge. Students want to study English just to pass the exam. Students believe people who speak several languages can get knowledge a lot. Students can communicate well each other by studying English. Students cannot apply their knowledge form English subject in their real life.</td>
<td>Agree: 71% Not Sure: 25% Disagree: 4%</td>
</tr>
<tr>
<td>5</td>
<td>Students get more knowledge and more understanding by studying English. Students want to study more English in the future and they are delight to study English so much. Students can get new information by studying English. Moreover, they are useful to link to the previous knowledge. Students want to study English just to pass the exam. Students believe people who speak several languages can get knowledge a lot. Students can communicate well each other by studying English. Students cannot apply their knowledge form English subject in their real life.</td>
<td>Agree: 68% Not Sure: 18% Disagree: 14%</td>
</tr>
<tr>
<td>6</td>
<td>Students get more knowledge and more understanding by studying English. Students want to study more English in the future and they are delight to study English so much. Students can get new information by studying English. Moreover, they are useful to link to the previous knowledge. Students want to study English just to pass the exam. Students believe people who speak several languages can get knowledge a lot. Students can communicate well each other by studying English. Students cannot apply their knowledge form English subject in their real life.</td>
<td>Agree: 34% Not Sure: 33% Disagree: 33%</td>
</tr>
<tr>
<td>7</td>
<td>Students get more knowledge and more understanding by studying English. Students want to study more English in the future and they are delight to study English so much. Students can get new information by studying English. Moreover, they are useful to link to the previous knowledge. Students want to study English just to pass the exam. Students believe people who speak several languages can get knowledge a lot. Students can communicate well each other by studying English. Students cannot apply their knowledge form English subject in their real life.</td>
<td>Agree: 90% Not Sure: 6% Disagree: 4%</td>
</tr>
<tr>
<td>8</td>
<td>Students get more knowledge and more understanding by studying English. Students want to study more English in the future and they are delight to study English so much. Students can get new information by studying English. Moreover, they are useful to link to the previous knowledge. Students want to study English just to pass the exam. Students believe people who speak several languages can get knowledge a lot. Students can communicate well each other by studying English. Students cannot apply their knowledge form English subject in their real life.</td>
<td>Agree: 69% Not Sure: 1% Disagree: 30%</td>
</tr>
<tr>
<td>9</td>
<td>Students get more knowledge and more understanding by studying English. Students want to study more English in the future and they are delight to study English so much. Students can get new information by studying English. Moreover, they are useful to link to the previous knowledge. Students want to study English just to pass the exam. Students believe people who speak several languages can get knowledge a lot. Students can communicate well each other by studying English. Students cannot apply their knowledge form English subject in their real life.</td>
<td>Agree: 53% Not Sure: 2% Disagree: 45%</td>
</tr>
</tbody>
</table>
Students are able to create new thoughts by studying English.  
Students are able to think and analyze the content in English Language.  
Students are satisfied with their performance in the English subject.  
Students find English Language difficult and complicated to learn.  
Students believe that English is the main subject that covers many fields of knowledge.

<table>
<thead>
<tr>
<th></th>
<th>Statement</th>
<th>22%</th>
<th>15%</th>
<th>63%</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Students are able to create new thoughts by studying English.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Students are able to think and analyze the content in English Language.</td>
<td>49%</td>
<td>26%</td>
<td>25%</td>
</tr>
<tr>
<td>12</td>
<td>Students are satisfied with their performance in the English subject.</td>
<td>31%</td>
<td>31%</td>
<td>38%</td>
</tr>
<tr>
<td>13</td>
<td>Students find English Language difficult and complicated to learn.</td>
<td>61%</td>
<td>27%</td>
<td>12%</td>
</tr>
<tr>
<td>14</td>
<td>Students believe that English is the main subject that covers many fields of knowledge.</td>
<td>96%</td>
<td>3%</td>
<td>1%</td>
</tr>
</tbody>
</table>

As shown in Table (3), the behavioral aspect of attitude towards English language represented that the lowest score is 4 and the highest score is 125. That is, the participants have a positive behavioral attitude.

It is found that most students feel worried and excited when they speak English so that teachers should give them language exposure to speaking English.

It is believed by 78% of the students that studying English helps them to have good relationships with friends and the stronger ones can help the weaker ones in the classroom. Moreover, most students want to give their opinions freely during English lessons so that teachers can understand their opinions and points of view for the lessons.

It is known that 35% of the students want to give their opinions during English lessons. That is why, teachers should give them chances to share their opinion and thoughts.

It is found that 57% of the students pay their attention during studying English but 43% of the students cannot do. Thus, teachers should know their situation and try to make them interested in their lessons.

It is believed that 48% of the students want to speak with the others who can speak English well. Therefore, teachers should create the English speaking activities that can motivate them to participate happily.

It is known that 88% of the students who study English have more confident than the others who do not study English. Therefore, teachers must lead them to study English properly.

It is found that 42% of the students believe they can improve their personality by studying English but 58% of the students do not believe it. Thus, teachers should guide them to study English and to make for themselves confident.

It is known that 51% of the students want to put off their English homework as much as possible but 49% of the want to do it. Therefore, teachers should not give them homework to be done a lot.

It is found that 46% of the students feel worried whenever they have to speak English in their class. Thus, teachers must try to make them put off their worries and to make them speak confidently in front of the others.

It is also found that 75% of the students feel embarrassed to speak English in front of other students but 25% of the students adapt to do without difficulties.

It is believed that 61% of the students want to speak like the native speakers. That is why, teachers must create the good environments for students to deal
with the native speakers. If they do not get chances to deal with the native speakers, they can be trained by the use of multi-media.

It is known that 12% of the students want to have many friends who can speak English well. Nonetheless, the students in Myanmar cannot always deal with the persons who can speak it well. Thus, teachers must know this condition, must create good chances and must train them to speak English properly.

It is also known that 42% of the students do not pay any attention during English lessons due to the teacher's uninteresting explaining. Thus, teachers must be skillful in their subject to explain the points deeply.

It is found that 22% of the students do not want to come to the English classes. Therefore, teachers can persuade them to come to the classes and make them interested in English. Then, they want to come earnestly.

It is known that 38% of the students never ask their friends or teachers for homework to be done when they miss the class.

Table 3
The behavioral aspect of students' attitude towards English language

<table>
<thead>
<tr>
<th>Sr No</th>
<th>The students' behavioral aspect of attitude</th>
<th>Students' responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>1</td>
<td>Studying English helps us to have good relationships with friends and the stronger ones can help the weaker ones in the classroom.</td>
<td>78%</td>
</tr>
<tr>
<td>2</td>
<td>Students want to give their opinions during English lessons.</td>
<td>35%</td>
</tr>
<tr>
<td>3</td>
<td>Students pay their attention during studying English.</td>
<td>57%</td>
</tr>
<tr>
<td>4</td>
<td>Students want to speak with the others who can speak English well.</td>
<td>48%</td>
</tr>
<tr>
<td>5</td>
<td>Students who study English have more confident than the others who do not study English.</td>
<td>88%</td>
</tr>
<tr>
<td>6</td>
<td>Students believe they can improve their personality by studying English.</td>
<td>42%</td>
</tr>
<tr>
<td>7</td>
<td>Students want to put off their English homework as much as possible.</td>
<td>51%</td>
</tr>
<tr>
<td>8</td>
<td>Students feel worried whenever they have to speak English in their class.</td>
<td>46%</td>
</tr>
<tr>
<td>9</td>
<td>Students feel embarrassed to speak English in front of other students.</td>
<td>75%</td>
</tr>
<tr>
<td>10</td>
<td>Students want to speak like the native speakers.</td>
<td>71%</td>
</tr>
<tr>
<td>11</td>
<td>Students want to have many friends who can speak English well.</td>
<td>12%</td>
</tr>
<tr>
<td>12</td>
<td>Students do not pay any attention during English lessons due to the teacher's</td>
<td>42%</td>
</tr>
</tbody>
</table>
uninteresting explaining.
Students do not want to come to the English classes. 22% 6% 72%
Students never ask their friends or teachers for homework to be done when they miss the class. 38% 2% 60%

This finding reveals that the participants have a positive attitude towards learning English. As seen in table (3), it is found that 125 participants agree in behavioral aspect of attitude. Moreover, as seen in table (2), it is also found that 140 participants agree in cognitive aspect of attitude. Next, as seen in table (1), it is found that 135 participants agree in emotional aspect of attitude.

Here in figure (4), we discover that the different percentage of agree, disagree and not sure of three main aspects of attitudes toward learning English Language at tertiary level in Myanmar respectively. In the emotional, 51% of the participants are agree on a positive attitude towards learning English, 32% of them are disagree and 17% are not sure. Beside, in the cognitive, 63% of the students are agree on that attitude of learning, 21% of them are disagree and 16% are not sure. In the behavioral, then, we find that 53% are agree, 39% are disagree and 18% are not sure. In this research, therefore, the participants show the highest percentage at the cognitive aspect of attitude. Most students want to good at English because it helps them study other subjects well, and it makes them more educated. Moreover, they can get new information by studying English and communicated well each other.
Findings

From the findings of this research, it was revealed that the aspects of cognitive attitudes of the tertiary level students in Myanmar have the highest percentage score. Both the emotional and behavioral attitudes toward learning English language have a little difference. In the cognitive attitude, we find that, students strongly believe people who speak several languages can get a lot of knowledge and they are more confident in studying English will make them more educated. But the weakest point is here seen that Myanmar students cannot create new thoughts by studying English because they are satisfied with their performance in the English subject and want to study it just to pass the exam. From the emotional point of view, we find that most of Myanmar university students enjoy studying foreign language like English because they feel proud and want to speak it fluently. By studying English, students are not anxious when they have to answer a question in their class and can have good emotions. On the other hand, we find that students who study English have more confident in the behavioral attitude than the others who do not study English. By studying English, it can help them to have good relationships with friends and the stronger ones can help the weaker ones in the classroom. Although they desire to speak like the native speakers, they did not want to have many friends who can speak English well. But here, we discover that some students feel worried whenever they have to speak English in their class. Moreover, they do not want to come to the English classes. When they miss the class, they never ask their friends or teachers for homework to be done. This research has demonstrated that it is the power of the motivation in its broadest sense, integrating the behavioral, cognitive, and emotional components, that is important. These results emphasize the role that both the context of educational and cultural plays in second language acquisition. This role has a direct effect on motivation, which in turn has a direct effect on language achievement. These attitudes toward the learning English language have the greatest influence on Motivation. Similarly, learning motivation may promote the acquisition of individual elements of the language, but more is needed to achieve a true mastery of the language.

Conclusion

Attitude towards learning English is determined by the individual's beliefs about outcomes or attributes of performing the behavior (behavioral beliefs) weighted by evaluations of those outcomes or attributes. Thus, a person who holds strong beliefs that positively valued outcomes will have a positive attitude toward the behavior. Conversely, a person who holds strong beliefs that negatively valued outcomes will have a negative attitude. Thus, if a learner does not have the interest and tendency in acquiring the target language to communicate with others, this learner will possess a negative attitude and will not be motivated and enthusiastic in language learning. In this research, the participants show the highest percentage at the cognitive aspect of attitude. Most students want to good at English because it helps them study other subjects well, and it makes them more educated. Moreover, they can get new information by studying English and communicated well each other. It is thought that teacher should give them language exposure to create new thoughts, to share their opinions and points of views for the lessons. The participants show the lowest percentage at the behavioral aspect of attitude. Some students want to put off their
homework as much as possible. Moreover, they never ask their friends or teachers when they miss their classes and they do not pay attention when their teacher is explaining the lessons. The worst point is that they do not want to come to the classes every day. It is believed that teachers should encourage students to have good relationships with friends. Moreover, teachers should persuade and guide them to study English and to make themselves confident. The participants show higher percentage at the emotional aspect of attitude than the percentage at the behavioral aspect of attitude. It is known that students should be guided to enjoy activities in English. This finding reveals that the participants have a positive attitude towards learning English. In addition, the scores of the three aspects of attitudes towards English among the respondents differ. The participants show the higher percentage at the cognitive aspect of attitude than the emotional aspect of attitude and the behavioral aspect of attitude. For that reason, the affective perspective, especially attitude, should be considered in language research.

Recommendations

Based on the findings, it was recommended that Myanmar university students should have the behavioral aspect of attitude. To improve the behavioral aspect of attitude, not only the teachers but also the students have to pay attention during the study of learning English language. EFL teachers should respect and think about students’ feelings, beliefs and behaviors before the cognitive abilities. Students should give their opinions freely and discuss with their teachers. Moreover, they must have more confident to share or discuss their knowledge. And then, the teachers should encourage their students to discuss everything they have learnt. By studying like this, students can study themselves and get knowledge a lot. From this knowledge, they can share their opinions freely from their points of views and they don’t feel embarrassed when they communicate each other not only in the class but also the outside. Both negative and positive attitudes have a strong impact on the success of language learning. Although findings in the research are not so strong, they showed better attitude toward English than we expected. We are necessary to work together with teachers, syllabus designers, and Ministry of Education (MOE) pay profound attention to students’ attitude to English language learning. Moreover, teachers are necessary to undergo in-service trainings specifically designed to outfit the teachers with the techniques and strategies that can evaluate students’ behavioral, emotional and cognitive aspects of attitude.
References


An Investigation into Modality Markers Used in Political Speeches by State Counsellor Daw Aung San Suu Kyi

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Abstract

Modality is one of the most important systems in social communication. It can objectively express the speaker's judgment towards the topic. The present research is to explore the linguistic features of modality in political speeches by State Counsellor Daw Aung San Suu Kyi (2018/2019) by using Palmer's (1986) mood & modality theory. Modality markers are classified into five types: modal lexical verbs, modal adjectives, modal adverbs, modal nouns and modal auxiliary verbs. The objectives are to investigate which types of modality markers are mostly used in the speeches and to examine semantic characteristics & pragmatic characteristics of modal expressions in political speeches. After analyzing the modality markers found in the political speeches, modal lexical verbs are mostly found. Modal Lexical verbs can express the speaker's opinion and confidence in the true value of the proposition. Semantically, strong engagement is highly found to convey the speaker's sufficient knowledge to the proposition. Pragmatically, content-oriented messages are dominant in the political speeches. Content-oriented messages show the speaker's attitude. It is found that modality markers are important in creating a successful Communication to show the speaker's attitude.

Keywords: modality markers, modal, lexical verbs, modal adjectives, modal adverbs, modal noun, modal auxiliary verbs, semantic characteristics, pragmatic characteristics

Introduction

Systemic functional grammar (SFG) is a form of grammatical description originated by Michael Halliday. It is part of a social semiotic approach to language called systemic functional linguistics. According to Halliday (1994), the nature of language is a semiotic system. This semiotic system has three meta-functions. They are ideational function, interpersonal function and textual function. The interpersonal function refers to the employment of language to demonstrate, build up, or maintain the relationships between people in society. It mainly concerns the roles of addressers and audience, Mood and Modality. Halliday (2000) states that modality also plays an important role in carrying out the interpersonal meta-function of clauses showing to what degree the proposition is valid. Modality refers to the space between “yes” and “no”, showing the speaker’s judgements of the probabilities or the obligations involved in what she is saying. Modality refers to a speaker’s writer’s narrator’s attitude towards and opinions about the events and situations around him/her. Modality is the grammar of explicit comment, the means by which people express their degree of commitment to the truth of the propositions they utter, and their views
on the desirability or the state of affairs referred to”. Moreover, it has to do with the interpersonal “coloring” of utterances in terms of probability, usuality, obligation and inclination, thus encoding the attitude of either the characters or the narrator. According to Palmer (1986), modality in language concerned with subjective characteristics of an utterance. In linguistics modality is what allows speaker to evaluate a proposition relative to a set of other propositions. The semantic trait of confidence in the true value of the proposition is an illustration of subjective character of an utterance.

Pragmatics is traditionally referred to as discipline dealing with the notion of meaning with reference to a speaker and a communicative situation. What parallels pragmatics and modality is a speaker-oriented and content-oriented interpretation of meaning. Modality consists of various semantic notions such as "possibility", "necessity", "ability", "obligation" and "permission".

Public speaking is a vital mean of communication and an effective way of conveying speaker's messages to the public. Political speech is a case in point with the aim of making the political viewpoints widely known winning support for a proposal. The two political speeches of famous State Counsellor Daw Aung San Suu Kyi are chosen in this research. In the speech "The National Education Strategic Plan (2016-2021), She has urged all stakeholders to make a change in the country's education philosophy within the next five years. She spoke this speech at the Myanmar International Convention Centre 2 in Nay Pyi Taw on February 23. The theme of Daw Aung San Suu Kyi's speech, "Now is the time to be bold and ambitious" is to improve the business environment in Myanmar. She spoke this speech in Myanmar Summit on January 29, 2019.

According to Palmer (1986), there are five modality markers such as modal lexical verbs, modal adjectives modal nouns, modal adverbs and modal auxiliary verbs. Modality markers in the political speeches by Daw Aung San Suu Kyi are collected and identified in the present research. The political speeches are collected from the website https://www.mmtimes.com26045, https://investmyanmar2019.com. (speaker-oriented, content-oriented and hearer-oriented) is explored in this research.

**Aim and Objectives**
The aim of the present research is to explore the linguistic features of modality in political speeches by State Counsellor Daw Aung San Suu Kyi (2018/2019)

The objectives of the research are;

i) to investigate which types of modality markers are mostly used in the speeches

ii) to examine semantic characteristics and pragmatic characteristics of modal expressions in political speeches.

The research investigates modality markers semantically and pragmatically. Semantically, the research investigates degree of engagement: strong or weak and pragmatically, examines strategies of communication: speaker-oriented, content-oriented and hearer-oriented messages.
Research Methodology

In this research, State Counsellor Daw Aung San Suu Kyi's two speeches "The National Education Strategic plan (2016-2021)" and "Now is the time to be bold and ambitious" are analyzed.

The use of modality markers in the political speeches is investigated by Palmer's (1986) approach in this research. Palmer (1986) defines modality as the attitude a speaker expresses towards the propositions in the sentence he utters. Modality is concerned with subjective characteristics of an utterance and it could even be further argued that subjectivity is an essential criterion for modality. According to Depraetere and Reed (2006), modality is a grammatical category typically employed by writers to express their judgements that a proposition is possibly or necessarily true or that the actualization of a situation is necessary or possible. According to Palmer (1986), there are five modality markers such as model lexical verbs, modal adjectives, modal nouns, modal adverbs and modal auxiliary verbs. Modality is studied in terms of their syntactic, semantic and pragmatic characteristics, in terms of positions, scale of certainty and pragmatic strategies in the orientation of messages. From semantic and pragmatic points of view, the use of degree of engagement and strategies of communication (speaker-oriented, content-oriented and hearer-oriented) is explored in this research.

Modal lexical verbs (M_{lex}) such as doubt, think, believe, predict, suggest, want, prefer, desire, permit, forbid, feel, find, know, give, show, argue, seem, claim, realize, see and appear show the speaker’s or writer’s opinion and confidence in the true-value of the source of the proposition. Modal lexical verb (M_{lex}) constructions in English were found to combine with the first personal pronoun I/we, e.g I think, I trust, I guess, I suppose, I believe, etc. These verbs can take initial (before the subject), medial (within the utterance) or even final positions (after an intransitive verb, an object or a complement). Modal lexical verbs such as “say”, “believe”, or “think” can be found in forms of passive structures.

Modal Adjectives (M_{adj}) such as “apparent”, “evident”, “obvious”, “sure”, “clear”, “necessary”, confident, “certain”, “possible”, and “probable”, etc, expresses modality in English. Modal adjectives can qualify the state of affairs to the utterance and are part of the complex proposition expressed by the utterance. Modal adjectives are characteristically used with a non-personal subject, or sometimes with personal subjects such as the first person pronoun subject “I”: I am sure, I am certain, it’s clear, It is possible, etc.

Modal Adverbs (M_{adv}) such as hardly, perhaps, evidently, assuredly, fortunately, regretfully, surprisingly, strangely, rarely, occasionally, possibly, probably, certainly, definitely, may be, indeed, in fact, etc are used to express the speaker’s or writer’s view of the true value of a proposition. They occurred in I-position, M-position and F-position.

Modal Nouns (M_{n}) such as chance, hope, presumption, expectation, intention, determination, certainly, clarity, no doubt, reality, chance, likelihood, necessity, probability, belief and opportunity, can hold the function of expressing modality. Modal nouns can function as subjects, complements, objects and so forth. The common positions for modal noun constructions are I-position and M-positions.
Modal Auxiliary verbs ($M_{aux}$) such as can, could, will, would, may, might, must, ought to, need to and have to, allow the speaker or writer to express their opinion or their attitude to a proposition. Modal auxiliary verbs in English are frequently found in M-position.

Semantic characteristics of modality markers: Degree of Engagement

**Modality Markers Expressing High Engagement** can support the speaker or writer to hold strong commitment to the assertion as well as the information source. Modal adjectives, modal adverbs, modal lexical verbs, modal nouns and modal auxiliary verbs are the markers which express high engagement.

**Modality Markers Expressing Low Engagement** in which the speaker or writer has insufficient knowledge or information. If the speaker or writer is lacking in knowledge about the information ground, he or she should sound less asserted about some issues in a certain respect. “Unclear”, “impossible”, “some”, “suppose”, “suggest”, expect”, etc are the makers which express low engagement.

The use of modality markers can be classified in term of degree engagement. Degree of engagement expressed by modality markers can tell the listener that the speaker's commitment is strong or weak.

**Pragmatic Characteristics of Modality Markers: Strategies of Communication**

Pragmatic means the study of meaning as communicated by a speaker and interpreted by a listener. Pragmatics is the study of speaker's meaning. Pragmatically, one can talk about people's intended meanings, their assumptions, their purposes or goals, and the kinds of actions that they are performing when they speak. Pragmatically, there are three ways to communicate messages. They are speaker-oriented, content-oriented, and hearer oriented messages.

**Speaker-oriented messages** mean the combination of 1st singular person subject with a wide range of modality markers and with a high level or low level of certainty. "I say", "I think", "I believe", It seems to me", etc, are the markers which show speaker-oriented messages e.g I think she is intelligent.

**Content-oriented messages** mean the speaker's attitude and the message is shaped and sent to the listener on the basis of the quality of the propositional contents of claims or statements.

**Hearer-oriented messages** mean the actualization of the 1st plural person subject and the 2nd person subject with few instances of modality markers. These messages mark the speaker's positive image in the proposition e.g we can make change our friend but not our enemy.

Data Analysis and Data Interpretation

Table (1.) shows the frequency and percentage of all modality markers in the political speeches by State Counsellor Daw Aung San Suu Kyi. In this table, containing modality markers are modal lexical verbs, modal adjectives, modal nouns, modal adverbs and modal auxiliary verbs.

The following table shows the frequency and percentage of modality markers and percentages can easily be seen.
Table 1

<table>
<thead>
<tr>
<th>Political speeches</th>
<th>Modality Markers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M_{\text{lex}}$</td>
</tr>
<tr>
<td>The National Education Strategic Plan (2016-2021)</td>
<td>29</td>
</tr>
<tr>
<td>(38%)</td>
<td></td>
</tr>
<tr>
<td>Now is the time to be bold and ambitious</td>
<td>75</td>
</tr>
<tr>
<td>(41%)</td>
<td></td>
</tr>
<tr>
<td>Total-258</td>
<td>104</td>
</tr>
<tr>
<td>(40%)</td>
<td></td>
</tr>
</tbody>
</table>

In Daw Aung San Suu Kyi’s speech “The National Education Strategic plan (2016-2021)”, modal adjectives contain 8%, modal nouns contain 16% and modal lexical verbs contain 38%. Modal auxiliary verbs are mostly found and the percentage is 39%. Modal adverbs are not found. In the utterance of Daw Aung San Suu Kyi, “To encourage lifelong learning, the change must start in the education system”, she expresses her attitude and opinion towards how to make reforms in the education system as lifelong learning is the most powerful model for facilitating and inspiring individual, groups and organizational learning and development. The utterance “Teachers must be desirous of learning and have the desire for life-long learning so that all learners will become inspired,” describe how she encourages teachers to constantly learn so that the students will be inspired to learn more and more, parents and teachers have to set a good example. By using modal lexical verbs in the utterance, Daw Aung San Suu Kyi shows her opinion and confidence of the proposition. She describes how she accepts self-learning in the utterance “by practising self-learning, I wish teachers can support the country in this policy”.

In Daw Aung San Suu Kyi’s speech “Now is the time to be bold and ambitious,” modal adjectives contain 9%, modal nouns contain 21% and modal auxiliary verbs contain 24%. Modal lexical verbs are mostly found and the percentage is 41%. Modal adverbs are rarely found, the percentage is 5%. In the utterance “I hope all of you will find this event both fruitful and enjoyable and that you will take away happy memories that will serve to bring you back to Myanmar again and again,” the modal lexical verbs “hope”, “find” are used to express her opinion and confidence about programmes that will bring real benefits to the investors by investment in Myanmar. Modal lexical verbs “know”, “offer,” are used to show her persuasiveness about investment in Myanmar in the utterance, “Those who know Myanmar well will know that the country offers the possibility of immense returns to investors who are both patient and innovative”. She describes her attitude to value the deep, genuine and mutually beneficial friendships by using the modal auxiliary verb in the utterance “We value the deep, genuine and mutually beneficial friendships that can bring people business together for the benefit of all”.


The following table shows the frequency and percentage of semantic characteristics and percentages can easily be seen.

**Table 2**

*Semantic Characteristics Indicated by Modality Markers in the Political Speeches by State Counsellor Daw Aung San Suu Kyi*

<table>
<thead>
<tr>
<th>Political speeches</th>
<th>Semantic Characteristic of Modality Markers</th>
</tr>
</thead>
<tbody>
<tr>
<td>The National Education Strategic Plan (2016-2021)</td>
<td>High 77 (68%)</td>
</tr>
<tr>
<td>Now is the time to be bold and ambitious</td>
<td>Low 1 (1%)</td>
</tr>
<tr>
<td>Total 239</td>
<td>227 (95%)</td>
</tr>
</tbody>
</table>

The above table shows that modality markers expressing high engagement are mostly found and modality markers expressing low engagement are rarely found in speeches because the speaker or writer has sufficient knowledge or information in the utterance.

In Daw Aung San Suu Kyi’s speech “The National Education Strategic plan (2016-2021)”, the utterance “The desire to learn is most important in education so that all leading implementers who set up policies and teachers must encourage “the desire to learn” mindset,” shows high engagement to have a mindset to cultivate learning habit as long as they live. The words such as “need to” and “success” give strong commitment with sufficient knowledge in the utterance “whatever plan is to be developed, all participants need to lead and have a vision for success”. In the utterance “We never stop pursuing education and everyone should have a mindset to continue learning as long as they live,” modality marker “should” is used to give high engagement for Myanmar people. When she urges on the importance of her-public’s education with sufficient knowledge, she uses the markers such as “encourage” “consider” “needs”, “success”, “desire”, “know”, “confident”, “capable”, “think”, “want”, “possible”, “believe”, “enable”, and “wish” in this speech.

In Daw Aung San Suu Kyi’s speech “Now is the time to be bold and ambitious,” modality markers expressing high engagement are mostly found. The words such as “confident,” “will”, “opportunity” and “provide” give strong commitment with sufficient knowledge in the utterance “I am confident that this summit-the first of its kind in Myanmar will serve to highlight the immense opportunities available to both local and foreign investors and provide you with the opportunity to explore Myanmar’s exciting and ever evolving investment landscape.” The utterance “there can be no doubt that Myanmar is benefiting from our advantageous geographical position” shows her confidence that local and foreign investors will be provided with an invaluable opportunity by investment in Myanmar.

The following table shows the frequency and percentage of pragmatic characteristics and percentages can easily be seen.
Table 3
Pragmatic Characteristics Indicated by Modality Markers Found in the Political Speeches by Daw Aung San Suu Kyi

<table>
<thead>
<tr>
<th>Political speeches</th>
<th>Pragmatic Characteristics of Modality Markers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Speaker-oriented Messages</td>
</tr>
<tr>
<td>The National Education Strategic Plan(2016-2021)</td>
<td>4 (4%)</td>
</tr>
<tr>
<td>Now is the time to be bold and ambitious</td>
<td>11 (4%)</td>
</tr>
<tr>
<td>Total 133</td>
<td>15 (11%)</td>
</tr>
</tbody>
</table>

In table 3, content-oriented messages are mostly found and the second is hearer-oriented messages. However, speaker-oriented messages are rarely found. Content-oriented messages show the speaker’s attitudes and speaker-oriented messages are the speaker’s positive image in calling willingness. In Daw Aung San Suu Kyi’s two speeches, content-oriented messages are found as the highest markers. In the speech, ‘the National Education Strategic Plan (2016-2021),’ the utterance “The learning process must be continuous for both young students and adults” show her attitude that the youths of Myanmar must have the desire for life-long learning. In the utterance, “This will go a long way to enable the nation to improve its education system by embracing inclusiveness which is very important for the development of the country,” content-oriented messages show her desire to build a strong foundation in education which is essential for the development of the country. Hearer-oriented messages are also found in this speech. She encourages her people to have confidence in this utterance “We need to be confident that we are capable of doing things by ourselves.” In the utterance, “I wish all the participants at today’s ceremony will serve future generations and must believe that they must learn and have “the desire to learn” mindset,” speaker-oriented messages motivate Myanmar people.

In Daw Aung San Suu Kyi’s speech “Now is the time to be bold and ambitious,” she expresses her attitudes to make the country investment friendly by using content-oriented messages. Her attitude to build an investment-friendly environment for Myanmar and her hearty welcome to foreign investors can be seen in the utterance “So please do come to Myanmar, soak in an atmosphere brimming with opportunities, and witness our newfound economic vibrancy with your own eyes”. The use of hearer-oriented messages shows her warm invitation for the better business opportunities in the utterance “As southeast Asia’s final frontier market-find and best, we hope we offer innumerable investment opportunities, investment opportunities are everywhere in Myanmar, some are plain to see, others are waiting to be found.” Through the use of speaker-oriented messages, the utterance “I wish all of you the very, very best as we go forward in our business to business engagements and also in our people to people relationships” shows that mutually beneficial friendships can bring people and business together for the benefit of all.
Findings and Discussion

In the present research, modality markers in the political speeches by State Counsellor Daw Aung San Suu Kyi are analyzed by using Palmer’s (1986) Mood and Modality Theory.

Modality Markers

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maux</td>
<td>40%</td>
</tr>
<tr>
<td>Maux</td>
<td>28%</td>
</tr>
<tr>
<td>Mn</td>
<td>19%</td>
</tr>
<tr>
<td>Madj</td>
<td>9%</td>
</tr>
<tr>
<td>Mlax</td>
<td>4%</td>
</tr>
</tbody>
</table>

In the above figure, modal lexical verbs are mostly found and modal auxillary verbs are the second dominant. Modal nouns are the third one. Modal adjectives and modal adverbs are rarely found. In the political speeches, modal lexical verbs are found as the highest markers. Modal lexical verbs show the speaker’s opinion and confidence in the true value of the proposition. In the speech “The National Education Strategic Plan (2016-2021),” she expresses her emotions, opinion and confidence to make a change in the country’s education philosophy within the next five years. In the speech “Now is the time to be bold and ambitious”, Daw Aung San Suu Kyi shows her confidence that the government has enacted to improve the better business environment in Myanmar, and emphasized their commitment to make the country investment friendly. Then modal auxiliary verbs are the second dominant markers. in Daw Aung San Suu Kyi’s speech, “The National Education Strategic Plan (2016-2021),” she uses modal auxiliary verbs to express her attitudes about making a change in the country’s education system and making people have the desire for lifelong learning. In the speech “Now is the time to be bold and ambitious,” she describes her desire for improving the better business environment in Myanmar and inviting foreign investment friendly. The use of modal nouns is found in the third position. Modal nouns can express modality like modal adjectives, modal adverbs and modal lexical verbs. Modal adjectives are used to qualify the state of affairs for her nation.

The following figure shows the average percentage of semantic characteristics indicated by modality markers found in the political speeches.
Figure 2: Semantic Characteristics Indicated by Modality Markers found in the Political Speeches

Semantically, modality markers expressing high engagement are mostly found in both speeches. By using these markers expressing high engagement, Daw Aung San Suu Kyi can convey high commitment with sufficient knowledge about making a change in the country’s education philosophy within the next five years and improving the friendly business environment in Myanmar.

The following figure shows the average percentage of pragmatic characteristics indicated by modality markers found in the political speeches.

Figure 3: Pragmatic Characteristics Indicated by Modality Markers Found in the Political Speeches

Pragmatically, content-oriented messages are the most frequent messages. Content-oriented messages describe her motivation for having “desire to learn” mindset and the development of the socio-economic life in Myanmar. In all speeches, hearer-oriented messages are found as the second highest level. Hearer-oriented messages mark her positive image to improve the nation’s education system and to improve the business environment in Myanmar in her speeches.
After analyzing modality markers in the political speeches by State Counsellor Daw Aung San Suu Kyi, modal lexical verbs are used to render her evaluation of the factuality of the state of affairs. Modal auxiliary verbs are used to express not only her attitude and opinion but also her desire, confidence, encouragement, hope, ability, certainties, possibility and intention to create better future for her people. From the semantic point of view, modality markers can describe the propositional content: desirable or undesirable in the political speeches. Pragmatically, all messages do convey what Daw Aung San Suu Kyi means in her speeches. Therefore, all types of modality markers are used respectively and effectively in her speeches.

Conclusion

According to Halliday (1994), “modality refers to the areas of meaning that lies between yes and no- the intermediate ground between positive and negative polarity. Modality can be used to understand the speaker’s position, emotion, affirmation and attitude towards her will, revealing the speaker’s estimation, uncertainty, possibility and certainty to the recognition of things. Thus through the analysis of various types of modality, the speaker’s interpersonal meaning could be better reflected in his/her speech.

The sole function of modals is to reveal the speaker’s state of mind or knowledge, to indicate that the speaker is uncertain or tentative and is not committed to the true value of the propositions. The aim of the present research was to investigate the linguistic features of modality in political speeches by State Counsellor Daw Aung San Suu Kyi. This research is based on the two objectives: to find out which types of modality markers are mostly used and to examine semantic characteristics, pragmatic characteristics of modal expressions in political speeches.

According to the aim of this research, Modal lexical verbs are mostly used. By using these lexical verbs, Daw Aung San Suu can clearly describe her opinion and confidence in the performance to improve the nation’s education system and the socio-economic life in Myanmar. Through the use of modal auxiliary verbs, she can perfectly show her views, opinions and attitudes to make the reforms in the country’s education system within the next five years and to build newfound economic vibrancy. Semantically, she can precisely convey her sufficient knowledge and information about the changes of Myanmar by using semantic characteristics of modality markers in all speeches. Pragmatically, content-oriented messages can show not only her attitudes but also her intended meanings, assumptions, purposes or goals, and requests. She can express her positive image to transform and improve nation by using hearer-oriented messages.

To sum up, by analyzing and exploring the modality markers in the political speeches by Daw Aung San Suu Kyi, language competence and pragmatic competence of learners can be enriched by the awareness of modality markers not only in political speeches but also in every day conversation. Different uses of modality can convey different level of interpersonal meaning, different status, purpose, meaning and relationship between the speaker and audience.
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A Study on Some Barriers in Using Collocations for Some Students of Pakokku University

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Abstract

Different languages have different grammar structures. The term grammar has multiple meanings. A study of English grammar includes function words as well as phonology and semantics but the usual interpretation of grammar is limited to the structural organization of language. Collocations are both indispensable and problematic for language learners and they play an important part in English language teaching and learning. The aim of this paper is to study the students’ achievement in using collocations. The objectives are to emphasize on the difficulties for the students in using collocations and try to give suitable explanations for the students’ violation about collocations. 50 participants have to answer three kinds of test types: fill in the blank with the correct word “do or make” for verb + noun collocation, choose the correct word “do, make or take” for verb + noun collocation too, and multiple choice type of “adjective + noun.” Error analysis is adopted in this work to provide a measure of students’ proficiency in collocations.

Keywords: collocation, error analysis, EFL (English for Foreign Language)

Introduction

Language is the method of human communication, either spoken or written, consisting of the use of words in a structured and conventional way. People can communicate with each other by using language. Learning a language means learning the rules of use as well as the rules of the formal linguistic system (Ciper & Widdowson, 1978).

Collocation is a part of word combinations. It is also the way one word frequently or always comes together with another word. In addition, collocation is not only a necessary element of language but also an outstanding feature that makes language specific and correct. As Hill (2000) points out, teachers tend to focus on correcting grammatical mistakes, failing to notice those mistake which are made due to a lack of collocation. Consequently, although accurate grammar is used, problems concerning areas such as lexical selection still remain. If the learners know the usage of collocations systematically, they can read the text easily, understand the various kinds of writing and they can construct the correct sentences by using collated words. Therefore, the teaching of collocation should be a top priority in every language course.

According to Benson et al. (1986), there are two types of collocation; grammatical collocation and lexical collocation. A grammatical collocation is a phrase consisting of a dominant word (nouns, adjectives, and verb) and a preposition or a grammatical structure such as infinitives or clauses. Lexical collocation consists
of various combinations of nouns, adjectives, verbs and adverbs. They do not contain prepositions, infinitives or clauses.

In cohesion in English, Halliday and Hasan (2001 as cited in Duan, M & Qin, X. 1890 – 1894) argue that collocation, a mean of cohesion, is the co-occurrence of lexical items that are in some way or other typical associated with one another, because they tend to occur in similar environments.

It is not easy for students to notice the language itself in a short period of time. Therefore, teachers need to spend a lot of time in discussing the importance of collocations. This study investigates the students’ skill on the usage of collocation by making some question tests.

Research Questions

The purpose of this present research is to study the students’ achievement in using collocations of students of Pakokku University. This research addressed the following questions:

1. What are the barriers for students in using collocations?
2. What are the best solutions for their weaknesses in using them?

Rationale of the Research

Collocation is a challenging attribute of second language learning and as a vital element of communicative competence. Collocations enable English for Foreign Language (EFL) learners to know more about language chunks used by native speakers and improve their skills in speech and writing. The present paper tries to emphasize on the students’ weaknesses in using collocations so that teachers or trainers can set up various supplementary exercises and activities for learners. Moreover, students themselves can be aware of their weaknesses on using collocations and they also have a good chance to master in using collocations.

Aim and Objectives

The aim of this research is to study the students’ achievement in using collocations. The objectives are to emphasize on the difficulties for students in using collocations and try to give suitable explanations for the students’ violation about collocations.

Literature Review

According to Dostert (2009), the term “language” can be used to refer to a variety of concepts or things, such as the particular form of words and speech used by the people of a country, area, or social group, or the method of human communication using spoken or written works. The Collins Cobuild Dictionary (1987) defines collocations as the way that some words occur regularly whenever another word is used.

Many researchers have different definitions of collocation. Benson et al (1986) defined collocations as fixed, identifiable, non-idiomatic phrase and constructions. According to Hill, students with good ideas often lose marks because they do not know the four or five most important collocations of a key word that is central to what they are writing about. (Hill, in Michael Lewis, 2000). To be proficient in English, language learners must know the grammatical structures and the
vocabularies of every sentence construction. Knowing a single meaning of words is not enough and it is necessary to know the words collocate. By hook or by crook, collocations require to be taught so as to the learners be aware of the importance of them. So, this paper conveys the knowledge of word-combinations not including idiomatic combinations.

**Theoretical Background**

An important aspect of language learning is learning the vocabulary of that language and its appropriate use. In studying the vocabularies, it is required not only to know the meaning of a word but also the combination of words. The concept of collocations which was defined by Brown (1974, as cited in Farrokh & Mahmoodzadeh, 2012) is that collocations enhance improvement of learners’ oral communication, listening comprehension, and reading speed, and that teaching collocations enables learners to be aware of language chunks used by native speakers in speech and writing. Benson et al (1986) divided collocation into two major groups: grammatical collocation and lexical collocation.

**Grammatical Collocations**

A grammatical collocation consists of a dominant word (verb, adjective, and noun) and a preposition or a grammatical structure such as an infinitive or clause. (8) types of grammatical collocation are shown in the following table with examples.

Table 1

<table>
<thead>
<tr>
<th>Types</th>
<th>Patterns</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>Noun + Preposition</td>
<td>The players have an argument with the referee.</td>
</tr>
<tr>
<td>G2</td>
<td>Noun + to + infinitive</td>
<td>They made an attempt to do it.</td>
</tr>
<tr>
<td>G3</td>
<td>Noun + that Clause</td>
<td>He took an oath that he would do his study.</td>
</tr>
<tr>
<td>G4</td>
<td>Preposition + Noun</td>
<td>He discovered it by accident.</td>
</tr>
<tr>
<td>G5</td>
<td>Adjective + Preposition</td>
<td>They were angry at my friends.</td>
</tr>
<tr>
<td>G6</td>
<td>Adjective + to + infinitive</td>
<td>She was happy to meet him.</td>
</tr>
<tr>
<td>G7</td>
<td>Adjective + that clause</td>
<td>I was afraid that I would fail the exam.</td>
</tr>
<tr>
<td>G8</td>
<td>19 types of verbs</td>
<td></td>
</tr>
</tbody>
</table>

G8 collocation consists of 19 English verb patterns. In this paper, these 19 verb patterns are not mentioned in detail.

**Lexical Collocations**

Lexical collocation consists of nouns, adjectives, verbs, and adverbs. According to Benson (1986), lexical collocation is subdivided into 7 types. The types are designated by L1, L2, L3, etc. Lexical collocation categorized by Benson (1986) is shown in Table (2).
Table 2
Types of Lexical Collocations Based on Benson et al (1986)

<table>
<thead>
<tr>
<th>Types</th>
<th>Patterns</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>L₁</td>
<td>Verb + noun/pronoun</td>
<td>Set a record.</td>
</tr>
<tr>
<td>L₂</td>
<td>Verb + noun</td>
<td>Dispel fear.</td>
</tr>
<tr>
<td>L₃</td>
<td>Adjective + noun</td>
<td>Strong tea</td>
</tr>
<tr>
<td>L₄</td>
<td>Noun + verb</td>
<td>Bombs explode.</td>
</tr>
<tr>
<td>L₅</td>
<td>Noun 1 + noun 2</td>
<td>A pack of dogs</td>
</tr>
<tr>
<td>L₆</td>
<td>Adverb + adjective</td>
<td>Closely acquainted</td>
</tr>
<tr>
<td>L₇</td>
<td>Verb + adverb</td>
<td>Appreciate sincerely.</td>
</tr>
</tbody>
</table>

Related Research

The first related research is “A Study of University Students’ Ability in Using English Collocations” by Angkana Mongkolchai at Srinkakhariwirot University (March, 2008). The purpose of this study is to study the ability of the third year English majors at Srinkakhariwirot University about English collocations, to study the pattern of collocation used by the students and to attempt plausible explanations for the students’ violations about English collocations. In this research, a collocation test comprising 56 items, based on seven pattern of Lewis (2000) strategy, was used as a research tool. An analysis of the informants’ collocational violations was conducted and plausible explanations for the violations were attempted.

The next paper is “Lexical Collocation Use by Korean EFL College Learners” by Sohee Park (2003), Seoul National University. This study investigates Korean EFL college students’ lexical collocation use. The objectives are to find out which factors affect the collocational competence, to investigate which collocation types are the most problematic to Korean EFL college learners and to search the possible causes of collocational errors. 133 subjects and 6 interviewees participated in this study. The result of the study shows that there are considerably high correlations between English proficiency and lexical collocation competence and vocabulary knowledge and lexical competence. The data show that most of the collocation errors were caused by L₁ transfer or substituting the synonyms of collocates.

Later, Al-Zaharni (1998) studied Saudi English for Foreign Language Learners’ lexical collocation abilities using a lexical collocation test and examined its relation to general language proficiency using a paper-and-pencil TOEFL like writing test. Al-Zaharni’s study focused on only one specific collocation type of lexical collocations; verb-noun. Al-Zahani’s study found a significant relation between EFL learners’ lexical collocation competence and writing competence.

Research Methodology

The present research is a qualitative corpus based study and the theory of Benson et al (1986) is used as a theoretical frame work for this research. According to Benson et al (1986), there are two types of collocation; grammatical collocation and lexical collocation. The present research only studies on the types of lexical collocation: verb + noun collocations and adjective + noun collocations.
Participants

The number of students who were willing to participate in the study was (50) students of Pakokku University. The participants selected for the purpose of this study are at the same age and average level.

Material

The students were given “Fill in the blank” question type and “Multiple choice” test types. For testing scoring, correct answers scored one point and incorrect answers scored zero. Items unanswered were counted as incorrect. The time allowed for the test was an hour.

Data Analysis and Interpretation

In this research, only the lexical collocations: verb + noun collocations and adjective + noun collocations are identified. The following tables show some errors found in verb + noun collocations in fill in the blank question type and in multiple test type and adjective + noun collocations in multiple choice type.

<table>
<thead>
<tr>
<th>Errors</th>
<th>Error Corrections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make the laundry.</td>
<td>Do the laundry.</td>
</tr>
<tr>
<td>Make housework.</td>
<td>Do housework.</td>
</tr>
<tr>
<td>Make an exam.</td>
<td>Do an exam.</td>
</tr>
<tr>
<td>Make reading.</td>
<td>Do reading.</td>
</tr>
<tr>
<td>Do a phone call.</td>
<td>Make a phone call.</td>
</tr>
<tr>
<td>Do promise.</td>
<td>Make promise.</td>
</tr>
<tr>
<td>Do an appointment.</td>
<td>Make an appointment.</td>
</tr>
</tbody>
</table>

In fill-in-the-blank test type, the students were given 10 question sentences and they have to fill the correct words; “Do” or “Make.” They have already learnt the differences between “make” and “do” in advance. The teacher has explained the use of collocation in different situations and has asked them to do the exercises which involved in their text book. Most of the students’ scores are high except one who has got only two marks out of ten. There are “2” students who have got “5” marks and “6” students got full marks in this question type. To see more clearly, the percentage of students' scores are shown in figure (1).
The next question test type for verb + noun collocation, the students have to choose the correct word, “Do” or “Make” or “Take.” Some errors found in "verb + noun" collocations in multiple test type are shown in table (2).

<table>
<thead>
<tr>
<th>Errors</th>
<th>Error Corrections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always do/take excuses.</td>
<td>Always make excuses.</td>
</tr>
<tr>
<td>Take/do friends easily.</td>
<td>Make friends easily.</td>
</tr>
<tr>
<td>Take nothing all the time.</td>
<td>Do nothing all the time.</td>
</tr>
<tr>
<td>Take supper.</td>
<td>Make supper.</td>
</tr>
<tr>
<td>Take the bed.</td>
<td>Make the bed.</td>
</tr>
<tr>
<td>Take/do breakfast.</td>
<td>Make breakfast.</td>
</tr>
<tr>
<td>Do supper.</td>
<td>Make supper.</td>
</tr>
<tr>
<td>Make sugar in your coffee.</td>
<td>Take sugar in your coffee.</td>
</tr>
</tbody>
</table>

In this type, they face a bit difficulty than the first question type for “verb + noun” collocation. There are “2” students who got “3” marks. There are 47 students whose scores are average. Their marks are between 4 to 7. The highest mark is “8” that the only one student got. Here is no one who gets full mark in this type. The percentage of students' scores are shown in figure (2).
Figure 2: Shows the percentage of Students’ Score for "Multiple Test Type for Verb + Noun Question Type"

For "adjective + noun" collocations, multiple choice test type are used. Some errors found in multiple choice test are shown in table (3).

Table 3
Multiple Choice for Adjective-Noun Collocations Errors

<table>
<thead>
<tr>
<th>Error Sentences</th>
<th>Error Corrections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Today is raining day.</td>
<td>Today is rainy day.</td>
</tr>
<tr>
<td>I bought some chopping meal last Friday.</td>
<td>I bought some chopped meat last night.</td>
</tr>
<tr>
<td>The clean message coming from the government is that they are getting touch on crime.</td>
<td>The clear message coming from government is that they are getting touch on crime.</td>
</tr>
<tr>
<td>The only action ingredient in this medicine is aspirin.</td>
<td>The only active ingredient in this medicine is aspirin.</td>
</tr>
<tr>
<td>Jack was my old brother and I admired him.</td>
<td>Jack was my big brother and I admired him.</td>
</tr>
<tr>
<td>Smoking gives you worse breath.</td>
<td>Smoking gives you bad breath.</td>
</tr>
</tbody>
</table>

For multiple choice question type for “Adjective + Noun” collocation, the students’ marks are between “2” to “6.” There is no students who gets over “6” marks out of ten. “18” students got “5” marks. There are “12” students who get the least marks of “2.” In the figure (3) the percentage of students' scores for multiple choice question type are shown.
Findings and Discussion

The fill in the blank question type for verb + noun collocations, the students confuse the use of “make” and “do”. It may be the causes of mother tongue interference. They cannot use “make” or “do” effectively. They make mistakes in using them. For example, they wrote “make the laundry” instead of “do the laundry.” Although they have to use “make” together with an appointment, they use “do.”

The multiple test type for verb + noun collocations, the participants have to choose the correct word of “make, do and take.” They are weak in using “make.” They mostly used “take” and “do”. In spite of being taught the use and meaning of “take, do and make,” they do the same mistakes again and again. For instance, they chose “do” or “take” with the noun “friend.” The correct answer is “make friend easily.” There are some examples for their wrong choice of words such as “take (or) do breakfast,” “do supper” and “make sugar in your coffee.”

According to data, adjective + noun collocations are more difficult than verb + noun collocations. They confuse the word “raining” or “rainy” that have same pronunciation, but different word class category. Their answer should be “the clear message,” but they answer “the clean message.” It can be said that they are weak in vocabulary.

To compare two types of questions: for verb + noun collocation, fill-in-the-blank is easier than second test type. In the first type, they have to choose only two words but in the second type, they were given three words to choose for correct answers. It makes more likely students do the wrong answers.

The multiple choice test of collocation was administered to measure the students’ collocation knowledge of English. The test consisted of 10 items which was made up of lexical collocation: “Adjective + Noun.” To compare “Verb + Noun” type and “Adjective + Noun” question types, it could be assumed that the students are more proficient in verb + noun collocation. The findings reveal that the students made more mistakes with Adjective + Noun types than the Verb + Noun types of collocations. Therefore, it could more precisely be said that Adjective + Noun type collocation is more difficult for students to master.
In an English native speakers' educational environment, practicing the language and being involved in everyday activities enables learners to use the newly-acquired collocations in real-life situations. In addition, a number of collocations are acquired for them from their surrounding environment and everyday interactions. In contrast, the EFL students do not have such an advantage. They interact each other in their mother tongue. They forget quickly what they have learned because they rarely use these words in their surroundings. Like that, the students of Pakokku University face such difficulty. It can be said that, mother tongue interference is one of the difficulties for students in using collocations and learning a foreign language.

According to the results of this study, the students’ knowledge of English collocation is rather limited. It can be said that the students lacked an awareness of the existence of collocations. This is because they are not exposed to learn collocations very well or they, themselves, do not pay attention in learning collocations. Although there are many problems associated with achieving competence in the use of English collocations, there are so many ways to promote the students’ ability in using them. If the students notice the importance of collocation in their studies, they pay more attention on it. If so, their ability will be rich in effective language learning in second language classroom.

Collocations can be described as native speakers' intuitive knowledge of which words go together and which do not; therefore, non-native speakers with a lack of communicative competence have many problems in this area. Even the advanced EFL learners who have appropriate lexical or grammatical knowledge cannot use collocations in a correct way. The result showed that the participants applied the strategy of transferring L1 to L2 collocation when deciding to choose word partnership. For example, English speakers say “make friends easily” which is an acceptable collocation in English. Most of the students in Myanmar use "do friends easily" in their language and when it comes to English, they think in their native language and say or write "do friends easily" instead of “make friends easily”. So, it is the causes of mother tongue interference. There are several factors that affect EFL learners' performance in using collocations. Transfer ("interlingual transfer" and "intralingual transfer"), overgeneralization (a sub-group of intralingual transfer), paraphrase and shortage of collocation knowledge are the main reason of collocation errors.

To overcome these problems, particular attention must be given to teaching de-lexicalized verbs to the students. The main de-lexicalized verbs are: do, make, take, get, give, have, keep, look, put. These words are components in a large number of multi-word expressions. The Oxford Collocations Dictionary (2002) provides examples of patterns as follows: speaking (make/give a speech), experiencing something (have an accident), producing something using your hands, your mind or your skill (make dinner), physical actions (have/take a bath). Thus, teachers have to explore de-lexicalized words. Moreover, they should devise useful ways to eradicate confusion caused by the inappropriate transfer of lexical items from the mother tongue. Students should bear in mind the importance of collocation in learning English. Moreover, teachers should teach both individual words or vocabulary and the combination of words or words collocate.
To sum up, teaching and giving supplementary exercises for collocation are important. Teachers are responsible for helping the learners increase their knowledge about collocations. Exercises on collocations are very successful to provide practice of the most common collocations of a word. Teachers can rely on the "authentic" materials of teaching collocations. They should choose them according to learners' needs or can use their own materials on the basis of the needs of learners. If the learners can make use of the right collocation in communication, it means that they can communicate more naturally and efficiently in both spoken and written contexts.

Conclusion

The goal of learning collocation is to be able to put words actual and appropriate use. To be able to use a word appropriately, it is not enough to know its meaning; the learners need to pay attention to the immediate context that it is used in. Both grammatical and lexical patterns are important. Collocations enable EFL learners to know more about language chunks used by native speakers and improve their skills in speech and writing.

This present paper focuses on some barriers in using collocation for some students of Pakokku University. The aim of this paper is to study the students’ achievement in using collocations and the main objectives are to emphasize on the difficulties for students in using collocations and try to give suitable explanations for the students’ violation about collocations. In this paper, the combinations of “verb + noun” and “adjective + noun” were chosen to be investigated from lexical collocations based on Benson et al (1986). It has been observed that students made more mistakes with adjective + noun collocations than with the verb + noun types of collocation.

In teaching English as a second language, students must first and foremost be made conscious of word combinations. It is important to be aware of collocations while learning a new language. Besides, teachers should know about the importance of collocations in their teaching. If the learners have a good mastery in the use of collocations, it is easy to organize more complete sentences. On the other hand, they are poor in using collocations, it can cause a hindrance for learners to understand a sentence and construct a meaningful sentence. Based on this research, Adjective + Noun collocations are difficult for the participants. So teachers should try to focus on the weakness area and consider various exercises and classroom activities to improve the use of collocations in EFL learning and teaching.
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The Role of Gender through Symbolism in Fictions by Shirley Jackson

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Abstract

This research attempted to analyse the role of gender through the symbolism found in the 20th century American fictions by Shirley Jackson. The investigation of the symbol types: Traditional, Original, and Private, and the exploration of the role of gender from symbolism served as the objectives in this research. The symbol classification was adopted from Pickering and Hoeper (1986), and in analysis the holistic approach, such as studying symbol through names, objects, and actions, was applied to project the role of gender in the fictions. The internet source: http://www.charlesyoungs.com/english12hours/criticalapproachestoliterature.html was mainly applied to examine the role of gender. The finding showed that: (1) the author mostly used the original symbols in all three selected fictions, and (2) the female characters rejected the social forces that have historically been accepted. Their lives were portrayed so as to exemplify a certain symbolism of the women’s right. It showed that women have not simply accepted the norms of society, but to challenge them.

Keywords: gender, symbolism, fiction

Introduction

Symbolism, according to Murray (1978), is described as the art of expressing emotions not by describing them directly or by defining them through overt comparisons with concrete images, but by suggesting what these ideas and emotions are by re-creating them in the mind of the reader through the use of unexplained symbols. Symbolism in literature can create rich meanings with many layers for readers who take the time to explore the depth of possible meanings included in a symbol. Symbols sometimes strongly suggest the meaning which leads to the suspense of a story from the very beginning of it. These symbols can convey the ideas to predict what will happen later by exploring their suggestive meaning within the context.

The significance of the present research is analyzing the gender’s role through the symbolism in the selected fictions. Gender, cited in http://daily.jstor.org, is never isolated from other factors that determine someone’s position in the world, such as sexuality, race, class, ability, religion, citizenship status, life experiences, and access to resources. Thus, people’s awareness became raised and resulted as an academic field of enquiry in 1970s. Although the literary studies often concern the gender issues, they have been the challenges for the students’ analysis on such studies. Critics have also stated that
twentieth century American literature is rich in symbolism. Based on these facts, gender studies through symbolism became the rationale of this research.

The findings of this research will hopefully enhance the learners’ study of language through literature. It can also contribute to the fact that symbolism is an interesting field of study which can shed the light of the link to realistic world and human nature. It is also one of the ways of observing people from classroom activities to outside world.

Objectives of the Study
1. To explore the most prominent use of symbol types in the selected fictions by Shirley Jackson
2. To investigate the role of gender through the use of symbols

Background of the Study
Symbolism is the applied use of symbols: iconic representations that carry particular conventional meanings. The term ‘symbolism’ is limited to use in contrast to ‘representationalism’; defining the general directions of a linear spectrum - where in all symbolic concepts can be viewed in relation, and where changes in context may imply systemic changes to individual and collective definitions of symbols. Symbolism may refer to a way of choosing representative symbols in line with abstract rather than literal properties, allowing for the broader interpretation of a carried meaning than more literal concept-representations allow.

A religion can be described as a language of concepts related to human spirituality. Symbolism hence is an important aspect of most religions.

The interpretation of abstract symbols has had an important role in religion and psychoanalysis. As envisioned by Sig mund Freud and Carl Jung, symbols are not the creations of mind, but rather are distinct capacities within the mind to hold a distinct piece of information. In the mind, the symbol can find free association with any number of other symbols, can be organized in any number of ways, and can hold the connected meanings between symbols as symbols in themselves. Jung and Freud diverged on the issue of common cognitive symbol systems and whether they could exist only within the individual mind or among other minds; whether any cognitive symbolism was defined by innate symbolism or by the influence of the environment around them. In Shakespeare’s Hamlet, for example, it can be discovered that Hamlet is fascinated with actors and acting. Upon reflection, an astute reader realizes that this is because Hamlet’s whole life has become unreal; he is being haunted by the ghost of his father, his father turns out to have been murdered by his uncle, his mother has married his father’s murderer. The motif of the actors is a symbol for the unreality of Hamlet’s life. Similarly, near the beginning of F. Scott Fitzgerald’s novel The Great Gatsby, there is the famous scene of the Valley of Ashes where Tom Buchanan’s mistress Myrtle lives. Other famous symbols are Melville’s great white whale in Moby Dick; Dante’s journey into the underworld in The Inferno; and Coleridge’s albatross in The Rime of the Ancient Mariner. All these concrete objects or places carry within them a wide range of associations that stand for something so ineffable it would spoil the magic to explain it. Symbolism, therefore, is an integral component of fiction, because it enriches the narrative by pulling its message down to the level of our
unconscious and anchoring it there. The present research continued to study the role of gender through symbolism analysis.

Gender criticism, cited from http://www.charlesyoung.com, involves the questions concerning with the author (male or female?), the narrator (male or female?), the role type the women have, the female characters (protagonist or secondary and minor characters?), stereotype characterization of women, the author’s attitude towards women in society, influence of author’s culture, the imagery the author used, and the different ways of men’s and women’s speech.

Role identity, according to Carter (2014) is the socialized identity which can be learnt from the context and social surrounding of the work concerned. Role identities are based on a self/other culture. Carter’s identity theory suggests to learn behavior of the different gender alternately. These identities determine how an actor behaves when alone, when attached to a group.

Previous Studies

There are many researches which have studied symbolism. The first research is the conflict based research by Adward Okoro. His research cited from Wiredu, 1980, studied symbolism in Archebe's Things Falls Apart. This research mostly based on the religion conflict offered an adequate method for understanding the symbols and institutions of the Igbo culture. The concept of chi symbolism in Igbo experience was interpreted. The qualitative research, based on the philosophical theory, was conducted in line with the structure of the plot. However, it presented a society’s culture by pointing out the statements that symbolize the life of the main character Okonko.

The second research, Weather Symbolism in DBZ Ntuli’s Literature, written by Gedion Juba George Mncube, was based on the setting of weather. It was submitted for African languages at the University of South Africa in 2006. This researcher discussed Ntuli’s literary works and interpreted the weather imagery through the semiotic approach proposed by Abrams (1985) and the linguistic approach by Swanepoel (1990). The findings showed that the weather symbols such as the mist, fog and clouds, rain, thunder and the rainbow which impact the theme of the text.

The third research was Major Symbols in Selected Amharic Novels (1958-1982). It was submitted for M.A. thesis in 2002 to the School of Graduated Studies, Her research analysed the symbols frequently employed in ten Amharic novels published from the year (1958) to (1982). It investigated the similarities and differences on meaning in interpreting the symbols by the different authors. It followed the qualitative method. Symbols in this research are prominent to criticize and satire some aspects of the traditions of the feudal lords. Her research studied the symbols through animals, nature, objects, buildings, and nudity the authors stated in their works.

The last research conducted by Kajali Sharma, lecturer in English, T.S.E. College, Bombay, India was a PhD dissertation entitled Symbolism in Anita Desai’s Novels. It was published in 1991. Four novels were studied, introducing the term symbolism with its meaning, nature, and scope, etc. The researcher did not state the specific type of symbols in her findings. She concluded that the human life has been governed by indefinable principles.
Research Methodology

In this research, Jackson’s three fictions will be analysed, starting from the short story “The Lottery” (1948); next, the novel “The Haunting of Hill House” (1959); and then the novella “We Have always Lived in the Castle” (1962). The following table shows the genre of the selected fictions, the years they were published, and the subjects they concerned.

Jackson’s themes usually come back to the evil found in ordinary things. She liked characters whose minds seemed to be untidy and a tough hysterical, but whose fantastic grasp of reality is in some inexplicable things may deeper than the readers can understand. Like the theme, Jackson usually uses the same gender, as her main character, in her novels also. She is best known for her story The Lottery, which suggests a secret, sinister underside to bucolic small town America (http://en.wikipedia.org/wiki/Shirley_Jackson). The Haunting of Hill House appeared in 1959 as the genre of gothic fiction. This work is concerned with an experimental psychic study held at Hill House, an eerie edifice that is presumed to be haunted (Webmaster@underthesun.cc). We Have Always Lived in the Castle is a story emphasizing the two sisters, in small New England village. There is much struggle with the villagers and their cousin Charles, which results in Merricat burning down their mansion in order to kill Charles.

This research is arranged in a series of four parts: (1) classifying the types of symbol (2) analyzing and interpreting them in the context, and (3) discussing in all aspects of feminism, modernism, and maxims. In this research, Pickering and Hoeper's (1986) classification of symbol will be applied to classify the symbols in terms of Natural, Original, or Private. In the second part, symbols will be analysed by J. Robinson’s (2006) approach. In this stage the symbolic names, the written words that represent something else by association, resemblance, or convention, and the items that stimulate deeply rooted emotions, having specific meaning within specific contexts will be used to suggest the idea of culture and symbolism. In this way, symbolism in each fiction will imply that they suggest the culture of respective societies within the context. Therefore, this research is conducted with the qualitative and quantitative approach.

Data Collection

The prominent symbols are collected on the three criteria: (i) the symbolic names that suggest underlying moral, intellectual, or emotional qualities, (ii) the objects, pictures, written words, sounds, or particular marks that represent something else by association, resemblance, or convention, and (iii) the items that stimulate deeply rooted emotions, and the arbitrary designs that the individual or an authoritative body has designated to have a specific meaning within specific contexts.

The data (symbol types) were collected line by line from the original text of the respective fictions, starting from the short story, The Lottery followed by The Haunting of the Hill House and We Have Always Lived in the Castle. The data were firstly identified as symbols. Then, the meanings were examined from literal and the symbolic point of view. In symbolic point of view, symbols were checked again with context and dictionaries. Finally, they were interpreted as information.
Data Analysis

From the analysis and interpretation of the data according to the fiction types, the prominent use symbols in the fictions can be examined from two aspects: the criteria for representation of symbolism and the two different fiction types of Realistic and Nonrealistic fictions. The percentage of the symbols found in each fiction is described in Table (1). The first column is for the serial number; the second is for the criteria for the representation; the third is for the names of the fictions in which ‘The Lottery,’ ‘The Haunting of Hill House’, and ‘We Have Always Lived in the Castle’ are included; the fourth is for the total percentage; and the last is for the average percentage.

Table 1
Symbols found in the selected fictions

<table>
<thead>
<tr>
<th>No</th>
<th>Criteria for Representation of symbolism</th>
<th>The Lottery</th>
<th>The Haunting of Hill House</th>
<th>We Have Always Lived in the Castle</th>
<th>Total Percentage</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The symbolic names that suggest underling moral, intellectual, or emotional qualities</td>
<td>49%</td>
<td>2.1%</td>
<td>14%</td>
<td>65.1%</td>
<td>21.7%</td>
</tr>
<tr>
<td>2</td>
<td>The objects, pictures, written words, sounds, or particular marks that represent something else by association, resemblance, or convention</td>
<td>43%</td>
<td>95.8%</td>
<td>80%</td>
<td>218.8%</td>
<td>72.9%</td>
</tr>
<tr>
<td>3</td>
<td>The items that stimulate deeply rooted emotions, and the arbitrary designs that the individual or an authoritative body has designated to have a specific meaning within specific contexts</td>
<td>8%</td>
<td>2.1%</td>
<td>6%</td>
<td>16.1%</td>
<td>5.4%</td>
</tr>
</tbody>
</table>

The above table shows that in all three fictions, the symbols were mostly used to describe the objects, pictures, written words, sounds, or particular marks that represent something else by association, resemblance, or convention. It took (72.9%) in average. The symbols were used in the least ratio to state the items that stimulate deeply rooted emotions, and the arbitrary design that the individual or the authoritative body has designated to have a specific meaning within specific contexts.
It was only (5.4%) of them all. The second was the symbolic names that suggest underlying moral, intellectual, or emotional qualities, taking (21.7%). The following figure shows the prominent use of symbols in selected fictions.

![Figure 1: Symbol found in the criteria of the selected fictions](image1)

Figure 1: Symbol found in the criteria of the selected fictions

1 = The symbolic names that suggest underlying moral, intellectual, or emotional qualities
2 = The objects, pictures, written words, sounds, or particular marks that represent something else by association, resemblance, or convention
3 = The items that stimulate deeply rooted emotions, and the arbitrary designs that the individual or an authoritative body has designated to have a specific meaning within specific contexts

The above table shows that in all three fictions, the symbols were mostly used to describe the objects, pictures, written words, sounds, or particular marks that represent something else by association, resemblance, or convention. It took (72.9%) in average. The symbols were used in the least ratio to state the items that stimulate deeply rooted emotions, and the arbitrary design that the individual or the authoritative body has designated to have a specific meaning within specific contexts. It was only (5.4%) of them all. The second was the symbolic names that suggest underlying moral, intellectual, or emotional qualities, taking (21.7%). The following figure shows the prominent use of symbols in selected fictions.

**Discussion**

All three selected fictions centered women as the main characters who were overwhelmed by worries and stress that are different from men, the controlling figures of the society. In the short story *The Lottery*, Mr. Summers was very good at all this; in his clean white shirt and blue jeans, with one hand resting carelessly on the black box, he seemed very proper and important as he talked interminably to Mr. Graves and the Martins. (P, 294; Lines, 15-19)
The above statement shows that the name ‘Mr. Summers’ could give its image of pleasantness and maturity among the villagers. His relationship to his organization indicates that he had the power of ruler in that rural America. He was stylish and appeared to be an intellectual; his manner appeared to be clever in his work as a matured one. But he stole the time of the villagers by talking to his assistants too long. It shows the different social class of the official and the laymen, the aristocrat and the poor. It can be compared with the female characters including ‘Mrs. Hutchinson’. The women’s style was shown in the following extract:

…women, wearing faded house dresses and sweaters, came shortly after their menfolk. (P, 292; Line, 3)

The gender difference appeared in these two characters that male was in an impressive style and prominent role as the official, and female as ordinary women in their domestic life, taking position behind their husbands. Women are often seen as inferior to men in societal groups, such as in the assembly before the stoning. Freedom for women was spotted from the dialogue of Merricat: “I remember that I stood on the library steps holding my books and looking for a minute at the soft hinted green in the branches against the sky and wishing, as I always did, that I could walk home across the sky instead of through the village”. (P, 3; Lines, 3-7)

There is no reason for society to question the motives of a married woman, but every reason to plague the two unmarried ladies with questionable sexual orientation. Eleanor and Theodora were in the darkness of passion joyfully. This is stated: Theodora’s hand tightened and Eleanor caught her breath on a little sob—had something moved, ahead, something whiter than the white trees, beckoning? Beckoning, fading into the trees, watching? Was there movement beside them, imperceptible in the soundless night; did some footstep go invisibly along with them in the white grass? Where were they? (p, 144; Lines, 25-30)

Lesbian society in the 1950s America can be seen from the extract of Jackson’s work.

In the short story, *The Lottery*, Jackson uses the complex structure to project the role of gender through symbolism. Mr. Summer has the sense of summer; he is the chairman in the town and owns the coal business, and his life is bright like the summer sun. In this way, the Old Man Warner plays as the wise man, as his time implies that the old are considered to be the wise. But Mr. Grave symbolizes the death, not for himself but for Jessie. That is why, one cannot decide “what will happen in the next, and to whom” for Jackson's style of using symbols. The conflict was found to be the man and society in the plot. Tessie Hutchinson wants to oppose the traditional ritual that gives nothing positive, but death.

As early as the 19th century, the idea of feminism can be identified in literature. In the novel, *The Haunting of Hill House*, Shirley Jackson portrays the role of women during the time through her characterization of the female characters Eleanor, Theodora, and Mrs. Montague. Jackson uses these three different individuals to depict societal ideals and prescribed standards for women. The house itself becomes a conduit for identifying women who do not live up to these social paradigms while Dr. Montague is the controlling figure who represents men in society and their rejection of the abnormal. While paranormal happenings are prevalent in the novel, this is not a story about the supernatural. The Haunting of Hill House is a social
commentary on the idea of weeding out women who don’t fit into a masculine driven society. Theodora rejects Eleanor, which prompts her crazy midnight dancing and running around later that night. This rejection symbolizes a woman’s inability to be accepted in society if she vocalizes her objectionable desires. She is suddenly totally comfortable in the house after her proclamation of identity, which represents a woman’s ability to achieve a new level of comfort if she is able to be true to herself within society. While Theodora isn’t perfect, she rejects Eleanor, along with the rest of the group, in an attempt to conceal her true identity, and thereby stands up for socially prescribed roles. Because of her divergence from the norm, Eleanor is punished by a self-inflicted death.

The main group that Shirley Jackson seems to target in “We Have Always Lived in the Castle” is women. She appears to focus on how each female character can be represented in different ways. Merricat, the author's main character, was a murderer for poisoning of the family members. These women were tied by the domestic chores, following the principles of patriarchal society. The society has a belief on the colour. They avoid wearing 'Black' in the auspicious ceremonies. Mrs. Wright intentionally wore black dress because she had known that the Blackwood house happened killing with poisoning six years before. In the same concept on the colour “Black” the two sisters cursed her for wearing black in the drawing room, for they were afraid of something unpleasant. Until near the ending, however, they surely enjoy the civilized world in one of the nicest houses in the village, and never intend to throwaway their lifestyle. More importantly, Constance and Merricat never represent "female power." Merricat and Constance end up turning away from modern society.

Recommendation

Based on the analysis of the study, understanding different layers of meaning and interpreting the symbolism in literature depend on applying integrated method of qualitative and quantitative. Although it has a link between the symbolism and gender, the study needs to be improved better. If it has a link of data relationship between the symbolism and gender, the outcome will become clearer. Then, if there is any research to proceed culture through symbolism, it will meet the beauty and suggestiveness of literature.
References


Compliment Responses by Myanmar Students across Gender in Thailand Context

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Abstract

The aim of this study is to examine possible differences in applying compliment responses between male and female among Myanmar students. Herbert’s Taxonomy was used for the present study to collect the data. All the participants are Myanmar students who are attending at Mae Fah Luang University in Chiang Rai, Thailand. A group of 30 Myanmar students contributed to this study, 15 males and 15 females. The questionnaire drawn to obtain compliment response patterns of the respondents was Discourse Completion Tests (DCTs) which consist of (10) incomplete paragraphs which included different compliment topics. It is found that the general tendency of Myanmar students’ responses to compliments is agreement and the least one is other interpretation. The result found that there was no significant difference between males and females in each category. However, in the agreement, males prefer to use appreciation token as their first compliment response, while females prefer to use return response type. It is also found that the age and the context have the significant role in the way of responding to compliments. Since the participants in this study were the university students who have been in Thailand not in Myanmar, the finding may change in the other studies that will be done in the different context of Myanmar. Therefore it can be observed that compliment response is one of the important ways to achieve in the society.

Keywords: compliment, compliment responses, gender, speech act

Introduction

People have to speak everyday and they use a wide range of functions in their daily life. Yousefavand (2010) said that to speak to other people is to make the social activity. There are inconsiderable automatic patterns which are known as routines in the conversational structure. These routines are always composed of the first part and the second part made by different speakers. A request which is included in the first part which is usually produced in the expectation and an acceptance is included in the second part. People are more likely to do acceptance than refusal. This structural likeliness which is an acceptance is known as preference (Wang & Tsai, 2003 cited in Yousefavand, 2010).

Many people from different culture and different countries across linguistic boundaries have encountered misunderstanding and communication breakdowns because of different background with different first language (L1). Different standard systems are reflected in speech act. That is why, different interpretations of a particular speech act make the other speaker’s intention misunderstand, different interpretations of a certain speech act sometimes cause misunderstanding of the speaker’s intention. In compliment response, attention is received from conversation
analytic perspective. Traditionally, we used to exchange compliment as an attempt to build solidarity and relationship. According to Tannen’s theory, compliments are provided to be for rapport rather than to be for report, and for cooperation rather than competition. By adopting Herbert’s (1990) classification of compliment response patterns applied by a Myanmar speakers in this study which are intended to investigate how male and female students respond to compliment among Myanmar students.

The aim of this study is to examine possible differences in applying compliment responses between male and female Myanmar students.

The objectives are:

1. to investigate the range of strategies used in responding to compliment in Myanmar students and
2. to explore how to vary the discoursal compliment responses (CRs) among Myanmar respondents/participants.

Although there are a lot of research about compliments and CRs, there are no studies on gender differences regarding the use of CRs among Myanmar students. So this study is attempted to identify how to vary the use of CRs between male and female Myanmar students who are attending in a University at Thailand.

Background of the Study

According to Hobbs (2003 cited in Heidari-Shahreza.M.A.et al. 2011), compliment is a speech act which acknowledge explicitly and implicitly to the addressee for the factor such as some possession, skill and characteristics which is positively evaluated by the speaker. Due to Brown and Levinson’s (1987 cited in Heidari-Shahreza.M.A.et al., 2011), compliment is a strategy of positive politeness as it signals the speaker’s notice and attention to the hearer’s needs and interests. Again Liu (1997 cited in Falasi, H.A. 2007) indicates that the compliment is an utterance which contains positive evaluation by the addressee to the addressee. Wolfson (1986 cited in Falasi, H.A. 2007) said that the adjectives “nice, good, beautiful, pretty, great” and the verbs “like and love” are mostly used as the popular English compliments. Herbert (1986 cited in Falasi, H.A. 2007) points out that compliments are applied in negotiation to have solidarity with the addressee.

Compliments are expressed positively to appreciate to something valued by the addressor and addressee even in the whole community speech (Homes, 1986; Ye, 1995 cited in Yousafavand, 2010). A compliment response (CR) is a response by the addressee to a compliment of addressor. These two speech acts which are compliment and its responses are conversational devices of interpersonal relationships in our daily communication. The use of CR as a phatic expression may also play a particular role to maintain the solidarity and relationships of inter-persons and the harmony of social interaction. Pomerantz (1978 cited in Yousafavand, 2010) said that there is pressure on the addressee to make agreement with the addressor and accept the compliment. On the other hand, there is also a strong pressure on speakers to avoid or minimize self-praise to get the response from the hearer.
Previous Studies

There are many studies that have been previously conducted to provide the importance of the compliment speech act in the society. The followings are a brief descriptions of some of the previous research of the scholars who focused on the compliment and its responses among the male and female students at the Universities. Al-rousan et al., (2018) embedded a study of compliment responses among male and female Jordanian University students. The aim was to explore the use of compliment responses among Jordanian university students and investigate whether there are differences to use the compliment responses, regarding to the males and female. It was found that the respondents employed more strategies of agreement frequently than the other strategies. The result also found that female students used the agreement strategies rather than the male students although both males and females used them. Female students are likely to respond to the compliments offered by females than that offered by males. This study concluded that the linguistic use of compliment responses shows that as different genders have different sets of strategies, no one strategy of compliment responses would work. Xiang (2013) investigated a study of gender differences in compliments and responses of Chinese international students. The objectives of the study was to explore the different compliments and compliment responses of Chinese students in terms of gender in Malaya University and to find out why the use of compliment and compliment responses are different among Chinese international male and female students. Speech act theory, face theory and politeness principles were used to analyze the data through the sociolinguistic view. The results show that the Chinese females use more explicit compliments while Chinese male students apply more implicit and non-compliments and even no response strategy. Another finding is that in responding compliments, female students apply more acceptance and combination strategy whereas male students employ more non-acceptance and acceptance with amendment. This study indicated that gender differences used in compliments and compliment responses among the international students reflect the traditional culture of Chinese people and the different gender roles which play in their society.

The findings of the previous studies proved that males and females used more compliments and different strategies in responding. It was observed from all the previous research that female students offered more compliments and employed more positive responses to the compliments rather than the male students in different context and different universities. However, no research has been conducted in Myanmar context. Therefore the present study is carried out to explore how Myanmar male and female students who studies at Mae Fah Luang University, Thailand offer the compliments and respond to others. The findings of this study may be the same or different to the previous research. But it can give more insights how Myanmar students perform the speech act in the international university in Thailand in which they are in different context.

Research Methodology

Herbert’s taxonomy (1988, 1993 cited in Heidari-Shahreza, et al, 2011), was used to collect data. He categorized Compliment Response strategies into three major acts: Agreement, Non-agreement and Other interpretation known as Macro level. There are further sub-strategies which are called 13 Micro levels in each level.
The data were collected with three situational setting; ability or performance, appearance and possessions through written “Discourse Completion Tests” to obtain reliable and sufficient data within a short period of time.

Participants
All the participants are Myanmar students who are attending at Mae Fah Luang University in Chiang Rai, Thailand. A group of 30 Myanmar students contributed to this study, 15 males and 15 females. They are (21) undergraduate students, (8) master students and (1) Ph.D. student. They were learners of English as a foreign language who were native speakers of Myanmar. The dialects some students speak are Shan, Kayin and Wa. They were in different specialization such as English, Applied Chemistry, Hospitality Industry, Business Administration, Tourism Management, Information Technology, Public Health, Software Engineering and Business Chinese. They were asked to fill in questionnaire which was designed to get the strategies of compliment response. They were also asked to fill in Myanmar language to get the exact data and then the researcher translated the responses in English.

Material
The questionnaire which was drawn to get compliment response patterns of the participants was Discourse Completion Tests based on the studies of Falasi, H.A. 2007 and Heidari-Shahreza, M.A. et al (2011). This tests consist of (10) incomplete paragraphs which included different compliment topics: (4) items regarding to aspect of hearer’s ability or performance (e.g. Your presentation today is excellence!), (3) items related to their appearance (e.g. You always look smart) and (3) items concerned with their possessions (e.g. Your house is really grand and looks like paradise). The participants were asked to complete them.

Procedure
The participants were randomly chosen from many Myanmar students and the questionnaires of Discourse Completion Tests were carefully distributed to them. The participants were requested to consider themselves that they were in the real situation and write down their answers they would naturally respond in each situation.

Data Analysis
To collect the data of different CR patterns, the researcher used a “contrastive analysis” between male and female Myanmar students. To analyze the data, this study consists of 300 examples: the total number students are 30 and each student has to answer 10 questions respectively. All the CRs were coded by using “Herbert’s (1986) taxonomy”

Results
Table 1 indicates the frequency of the various response types occurred among Myanmar male and female students at Mae Fah Luang University.
To be more specific, as shown in table (1), the males showed appreciation token and they love to accept the compliment given to them by giving verbal acceptance of a compliment 36 out of 150 (24%) and similarly, they were most likely to show their modesty by using qualification 36 also out of 130 (24%). On the other hand, the females also responded to the compliment mostly in qualification 35 out of 130 (23.33%) to show their modesty and the females chose this qualification to reject the full complimentary force given by qualifying that praise.

In the agreement category, the responses used by male is 76 out of 150 (50.66%) and the female 74 out of 150 (49.34%). Therefore it is found that the males used the acceptance strategy slightly more than the females. But in non-agreement, the males used the responses 62 out of 130 (41.34%) and females used 68 out of 130 (45.33%) and it is found that male has slightly less use of responses than female. In other interpretation males used responses 12 out of 130 (8%) and 8 out of 130
(5.33%) in females. Therefore, in the strategy it is found again that the use of responses is slightly more in males than the females.

Figure 1: Compliment Responses by Gender in Macro level

Figure (1) indicated that there was no significant differences between males and females in the Macro level (agreement, non-agreement and other interpretation). From this figure it can be observed that in agreement strategy and other interpretation, the number of responses used by male is slightly higher than females’ use of responses. In non-agreement strategy, the use of responses by females is slightly higher than the males.

Figure 2: Compliment Responses by Gender in Micro Level

To be more specific, as shown in Figure (2) Micro level, the females’ use of Appreciation token is significantly less than the males. That is why males simply favour accepting the compliments. Females used the Return response type more than males to shift the praise to the addressers or speakers to show their modesty. In the
Scale down response type, no males use and a few females used it slightly because the females tend to minimize the force of compliment more than males. Females employ more response types of question than the males to avoid self-praise and to weaken the complementary force. As Holmes (1986 cited in Yousefavan d, 2010) said “the females’ preference for the category of question is related to the fact that women are more concerned about face than are men when they reject a compliment”, Myanmar female students respond this question type to compliments for conversational maintenance. In No acknowledgement response type, no females use this type. As no responses to the compliments leads to situations that threaten the positive face of the persons who act compliment speech act, it is important for the respondents to the compliments to avoid face threatening act. The female participants may consider the silent pattern as inappropriate option to achieve the successful communication in the society.

Therefore it was found that except the five response type (Appreciation token, Return, Scale down, Question and No acknowledge), there is no significant differences of response types between males and females among Myanmar students. Surprisingly, both males and females did not respond Request interpretation to the compliments.

Discussion

The results show that among Myanmar students who are attending at Mae Fah Luang University, there are difference and similarities in the patterns of responding to the compliments. 50% of the compliment responses are found in the category of agreement, 43.33% is in non-agreement and 6.67% is in other interpretation. Myanmar male students show their tendency for the appreciation token (Thanks, Thank you so much, Many thanks) more than female Myanmar students (M:F=36:28) do, whereas Myanmar female students show their tendency for the return (So’s yours) rather than Myanmar male students (F:M=24:15). The examples are indicated as the following:

A: compliment                                                   B: compliment responses
A: “Alo, you look smart with this hair style. I also want to cut like you, but I will not look smart like you! This style is just for you! (Appearance)
B: If you cut like that, you will be smart, too! You too are more beautiful!
A: “Wow, how smart! My mobile does not have such functions. It is really great!”(Possession)
B: So is yours
A: “Wow, that’s brilliant, you did great job. Well done!” (Ability)
B: You can also do it!
   You will be better than me if you do
A: “Hey, you look great! You’re really handsome/ beautiful today.” (Appearance)
B: You look more beautiful than me
   You are also beautiful. (or) You’re too great and looking good.

Similarly, more female Myanmar students use the question type ( Do you like that?...) than male Myanmar students (F:M =18:7). The responses of question types are mostly combined with other responses. 17 questions in the 18 cases are combined
with other response types: with appreciation (thanks…) in 12 questions, with praise upgrade (Really? I think so…) in 2 questions and with scale down (This doesn’t suit me….) in one; with disagreement (I am not as you think…..) in one and with formulaic expression in another one. Some of the examples of questions types are indicated below.

A: compliment
A: You did great job! (Ability)
B: “Really? Thank you so much”, (with appreciation token)
A: “I love your clock. It looks great in your living room!” (Possession)
B: Really? I think so! It is very smart! (with praise grade)
A: “Hey, you look great! You’re really handsome/ beautiful today.” (Appearance)
B: Do you really think so? I am not beautiful as you think! (with disagreement)
A: This shirt looks great on you! Blue is a great for you”. (Possession)
B: Really? This shirt doesn’t fit me. (with Scale down)

In the qualification (all right, but ….), both males and females use nearly equal not to accept the full complementary force offered by qualifying that praise, usually by employing “but, yet, etc”. The mostly occurred responses are “It is nothing”, “It was no problem”, “I enjoyed doing it”, “I hope it was ok” related to the compliment of ability situation: “Yes, but I like white colour”, “Right, yet I have to wear school uniform”, Yes, I have to wear depend on the situation”, “Yes, but it is not ok for me to wear everyday”, “I like it, but I have only one”, related to the appearance and possession.

Most of Myanmar female used to respond to the other’s compliments, they seldom stay to be silent except to the compliment words of the stranger men. They think that without giving response to the other’s compliment is being rude to the addresser, but some of the males keep silent or shifting to another topic from the other’s compliments.

The responses mentioned above don’t represent the whole Myanmar people because the participants are young students and attending at International University. They responded to the compliments among the friends and the classmate, not the other context but just only in the academic society. So it may be different to give responses to the compliments in different context.

Both males and females Myanmar students used the question response types mostly. There is no significant difference in using question, nearly the same (24% and 23% respectively) among males and females. However, males employed mostly appreciation token as their preference for the compliment response, whereas females used more return response type. The next most frequently used responses are question and disagreement (I don’t like…..). They used these strategies to avoid self-praise avoidance. It can be concluded that modesty, meaning to strengthen solidarity, is to drive force behind Myanmar students’ response to compliment.
Recommendations
Since the participants in this study were the university students who have been in Thailand not in Myanmar, the finding may change in other studies which will be conducted in different context of Myanmar. So it is recommended that another research should focus on the significant variable in different context with Myanmar people from different age groups. Besides, in the consideration of the current situation of Myanmar students learners of English as a foreign language in Thailand, it is also recommended that it is necessary for them to be taught speech acts theory by the teachers in the classroom and be delivered relevant knowledge to help them become capable of performing appropriate speech acts in intercultural communication including how to respond to the others’ compliment mentioned in this study. That is because they are attending at the International University which produces many international students with different culture.

References
The Problems of English Pronunciation by Manipuri Speaker

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Abstract

In the context of Manipuri-English bilingual speakers, most of the speakers tend to produce English pronunciations which are more or less influenced by their native languages causing variation in spoken English. This results in poor communication with the native English speakers. The key problems in English pronunciation face by Manipuri speakers can be narrowed down in three criteria, i.e., in the production of vowel sounds, consonants and stress. It has been claimed that these problems arise due to the traditional approach of teaching English in schools and the phonological differences in the two languages in general. Therefore, a new approach of teaching English, which is entirely based on spoken English should be welcomed.

Keywords: consonant, English, Manipur, pronunciation, vowel, stress etc

Introduction

Manipur is a state in northeastern India with a population of almost 3 million, including Meitei, Kuki, Naga and Pangal peoples, who speak a variety of Sino-Tibetan languages. There are 29 dialects spoken in Manipur. However, the official languages are Meitei language (Meetei-lon) and English. English, being one of the official languages of Manipur, proper pronunciation of English is a must for the Manipuri people as pronunciation plays an important role in speaking a language. Proper pronunciation is the basic for efficient communication in any language. In verbal communication, proper pronunciation is a necessity, poor pronunciation can lead to some serious misunderstanding. Pronunciation is vital for efficient communication because improper pronunciation leads to the message being easily misunderstood by the recipient. Let’s consider the following example: in a situation where the grammar and the vocabulary of a person are exceptionally good, he or she may have excellent writing skill in English. But, if the same person lacks basic knowledge of proper pronunciation in English, he or she may not be able to communicate properly in English despite having good writing skill. The communication will be severely impeded resulting in the waste of his or her skills over grammar and vocabulary. He or she may be able to write in English properly but may not be able to produce proper communicable pronunciation when speaking, thus fails at communicating a message, specially, with native English speakers.
Problems in English Pronunciation

The local language, Meetei-lon influences the English pronunciation. Due to it’s influence, the English spoken in Manipur is slightly different from the standard English language.

A. Problem with Consonants

- Aspirated sound in the word initial of p/t/k is pronounced like that of un-aspirated sound /p/t/k/
  Eg. /pæt/, /tɒp/ and /ki:l/ are to be pronounced with aspirate /p/t/k/ respectively, but Manipuris tend to pronounce them with un-aspirated /p/t/k/.
- Manipuris (which refers to the people of Manipur) do not distinguish between /z/ /ʒ/ /dʒ/ sounds.
  Eg. /dʒenərəl/ and /dʒu:s/ are pronounced as /zenərəl/ and /zu:s/ respectively.
- /θ/ sound is never pronounced in Meetei-lon.
  Eg. /æn.θəm/ is pronounced as /æn.təm/ where /θ/ sound is substitutes by /t/.
- Word with /z/ is pronounced as /s/.
  Eg. /pʌzəl/ is often pronounced as /pəsəl/

B. Problem with Vowel

- /æ/ is pronounced as /e/.
  Eg. /æpel/ is pronounced as /epel/.
- Manipuris cannot distinguish between /ɔ/ and /ɔː/ sounds.
  Eg. /tɔp/ is often pronounced as /təp/.
- Manipuri cannot distinguished ‘tell’ and ‘tail’.
  Eg. /tel/ is often pronounced as /tel/.
- They cannot distinguished between ‘said’ and ‘sad’.
  Eg. /sed/ and /sæd/ are pronounced the same as /sed/.

C. Problem with stress

Meetei-lon is a tonal language which does not differentiate words based on stress. On the contrary, we all know that English is a stress-time language. Therefore, people don’t usually use stress while speaking English. Stress is one of the major problems faced by Manipuris in speaking English.

The Cause of These Problems

There are many causes for these problems.

1. In school, Manipuri students have to study both the local language (in Bengali script) and English language compulsorily. The students learn English through Bengali script and in the process they adopted Manipuri pronunciation.

For example, the students learn English through the following chart:
However, this approach has been avoided in recent years. The teachers do not teach pronunciation, rather they concentrate on teaching vocabulary and grammar.

2. Meetei-lon influences the pronunciation of English. Manipuri read /tʰ/ as /t/, /pʰ/ as /p/, /o/ as /a/, etc. This kind of articulation has a strong influence on the Meetei-lon speaker who has no chance to study English phonology. This is due to the phonemic inventory of the Meetei-lon.

3. As Meetei-lon is a non-stress language, whereas, English is a stress language, Meetei-lon speaker speaks English without stress, which impedes their pronunciation.

4. Most of the Manipuri people are shy to speak in a native speaker’s way. Manipuri people are to be considered ”sow-offish” among themselves if they speak in
a native speaker’s tone. So, people would not imitate the native speaker’s pronunciation.

5. Meetei-lon speakers always speak with un-aspirated consonants so it is difficult for the people to pronounce aspirated /p/ and /t/ in English word.

**Recommended Solutions**

1. English Pronunciation training courses should be made compulsory for the teacher. Teachers should be given English phonology and the teaching of pronunciation training courses.
2. Phonetics should be introduced to the school curriculum.
3. The teacher should start teaching correct pronunciation by using native speaker’s rhymes, stories, audios and videos.
4. The teacher should teach the students how to pronounce correctly and IPA-RP chart should be introduced in the school.
5. Teachers should keep on lecturing in English so, students can learn a lot, as the teacher’s pronunciations can help them groom their pronunciation.
6. Encourage each other to speak like the native English speakers in everyday conversation.
7. If possible, native English teachers should be invited in the school and special session of spoken English class should be held.

**Conclusion**

Pronunciation is the key for effective communication, and on the other hand pronunciation can also lead to negative impression, misunderstanding and ineffective communication. Changing the current English teaching approach in Manipur and the social stigma that people have on English, will somehow avoid the problems of English pronunciation which leads to poor communication with the native English speaker. A good knowledge of proper English pronunciation is a must for better English speaking skill.

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Philosophy and Religion
Thai Women and Steps forwards in the Path of Dhamma

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Abstract

This paper aimed at 1) exploring how far Thai women have stepped along the path of Dhamma in the context of Thai Buddhism, and 2) proposing the considerable choices to be taken by Thai female Buddhists in the modern society. It was found that there are growing numbers of Thai women interested in Dhamma with special focus on a higher spiritual training. This paper mainly focused on the three female movements: Bhikkhuni Dhammananda who is a pioneer in reviving the lineage of Theravada Bhikkhuni ordination in Thailand, Maechi Sansanee Sathirasuta who is well known for her socially engaged projects, and Acharavadee Wongsakon who is a famous master in the meditation technique called Techovipassana. These three movements refer to two different monastic ways: traditionally being a Maechi or Upasika, and fully being ordained as a Bhikkhuni. No matter they are socially regarded a laity or a female monk, legally or illegally recognized; they independently form their own communities and play a key role in guiding the public along the path of Dhamma.

Keywords: Dhamma, Thai women, monastic life

Introduction

If we accept that the Dhamma or teaching of the Buddha is well prescribed for all persons as to deal with their sufferings in everyday life; the Dhamma, therefore, should be equally adopted by men and women alike. According to Theravada Buddhism, there are two alternative levels for adopting Dhamma: 1) mundane level that promotes worldly well-beings, and 2) super-mundane level that leads to Nibbana, the final goal of Buddhism (Pali Tipitaka 34/706/279). These two need adequate and different ways to achieve. The first level suits a laity who usually concerns with worldly preoccupations and homely affairs, whereas the latter needs a unique form of serious practice due to its profound, sublime spiritual state, thus a monastic, celibate life seems to pave the way to it. Regarding the potentiality to achieve the highest benefits from the Dhamma, the Buddha guarantees the capability to realize the ultimate truth of men and women alike.

However, the Buddha at the beginning hesitated whether to permit the admission of women to be Bhikkhunis (female monks) or not, because the hardship of a homeless life, a monastic life might not suit the feminine status in a society, but at last he allowed women to join a monastic life as Bhikkhunis (Pali Tipitaka 7/513-518/320-327). Bhikkhuni Sangha, the assembly of female monks, well witnesses the abilities and talents of women in managing their monastic affairs. It is recognized as one of the four assemblies of the Buddha, i.e. the assembly of male monks (Bhikkhu Sangha), female monks (Bhikkhuni Sangha), male lay followers (Upasaka) and female lay followers (Upasika). Unfortunately, the assembly of female monks in
Theravada tradition had already become extinct due to the hardship of observing the disciplines and the political conflicts; so no living Bhikkhuni tradition appears to exist since the early eleventh century after the demise of the Buddha. Therefore, the extinction of female monks has been acknowledged by Theravada Buddhists until today. According to this tradition, any women can never be ordained.

In Thailand where her most population confesses Theravada Buddhism, it is also accepted that only men have full rights and freedom in a monastic life. The women can be just regarded as “the hind legs of an elephant”, which means they play a role behind the scenes supporting men in all monastic affairs. In a homely life, a woman can be only a wife and mother, and in the monastic life, she is regarded as a good follower in rituals and ceremonies run by monks and male laity. If she renounces the homely life, she would be gossiped as a broken hearted or a hopeless in life and is traditionally allowed to be ‘Maechi’, a woman who wears a white dress with shaved head living in a limited zone in a monastery where the monks dominate.

In the modern age, however, there is an ideology such as democracy, human rights, and feminism that echoes the voice of women in regards to equality, rights and freedom in all aspects of life. Women can break through almost social norms and traditions that once barred their free will in living. In addition, Section 27 of the recent Thai constitution states, ‘All persons are equal before the law, and shall have rights and liberties and be protected equally under the law. Men and women shall enjoy equal rights. Unjust discrimination against a person on the grounds of differences in origin, race, language, sex, age, disability, physical or health condition, personal status, economic and social standing, religious belief, education, or political view which is not contrary to the provisions of the Constitution, or on any other grounds shall not be permitted.’ (Government Gazette, Vol. 134, Part 40 a, 6th April B.E. 2560, p.9). According to this all citizens, be they men or women, can enjoy equal protection under the law regardless of origin, race, language, sex or religion, etc.

The aforementioned conditions provoke a number of Thai women exercise of their rights and freedom as to revive the status and role as Buddha’s disciples. The revival of large scale of the meditation practices, lively propagation of Dhamma, and social engagements by female Buddhists appears to have been made possible in a manner that would not have been possible in the past. At a result, there are some Thai women who are equipped with the potentiality to establish their movements and gain popularity among Thai Buddhists at present. This paper, therefore, will focus on the three outstanding groups of female movements: 1) Bhikkhuni Dhammananda, who is best known for her endeavor in re-establishing the assembly of female monks, 2) Maechi Sansanee Sathirasuta, who has achieved the fame for her social works on women and children, and 3) Acharavadee Wongsakon, who is well regarded as the master of a specific meditation technique called Techovipassana.

**Status and Role of Women according to the Buddha**

Before proceeding, it is of great importance to explore how the Buddha views on the status and role of a woman. According to the Pali Texts, the women may be considered in two statuses: a laity and a female monk.

1) Woman as a laity

Generally, Buddhism does equally consider all human beings, be they men or women, as one of the so-called ‘Satta’, or living beings including all types of animals. This can be seen in a passage of expressing loving-kindness to all kinds of Satta in
Karaniyametta Sutta, ‘May all beings be at ease. Whatever living beings there may be...’ (Pali Tipitaka 25/10/13). The Buddha assures the fruitful role a woman can play as a wife and a good mother in making the family life a success. In the family both husband and wife are expected to serve each other in such a way that both are trustful to each other and responsible for duties related. A woman as the mother is always mentioned first when referring to the parental pair in the compound term ‘Matapitaro’, which means mother and father (Pali Tipitaka 25/6/4). This preferential position is never given to the father, who obviously plays a secondary role in bringing up children. This only highlights the high status of motherhood and the heavy responsibility that goes with it.

According to the hierarchical status in Buddhism, a woman is regarded as Upasika, a female laity who at least confesses the Triple Gem as lifelong spiritual refuge (Tiratana) and undertakes the five precepts (Pancasila). Upasika is one of the four assemblies: Bhikkhu and Bhikkhuni, male and female monks, and Upasaka and Upasika, male and female lay followers. They are the necessary foundation for reserving and propagating the Buddha’s teaching. As the Buddha proclaimed that he would not pass away until he had established his four assemblies in being wise, well-trained, and self-confident (Pali Tipitaka 10/95/121-124). This passage makes it clear that Upasika is one of the essential pillars in supporting and sustaining the Buddha’s teaching along with the pillars of Bhikkhu, Bhikkhuni, and Upasaka. There are a number of Upasikas such as Visakha, who was bestowed the title of Maha-upasika, the great female follower and best known for her generosity and services, Samavati, who was highly praised for her compassion and loving-kindness, and Khujuttara, who was excellent in great learning (Pali Tipitaka 20/152/34).

2) Woman as a female monk

Out of the four assemblies of the Buddha, Bhikkhuni, a female monk, was made possible by the Buddha in the fifth year of his mission. At first, the Buddha hesitated to permit the admission of being a female monk according to the request raised by his aunt and foster-mother Mahapajapati Gotami. However, having been asked by Ananda Thera on her behalf, he did agreed with the point that a woman has capability to realize the truth just as a man; he allowed her and a large number of Sakyan ladies to undertake the eight additional precepts called ‘Garudhamma’ as under:

1) paying respect to a male monk who is just ordained but that day without claiming of seniority
2) not spending the rainy season retreat in a residence where there are no monks
3) desiring two things from the assembly of monks every half month: asking the date of the Observance Day, and coming for the guidance
4) performing Pavarana before both orders in term of three matters, namely what was seen, what was heard, what was suspected after the three months rainy season retreat
5) in case of offending against an important rule, undergoing Manatta discipline for half a month before both orders
6) as a probationer (Sikkhamana), training in the six rules for two years in preparation to become a Bhikkhuni from both orders
7) not abusing or condemning a monk in any way
8) not monitoring a monk in any way (Pali Tipitaka 7/516/323-324).

The full ordination and status of a Bhikkhuni was completed when Mahapajapati and her group accepted the eight extra precepts mentioned above. It should be noted that the sixth precept mentions that a woman must be a probationer for two years before getting fully ordained; it seems to contrast with the direct ordination of Mahapajapati soon after accepting the eight precepts. The probation did not exist in that moment; it might be added later.

However, the Bhikkhuni lineage had historically died out due to hardship and more alternative forms of ordination have developed and political conflicts such as a time of warfare and inner turmoil. It is expected that the lineage of Theravada Bhikkhuni came to an extinction in the early eleventh century of the Buddhist Era. Before its eventual end, Bhikkhuni ordination lineage had been transmitted from Sri Lanka to China where Buddhism was developed in a different tradition called Mahayana. So, it had become a different lineage, based on its procedures and rules.

Traditional Way of a Monastic Life for Women in Thai Buddhism

It can be said that a monastic life in Thai Buddhism has been made legal and acceptable only for men. Men under the age of twenty years can be ordained as a novice or Samanera, the term refers to a boy who has taken the initial vows in ordination and undertaken ten precepts: refraining from killing, from stealing, from sexuality, from lying, from taking intoxicants, from taking food after noon, from singing, dancing, playing music or attending entertainment programs or performances, from bodily decorative accessories, from using high and luxurious chairs and beds, from accepting money (Pali Tipitaka 25/2/1-2). Men after the age of twenty years can become fully ordained a monk. Novices are subordinate to the monks, seeking the guidance and training from monks. Both novices and monks have a free will to join or quit the monastic life as long as they wish. But women cannot be neither a novice nor a monk; yet, the grand supports and services in almost temples throughout the country have been rendered by women. Women as mothers cling to their sons’ saffron robes - tails to collect their spiritual credits, they automatically perpetuate the patriarchy.

As much as a woman can do concerning a monastic life, she cannot go beyond the position of ‘Maechi’ as a common female follower (Upasika) who just undertakes the eight precepts less than those of Samanera. We can trace back to the origin of Maechi as far as the reign of King Narai the Great of Ayutthaya (1656 - 1688). It was recorded by French envoys who came to the Kingdom of Siam that there were some old aged women who shaved heads, eyebrows, and wore white dress living in a monastery (Wikipedia, 16 August 2017, online). The so-called Maechi is a woman who shaves off her hair and eyebrows, and wears white dress, a color traditionally worn by general lay Buddhists particularly in a ceremony. This type of dress refers to the unclear position of Maechis as to be a laity or a monk. They continue to use their lay name after ordination while living in a limited zone in a monastery and rendering services to male monks, such as cooking and cleaning. Furthermore, the legal status is also ambiguous as the law regards them as a lay, whereas they deserve no political rights such as voting and tax exemption. Unlike, the male monks and novices deserve all legal rights, for example, free medical treatment, free travel on public transport, tax exemption. Though lack of recognition of the monastic status of Thai women continues to be unclear and unresolved, yet, there are notably amounts of 13,258
Maechis in Thailand (Jade Tantivanichanon, 2017, p.143). They mostly live in big monk-dominated monasteries in Bangkok, such as Wat Paknam Phasichareon, Wat Bovornnives. Officials, the Thai Nun Foundation under the Queen Sirikit’s Patronage has played a key role in monitoring and uniting all Maechis countrywide since 1969.

Besides being a Maechi, Thai women tried to step forwards to acquire a higher status than Maechi, i.e. to achieve monkhood just like a man. It happened in 1928, when the two daughters of Mr. Narin Bhasit: Miss Sara 18, and Jongdi 13, decided to be ordained as novices in order to re-establish the Bhikkhuni lineage once again. However, their ordinations were not mentioned in detail whether they were performed in due rules and procedures or not. However, this effort was criticized far and wide, it led to the order issued by then Supreme Patriarch of the Thai Sangha to ban the female ordinations and made them illegal ever since. The revival of female ordination happened again in 1956, when Mrs. Woramai Kabilsingh in her forties, after two years of being a Maechi, went forth to achieve the higher ordination as a Mahayana Bhikkhuni in Taiwan. Furthermore, she established the first monastery for female monks namely ‘Wat Songthamkalyani’ (วัตรทรงธรรมกัลยาณิ in Thai), meaning the monastery where women uphold the Dhamma, in Nakhonpathom Province, yet its legal status was nullified. This attempt was less criticized since it was regarded a different lineage of ordination.

So far attempts to join a monastic life made by women have concerned, all types of being a female monks have been nullified, except being a Maechi. Due to the fact that all Theravada Buddhist affairs in Thailand must be under the control by the Sangha Supreme Council based on the order issued by the Supreme Patriarch mentioned above, monks have been prohibited from ordaining female monks, or they risk being punished. However, Thai women who want to live a monastic life according to Theravada Tradition, need to seek ordination in Sri Lanka where the Bhikkhuni assembly is most partially recognized, or the more practical and less costly option is to invite Sri Lankan preceptors, both male and female monks, to come to Thailand so they can ordain several women at a time. It should be noted that the Sangha discrimination and restriction laid on women can never stop them entering to a monastic life. Because people more openly welcome the religious status and roles in Buddhism similarly to men, as we shall discuss in the next paragraphs.

**Three Female Movements in Recent Thai Buddhism**

When Thai women’s interests in Buddhism deepen along with strong spiritual aspirations to strive for a higher goal of life beyond homely life; the following are outstanding female Buddhist movements with three different ways of a monastic life:
1) Bhikkhuni Dhammananda

Bhikkhuni Dhammananda was born Chatsumarn Kabilsingh (ฉัตรสุมาลย์ กบิลสิงห์ in Thai) on October 6, 1944. She is a daughter of Mrs. Woramai, who was later ordained as the first Thai Bhikkhuni in Mahayana Tradition as mentioned earlier. Her father, Mr. Korkiat, was one of supporters for the revival of Bhikkhuni ordination in Thailand. She had grown up in a family strongly upholding Buddhism. Therefore, she paid intentions in studying religions and philosophy from B.A. to Ph.D. degrees in India and Canada. For her homely life, she married and has three sons. She was a professor at Thammasat University, Bangkok, in the field of religions and philosophy for 27 years. She has been also well known an author of many books and papers on Buddhism as well as a key pioneer in reviving the Theravada Bhikkhuni ordination in Thailand. She had a steadily intention to become a female monk at some point in her life, so in 2000 she took early retirement from the university and received the Bodhisattva’s vows according to Mahayana tradition in Taiwan. However, in 2001, she turned to be ordained as a Samaneri according to Theravada tradition in Sri Lanka. After having strictly observed the precepts unviolated for two years, she was the first Thai woman ever received a full ordination of Bhikkhuni in Sri Lankan Theravada lineage in 2003. She has been named Bhikkhuni Dhammananda; she presently resides and serves the leadership at Wat Songthamkalyani, where her mother, Bhikkhuni Woramai, established and lived therein till death (Prayong Jandaeng, 2013, pp.150-155).

After her ordination, Bhikkhuni Dhammananda keeps talking and writing several books and articles to educate the public in various issues especially related to the status and roles of women in the contemporary Thai Buddhism. Her lively and experiences-based message of Buddhism and women along with her strict monastic discipline, has made her even more popular nationally and internationally. However, due to her tirelessly works to revive the Theravada Bhikkhuni lineage in Thailand, she has encountered resistance from both laymen and monks who believe female monastics are illegal and taboo since they insist that the lineage of Bhikkhuni went extinct long ago. However, she received more supports from a growing number of women inspired by her movement. It is reported that the number of female monks and novices in Thailand has grown rapidly despite the Sangha Supreme Council’s strongly opposition. According to a recent survey, there are at least 173 Bhikkhunis, 50 Samaneris, and 23 Sikhamanas in 60 Bhikkhuni centres across Thailand (Sanitsuda Ekachai, 23 November 2017, online).
In 2014, Dhammananda Bhikkhuni was accredited as Pavattini or female monk preceptor by Sangha of Siamvamsa Sect from Sri Lanka. Despite her prominence far and wide, she does not pose any threats to the monks; she, according to the code of conducts of Bhikkhuni, seeks advices from the monks and pay respect to monks no matter how junior they are. She also maintains cordial relations with the local monks and people, showing that discrimination against female monks mainly exists in the policy laid by the Sangha Supreme Council.

2) Maechi Sansanee Sathirasuta

Maechi Sansanee Sthirasuta was born Sansanee Panyasiri (ศันสนีย์ ปัญญศิริ in Thai) in 1953. At her teenage, she moved from her birthplace, Ayutthaya Province, in order to pursue a brighter future in Bangkok. Her beauty and good character made her won the supermodel and beauty contests, then she was a celebrity working as a television host and a top-ten supermodel. At her late twenties, she fallen in love with a millionaire who had a certain wife, when she came to know the truth, being afraid of committing adultery, she turned her back from him and quit all her jobs, and became a Maechi under the guidance of Phrakhru Bhavanabhithan at Wat Siriphongthammanimit, Bangkok, in 1980. She has strictly observed a monastic life and kept the inferior status to monks, she does not pose any threats to the monks despite her prominence. It should be noted that a Maechi resides in peripheral spaces in a monk-dominated monastery compound and abides by the rule of the monastery. Since a status of a Maechi is not legally part of the Sangha, a powerful Maechi can form her own community separate from the Sangha’s administration.

While independent communities of Maechis have been on the rise in recent decades in Thailand, they are often built on private land owned by Maechis, or their families, or other devoted donor. Maechi Sansanee is one of those Maechis who once belonged to temples and thus fall under the jurisdiction of monks; later on, she founded her own nunnery namely ‘Sathira Dhammasthan Center’ in 1986. This is a considerable step to go forwards in socially engagements. Her center serves as the meditation center and learning community providing a variety of programs for people of all ages, gender, and walks of life based on the Buddhist principles of love and compassion. As a spiritual leader and educator, she teaches how to apply Buddhist teachings to everyday life in order to be free from sufferings. Her effort is particularly notable in assisting abused women, children and families and even the most hardened of criminals. Acknowledging that women generally have much fewer opportunities
and options than men, she believes that they can reach the full and unique potentials if they have a chance to practice Buddhist spirituality (Prayong Jandaeng, 2018, pp.173-175).

Savikasikkhalaya is one of her innovative effort to promote Buddhist way of life. It was opened in 2008 in affiliation with Mahachulalongkornrajavidyalai University, but independently autonomous operates. Her teachings and projects caught the attention of the public both nationally and internationally. Therefore, she has been frequently invited to attend well known and widely accepted summits in several countries, as a representative of Buddhist female renunciates. It can be said that she is a witness of Thai women who acknowledge the inferior status in a monastic life, yet, let the social works done more effectively than those traditional Maechis who have played a common role as ‘the hind legs of an elephant’ in a monastery.

3) Acharavadee Wongsakon

Acharavadee Wongsakon (อัจฉราวดี วงศ์สกล in Thai), or well recognized by her students as ‘Tan-Ajarn’ meaning the reverend master, was born in Bangkok September 28, 1965. She grew up and pursued a bachelor degree in business administration from Sripatum University. She is neither a Bhikkhuni nor Maechi as the two aforementioned women. She was a famous business woman who was specialized in jewelry and diamonds, developing and branding ‘Saint Tropez Diamond’ as her own entrepreneur. While doing business, she also seriously practiced Vipassana Mediation according to the way of the famous Vipassana Master, S.N. Goenka of India, since 2001. She did well both business and meditation. As a pious business woman, she opened the School of Life, teaching meditation and Dhamma to children for free in 2005 (School of Life Thailand, 2005, online). Her teaching method is lively as she employs ‘learning by doing’ technique based on Buddhism to inspire children to draw lessons from their own lives. In 2012, she established the Knowing Buddha Organization as to raise global awareness regarding Buddha’s images and protect the improper use of Buddha’s images worldwide, after witnessing the misuse of the Images of Buddha as decorations in a popular night club and fashion business in abroad (Knowing Buddha, 2012, online).

Meditation practice eventually helped her analyze deeply meaning of life, so she quit from the business world and devoted her life to teach the Dhamma since 2009, while living as a laity wearing all white clothes. Later on, she has played a major role as Vipassana Master teaching the specific meditation technique termed by her as ‘Techovipassana’ to the public. Due to popularity of the meditation practice,
she established Techovipassana Dhamma Center in Kaeng Koi District, Saraburi Province in 2011. So far it was founded, over 130 intensive meditation courses were organized without any charge, and they continue to be held regularly ever since. The courses last for seven days and were attended by over 70,000 Thais and foreigners, ascetics as well as laypersons, regardless their sex, age, gender, religions, and social status. Prior to attend this course, a meditation practitioner must go through a four days basic course in Anapanasati practice run by the center. In 2018, Acharavadee extended her mediation center to Hat Yai District, Songkhla Province as one of her faithful students donated the land with a large wooden building to be used as a meditation retreat.

The so called ‘Techovipassana’, according to Acharavadee, is a meditation practice that follows the Four Foundations of Mindfulness practice (Satipatthana), using the technique of igniting the fire element in the body to burn down all mental impurities (Kilesa). Acharavadee also related her technique to the Buddha’s word in a Pali passage quoted and translated by her: ‘Atapee Sampchano Satima’, ‘Keep persevering, and burning impurities’. Furthermore, she credits the late Somdej Phra Puttajarn (Toh Brammarangsi, or shortly called Somdej Toh) for teaching her this technique during one of her meditations. Somdej Toh, though passing away for a long time, is a highly revered Thai monk, known among Thais for his kindness, wisdom and supernatural powers. Acharavadee confirms that this method is only a shortcut leading to the end of sufferings which is the final goal in Buddhism, Nibbana (Knowing Buddha, 14 October 2018, online).

Recently, Acharavadee claimed her enlightenment of the Nibbana and declared that other laypersons under her close guidance also can reach the same goal by means of Techovipassana technique. Moreover, she can rightly predict her students’ due stages of enlightenment. These vows can be seen in her famous books named in Thai ‘ฆราวาสบรรลุธรรม เล่ม 1 และเล่ม 2’ (Laypersons reach enlightenment, Volume 1 and 2). As a result, she was publicly criticized in the following: 1) she over boasted her highest spiritual realization through a meditation practice not mentioned in any Buddhist historical accounts but created by her, 2) she claimed the supernatural ability in predicting her students’ stages of realization, and 3) she acted superior to those monks who attended her courses. The mentioned critique can be seen in a famous Buddhist website namely Alittlebuddha.com (January-February 2018, online).

In order to respond the critiques, Acharavadee insisted that the enlightenment is a sublime spiritual experience an individual can touch; only one who seriously practices can realize it. There may be a few students of her disagree and discredit her. For being accused of superior acts over monks, she revealed that such photos shown in the media can be explained in two ways: 1) there are some monks who were once her lay students and became monks later; they might not be used to their new monkhood so that they paid respects to her as earlier, or 2) there was a certain ceremony of blessing that both sides, she and monks, join palms for chanting, while she joined the palms for receiving the blessings from monks. She said that she never pose any threats to good monks, but condemned only bad monks just as a good assembly of the Buddha that should monitor and mentor each other.
Concluding Remarks

The theoretical fact shows that the ability to attain the ultimate truth can be possible for men and women alike. But in the context of Theravada Buddhism, the unique form of a monastic life that paves the way to awakening is recognizable only for monks, because the lineage of female monks went totally extinct. There seems no other choice for a Thai woman as to live a monastic life, except being a Maechi or Upasika. However, the prominence of new ideology such as democracy and feminism significantly motivates a growing number of Thai women to step forwards the spiritual path to awakening so far and wide. The involvement of female laity in serious study and practice of Buddhism in Thailand gradually increases. The women go so far in reviving a dead Bhikkhuni lineage alive again, though their legal status in the state remained nullified. We can broadly divide the concerns with a monastic life made by Thai women into two ways:

1) Acknowledging the traditional ways of being a Maechi or Upasika, yet, separating from other common Maechis or Upasikas dominated by monks, and setting independent communities. We can see the movements set by Maechi Sansanee and Acharavadee who distinguished and developed their own ways of adopting and preaching Dhamma. However, among the two prominent women, Maechi Sansanee’s practices and teachings seem to be in line with the Buddhist Textual evidences, whereas Acharavadee’s seem to depend on her own way of interpretations and experiences, though she referred to the evidence of her Vipassana technique in line with Satipatthana practice in Pali Tipitaka; it is some point far different. Her ‘Techovipassana Technique’ seems to be in line with Tejo-kasina or the contemplation on fire as a mind-object in meditation as to make the mind stand still (Visuddhimagga 1/218-219). The still state of mind can be gradually developed to the highest level of insight. Tejo-kasina, therefore, is just Samatha or tranquility, concentrating stage of mind, it cannot be Vipassana, which is the insight stage that leads to fully awakening. But Techovipassana is claimed to be the insight stage and only direct way leading to the final goal.

2) Reviving the Bhikkhuni lineage alive, though strictly opposed by the Supreme Sangha Council. This can be seen in the case of Bhikkhuni Dhammanda and other Bhikkhuni groups throughout the country. These women regard the fully awakening in Dhamma is something profound and difficult to achieve while living a homely life due to more concerns in earning life costs and marital status. The full ordination or monastic life should be a due social system activated for the women who want to be fully engaged in a higher spiritual training as well as to devote themselves to deal with social deep problems concerning women and children. These groups of Bhikkhunis stand the test of time and win the hearts of people for their ways of observing strict monastic rules and awareness in social concerns.

A considerable choice to be taken depend on a degree of individual willpower to step on the path of Dhamma. So far an individual’s rights and freedom have been guaranteed by the state, a woman can decide whether to join a traditional monastic life just as common Maechi, or Upasika according to her will. This kind of choice has been well recognized by the public, but its legal status is not obvious as being a laity or an ordained. Whereas being a Bhikkhuni clearly shows her monkhood, but it is more challenging, because the Supreme Sangha Council has officially rejected it due to the long-term extinction of Bhikkhuni lineage. If a woman minds the monastic
norms nominated by the monks, she should avoid being a Bhikkhuni. However, Thai society seems to be more open and welcome all those who honestly devote their lives for the Dhamma. This fact can be witnessed by the increasing supporters of the aforementioned three female movements.

References


An Application of Buddhist Ethics to Create Awareness in Posts and Shares in Social Media: Ethics in the Digital Age

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Abstract

In digital age, human society cannot avoid influential aspects of social media. It has both pros and cons in various dimensions. In negative effect, it causes a great impact to individual, society, country, and the world. People are unaware of dangers of social media. In contrast, they utilize it for their own purpose, neglecting privacy of others, spreading what they want to public without taking into account of negative impact of what they post and share. Some may post and share on purpose to get something back. Undesirable consequences are neglected. Some do post and share activities in message and image without intention. Post and share with intention or without bring about undesirable consequences. This is clearly seen in the political setting, internment, and other settings. There will not be any negative consequences if social media users apply Buddhist ethics on social media activities. Buddhism always admonishes, warn and remind people to be conscious and aware what they are doing and are going to do. Also Buddhist ethics reminds Buddhists what should be done and should not be. This paper aims to elucidate Buddhist ethic principles in order to apply them in social media activities. With application, problems caused from social media would be lessen.

Keywords: digital age, Buddhist ethics, application, consequences

Introduction

Digital age can be called Computer Age, Digital Age, or New Media Age. Cambridge Dictionary (2019) defines ‘digital age’ as ‘the present time, when most information is in a digital form, especially when compared to the time when computers were not used. The definition given by Your Dictionary Online (2019) is ‘The digital age, also called the information age, is defined as the time period starting in the 1970s with the introduction of the personal computer with subsequent technology introduced providing the ability to transfer information freely and quickly’. It further explains ‘The time period in which we live now where Internet and email are available is an example of the digital age’. In summary, the 1st century is the period when the traditional industry moves through industrialization, to an economy based on information technology.

The widespread use of digital technologies by masses such as computers, email, Internet, electronic games, videos, so forth(igi-global.com). With these digital technologies, the role of the internet came into existence and combines people around the world together. This is a form of social media. According to Cambridge dictionary (n.d.), Social media refers to websites and applications that enable users to create and share content or to participate in social networking. Since it plays the role in society, social media users experience its pros and cons. For positive side, it benefits society with various dimensions. In undesirable way, social media also cause lots of problems
with individual, groups, organization and the world. In political setting, political parties or those who involve with politics make use of social media for political purpose to get rid of their opposite parties. Among celebrities, and contests, sports are also under the power of social media. Anya Zhukova(2018) categorizes negative effects of social media on people and users into 7 types stating ‘If you can’t imagine your life without social media, that’s a sign that you’ve fallen a victim to the evil power and impact of social networking. It also means that you’ve experienced one (or more) of the negative effects of social media on society’. Seven negative effects include (1) Depression and Anxiety, (2) Cyberbullying, (3) FOMO (Fear of Missing Out), (4) Unrealistic Expectations, (5) Negative Body Image, (6) Unhealthy Sleep Patterns, and (7) General Addiction. Clement (2019) presented number of social media users in the worldwide from 2010 to 2021. It is over three billion people, around 40% of the world’s population, use online social media. In 2019, it is estimated that there will be around 2.77 billion social network users around the globe, up from 2.46 billion in 2017. Jessica Brown (2018) said ‘We’re spending an average of two hours every day sharing, liking, tweeting and updating on these platforms, according to some reports. That breaks down to around half a million tweets and Snapshot photos shared every minute.”

According to her, mental well-being of social users, particularly Facebook, BBC Future reviewed the findings showing that Facebook gives impact to Facebook users in terms of stress, mood, anxiety, depression, sleep, addiction, self-esteem, well-being, relationship, envy, loneliness.

Social media etiquette

In social media platforms like Facebook, Twitter, Reddit etc. play a great role in social media as far as share and post are concerned. According to Alexa, there are 50 Top Sites of 500 sites. Top ten sites are known to social media users, consisting of Google.com, Youtube.com, Amazon.com, Facebook.com, Reddit.com, Yahoo.com, Wikipedia.org, Twitter.com, Baidu.com, and Instagram.com (Alexa, 2019). These sites have their own features and way to interact with users. Each has its rules and etiquettes for members and users to follow. This paper chooses rules and etiquettes from two popular sites as examples for discussion. First, Reddit, which is the sixth-most-popular site in the United States and the 15th worldwide.” Essentially, it’s a massive collection of forums, where people can share news and content or comment on other people’s posts (Widman and Nicol, 2019). Rules and etiquettes are given to users in order to manage activities performed by members and users. Members have to abide by the rules and regulations set to make harmonious atmosphere among members while share and post. Here are the important rules, consisting of ‘please do and please don’t’ (reddit.com)

1) Remember the human. When you communicate online, all you see is a computer screen. When talking to someone you might want to ask yourself “Would I say it to the person's face?” Or “Would I get jumped if I said this to a buddy?”

2) Adhere to the same standards of behavior online that you follow in real life.

3) Read the rules of a community before making a submission. These are usually found in the sidebar.
4) Read the reddiquette. Read it again every once in a while. Ridicule is a living, breathing, working document which may change over time as the community faces new problems in its growth.

5) Moderate based on quality, not opinion. Well written and interesting content can be worthwhile, even if you disagree with it.

6) Use proper grammar and spelling. Intelligent discourse requires a standard system of communication. Be open to gentle corrections.

7) Keep your submission titles factual and opinion free. If it is an outrageous topic, share your crazy outrage in the comment section.

8) Look for the original source of content, and submit that. Often, a blog will reference another blog, which references another, and so on with everyone displaying ads along the way. Dig through those references and submit a link to the creator, who actually deserves the traffic.

9) Post to the most appropriate community possible. Also, consider cross posting if the contents fit more communities.

10) 10. Vote. If you think something contributes to conversation, upvote it. If you think it does not contribute to the subreddit it is posted in or is off-topic in a particular community, downvote it.

11) Search for duplicates before posting. Redundant posts add nothing new to previous conversations. That said, sometimes bad timing, a bad title, or just plain bad luck can cause an interesting story to fail to get noticed. Feel free to post something again if you feel that the earlier posting didn't get the attention it deserved and you think you can do better.

12) Link to the direct version of a media file if the page it was found on isn't the creator's and doesn't add additional information or context.

13) Link to canonical and persistent URLs where possible, not temporary pages that might disappear. In particular, use the "permalink" for blog entries, not the blog's index page.

14) Consider posting constructive criticism / an explanation when you downvote something, and do so carefully and tactfully.

15) Report any spam you find.

16) Browse the new submissions page and vote on it. Regard it, perhaps, as a public service.

17) Actually read an article before you vote on it (as opposed to just basing your vote on the title).

18) Posts containing explicit material such as nudity, horrible injury etc, add NSFW (Not Safe For Work) for nudity, and tag. However, if something IS safe for work, but has a risqué title, tag as SFW (Safe for Work). Additionally, use your best judgement when adding these tags, in order for everything to go swimmingly.

19) State your reason for any editing of posts. Edited submissions are marked by an asterisk (*) at the end of the timestamp after three minutes. For example: a simple "Edit: spelling" will help explain. This avoids confusion when a post is edited after a conversation breaks off from it. If you have another thing to add to your original comment, say "Edit: And I also think..." or something along those lines.
20) Use an "Innocent until proven guilty" mentality. Unless there is obvious proof that a submission is fake, or is whoring karma, please don't say it is. It ruins the experience for not only you, but the millions of people that browse reddit every day.

21) Read over your submission for mistakes before submitting, especially the title of the submission. Comments and the content of self-posts can be edited after being submitted, however, the title of a post can't be. Make sure the facts you provide are accurate to avoid any confusion down the line.

Please don't

- Engage in illegal activity.
- Post someone's personal information, or post links to personal information. This includes links to public Facebook pages and screenshots of Facebook pages with the names still legible. We all get outraged by the ignorant things people say and do online, but witch hunts and vigilantism hurt innocent people too often, and such posts or comments will be removed. Users posting personal info are subject to an immediate account deletion. If you see a user posting personal info, please contact the admins. Additionally, on pages such as Facebook, where personal information is often displayed, please mask the personal information and personal photographs using a blur function, erase function, or simply block it out with color. When personal information is relevant to the post (i.e. comment wars) please use color blocking for the personal information to indicate whose comment is whose.
- Repost deleted/removed information. Remember that comment someone just deleted because it had personal information in it or was a picture of gore? Resist the urge to repost it. It doesn't matter what the content was. If it was deleted/removed, it should stay deleted/removed.
- Be (intentionally) rude at all. By choosing not to be rude, you increase the overall civility of the community and make it better for all of us.
- Follow those who are rabble rousing against another redditor without first investigating both sides of the issue that's being presented. Those who are inciting this type of action often have malicious reasons behind their actions and are, more often than not, a troll. Remember, every time a redditor who's contributed large amounts of effort into assisting the growth of community as a whole is driven away, projects that would benefit the whole easily flounder.
- Ask people to Troll others on reddit, in real life, or on other blogs/sites. We aren't your personal army.
- Conduct personal attacks on other commenters. Ad hominem and other distracting attacks do not add anything to the conversation.
- Start a flame war. Just report and "walk away". If you really feel you have to confront them, leave a polite message with a quote or link to the rules, and no more.
- Insult others. Insults do not contribute to a rational discussion. Constructive Criticism, however, is appropriate and encouraged.
- Troll. Trolling does not contribute to the conversation.
• Take moderation positions in a community where your profession, employment, or biases could pose a direct conflict of interest to the neutral and user driven nature of reddit.

In regard to voting
• Downvote an otherwise acceptable post because you don't personally like it. Think before you downvote and take a moment to ensure you're downvoting someone because they are not contributing to the community dialogue or discussion. If you simply take a moment to stop, think and examine your reasons for downvoting, rather than doing so out of an emotional reaction, you will ensure that your downvotes are given for good reasons.
• Mass downvote someone else's posts. If it really is the content you have a problem with (as opposed to the person), by all means vote it down when you come upon it. But don't go out of your way to seek out an enemy's posts.
• Moderate a story based on your opinion of its source. Quality of content is more important than who created it.
• Upvote or downvote based just on the person that posted it. Don't upvote or downvote comments and posts just because the poster's username is familiar to you. Make your vote based on the content.
• Report posts just because you do not like them. You should only be using the report button if the post breaks the subreddit rules.

In regard to promoting reddit posts
• Hint at asking for votes. ("Show me some love!", "Is this front page worthy?", "Vote This Up to Spread the Word!", "If this makes the front page, I'll adopt this stray cat and name it reddit", "If this reaches 500 points, I'll get a tattoo of the Reddit alien!", "Upvote if you do this!", "Why isn't this getting more attention?", etc.)
• Conduct polls using the title of your submission and/or votes. These methods are not reliable because of vote fuzzing and are in that regard just asking for upvotes.
• Send out IMs, tweets, or any other message asking people to vote for your submission — or comply when other people ask you. This will result in a ban from the admins. Your submission should get points for being good, not because the submitter is part of a voting clique.
• Ask for upvotes in exchange for gifts or prizes. "Upvote me to the top and I'll give away ..."
• Create mass downvote or upvote campaigns. This includes attacking a user's profile history when they say something bad and participating in karma party threads.

In regard to new submissions
• Use the word "BREAKING" or other time sensitive words in your submissions. By the time your post reaches the front page, it probably won't be 'breaking' anymore.
• Post hoaxes. If snopes.com has already declared something false, you probably shouldn't be submitting it to reddit.
• Flood reddit with a lot of stories in a short span of time. By doing this you flood the new queue. Be warned, your future submissions may be
automatically blocked by the spam filter. Shadow banning (you can see your posts and votes, but no one else can) can, and will, take place in more severe cases.

- Write titles in ALL CAPS.
- Editorialize or sensationalize your submission title.
- Linkjack stories: linking to stories via blog posts that add nothing extra.
- Use link shorteners to post your content. There are few reasons to hide what you're linking to, and most of them are sneaky (if you are, use the "preview" feature that those services offer).

In regard to comments

- Make comments that lack content. Phrases such as "this", "lol", and "I came here to say this" are not witty, original, or funny, and do not add anything to the discussion.
- Announce your vote (with rare exceptions). "Upvote" and "Downvote" aren't terribly interesting comments and only increase the noise to signal ratio.
- Complain about other users reposting/rehosting stories, images, videos, or any other content. Users should give credit where credit should be given, but if someone fails to do so, and is not causing harm, please either don't point it out, or point it out politely and leave it at that. They are only earning karma, which has little to no use at all.
- Complain about the votes you do or do not receive, especially by making a submission voicing your complaint. You may have just gotten unlucky. Try submitting later or seek out other communities to submit to. Millions of people use reddit; every story and comment gets at least a few up/downvotes. Some up/downvotes are by reddit to fuzz the votes in order to confuse spammers and cheaters. This also includes messaging moderators or admins complaining about the votes you did or did not receive, except when you suspect you've been targeted by vote cheating by being massively up/downvoted.
- Complain about reposts. Just because you have seen it before doesn't mean everyone has. Votes indicate the popularity of a post, so just vote. Keep in mind that linking to previous posts is not automatically a complaint; it is information.
- Complain about cross posts. Just because you saw it in one place, doesn't mean everyone has seen it. Just vote and move on.

Secondly, Facebook, it is a social utility that connects people, to keep up with friends, upload photos, share links and videos (Alexica.com, 2019). It is the third-most popular social media platform used by people worldwide with billion users according to Statista Research Department, (2019). According to its report, the number of Facebook users worldwide from 2015 to 2020. In 2020 itself, the number of Facebook users worldwide is expected to reach 1.69 billion, up from 1.34 million in 2014. Facebook has rules and regulations for users to follow. Whitt (2009) wrote about “Facebook Etiquette Tips - The Dos and Don'ts of Social Networking Online” and what the writer stated are factual and practiced in real context. Etiquettes are both dos and don’ts. The writer regards Facebook as forum for connecting people together. However, it can be both can be a dream come true as an easy way to keep in touch with friends and loved ones, or it can be a nightmare for someone's professional and
social life. A little common sense and proper use of the site and its settings make for the best Facebook experience. Those who use Facebook as the platform to connect with friends, family, loved one, and organization need to know both pros and cons of Facebook. Dos and don’ts must be clear-cut prior to use this forum. In this regard, Whitt (2009) showed etiquette rules concerning friending on Facebook as given below:

**Don’ts:**
1) Don't be offended if someone does not reply to a friend request.
2) Don't ask someone to be your friend more than once.
3) Don't friend someone who you are not comfortable seeing your photos or hearing about your daily life.
4) Don't friend someone, especially younger Facebook users, if your content would be inappropriate for their age group.
5) Don't make friend requests of your friends' friends if you don't know them. Some Facebook users believe having a lot of friends is a kind of competition.
6) Don't tag photos of your friends on Facebook that could get them in trouble.
7) Don't tag your friends in unflattering photos.
8) Don't type something you wouldn't say in real life. You shouldn't hide behind a computer and say hurtful things that you wouldn't dream of saying to someone's face.
9) Don't share something on your page or in your status that you don't want everyone on your Friend list to know.
10) Don't type in all caps unless you really mean to shout, otherwise it's just annoying and becomes tedious quickly.
11) Don't share identifying information such as your address or telephone number.
12) Don't feel obligated to add applications because friends sent them to you.

**Dos**
13) Do choose those who already have an application to interact with for those applications that you also wish to participate in.
14) Do use Facebook messaging for sharing more private things.
15) Do reserve friending for people you truly care about and are interested in, not a way of keeping score of your popularity.

Finally, the writer concludes ‘Facebook can be a great tool, just remember to use common sense and follow the golden rule: treat others as you would want to be treated’.

It is clearly seen that rules and regulations or social etiquettes are set for the uses to follow. However, there are still some news reports and charges on various negative effects of social media. How about the role of religious ethics? Can ethics have the role to play in this social media platform in terms of enhancing users to utilize social media creatively and ethically?

Thailand is the Buddhist country with about 93.6 percent of Buddhists (nearly all of them Theravada Buddhists). Buddhism plays a great role in Thai society in shaping the Thai way of life and as root of tradition. The Buddha’s teachings help and train Thai people to well behave to be good member of society in which they live, admonishing them to differentiate good and bad action, what should be done and
what should not be done. The ethical principles can be applied in daily life activities, including social media activities. However, many legal cases related to social media are also reported. About 74% of the population of 69 million are active social media users, putting Thais among the world's top 10 users, according to a 2018 survey by Hootsuite and We Are Social (Reuters, 2019). During the last election (March, 2519), Thai Election Commission set ‘war room’ to monitor violations of election laws through social media that might be used political parties. Social media in the focus include Facebook and Twitter etc. What authorities wanted to monitor were posts that "spread lies, slander candidates, or use rude language", all violations of the new electoral law.

Thailand has enforced specific laws on computer crime, cybercrime. For example, defamation including person, family and publication is criminal under Section 423 of the Civil and Commercial Code (CCC) Chapter 3: Offence of Defamation and also as a criminal offence under Section 326 of the Penal Code (Defamation (Sections 326-333). For example, If the offence of defamation be committed by means of publication of a document, drawing, painting, cinematography film, picture or letters made visible by any means, gramophone record or another recording instruments, recording picture or letters, or by broadcasting or spreading picture, or by propagation by any other means, the offender shall be punished with imprisonment not exceeding two years and fined not exceeding two hundred thousand Baht. Osborne and Ampolpittayanant (2012) pointed out “Simply forwarding a video by e-mail, posting comments on a website or updating Facebook status can result in defamation”. If any statement is untrue and is injurious to the reputation or the credit, earnings or prosperity of a person, the CCC allows that person to sue for compensation anyone who made or circulated the statement (as cited in Osborne and Ampolpittayanant, 2014). The laws on computers/social media clearly reflect violations of social media rules. Cybercrimes on fake Facebook account, using other’s Facebook account, sharing and posting inappropriate digital pictures, messages, and whatever form. In this regard, there is an issue to be discussed about the role of Buddhist teachings in the current Thai context if they are not applicable to the digital age in terms of controlling violation of the rules and etiquettes of social media users although ethical teachings on what should be done and what should not be done are there.

A number of ethical teachings are taught in various dimensions as far as social context is concerned for both secular life and religious person. Notably, in Buddhism, no contradiction is made between religion and Ethics. This means that even for the sake of religion, one cannot transgress moral precepts. One cannot start a holy war under the name of religion. If killing is bad, it is bad in any way, under any circumstances. Even for the sake of religion, one never justifies it. In this paper, an issue of human conduct which is directly related to ethics will be taken into account for discussion to see how Buddhist ethics can be applied in human behavior in using social media in a creative way.

Buddhist Ethics has to do with human conduct:

In Buddhism, ethics has to do with what is good and evil, what is right and wrong. There are a large number of terms used to indicate what is good and what is bad;
1. **Kusala and akusala**- wholesome and unwholesome
2. **Punna and papa**- what is good and what is evil
3. **Anavajja and savajja**- what is morally correct, what is morally wrong
4. **Karaniya and akaraninya**- what ought to be done and what ought not to be done
5. **Ariya and anariya**- what is noble, what is ignoble
6. **Settha and hina**- what is for most, excellent and what is low
7. **Sukka and kanha**- white and black (good and evil)
8. **Dhamma and adhamma**- righteous and non-righteous
9. **Sucarita and duccarita**- well-behaved and ill-behaved
10. **Samacariya and visamacariya**- even-behaviour and uneven-behaviour

All these terms are used in Pali literature to describe what is morally good and what is morally bad. To judge what is good what is bad, criteria are needed.

In Buddhism, the following criteria are suggested to judge what is right and wrong. According to Buddhism, the moral criterion is purely psychological. There is no compulsory for you to follow Buddhist moral ethics. Therefore, Buddhist ethics is more autonomous, independent of any outside power like God. So the internal individual is the agent. He is the captain of his own destiny. He is responsible for what he does. Here are three main criteria for judging what is right, what is wrong:

1. **Psychosocial criterion judged by motivation**
   The basic criterion is that any act performed and motivated by *lobha* [covetousness], *dosa* [hatred], and *moha* [illusion] is bad, and any act performed and motivated by *alobha* [generosity], *adosa* [sympathetic joy] and *amoha* [wisdom] is good, *kusala*. This shows how moral act should be judged. It is purely psychological. Whatever leads you to harmony, mental health is good, whatever leads you to disharmony and mental illness is bad.

2. **Comparison criterion**
   If the moral criterion is purely psychological, are the moral propositions subjective? This question will arise. Then, the Buddhist answer to the question is that the experience of pain and pleasure is common to all living beings, because *sabbesattasukhakamadukkhapatikula*- all living beings go after pleasure and avoid suffering. Therefore, what is disagreeable to me is disagreeable to others also. If you do not like aversion, the other certainly do not like aversion. If I do not like to be killed, so are other. How do we know it? It is through inference. “*Attanamupamamkatva (Dhammapada Verse130)*-you place yourself in others’ position”, and then think of other. This is self-comparison. All are scare of death, all are scared of killing. Therefore, you should compare yourself to other, depriving other’s life. So in that case, though the criterion is purely psychological, but the moral propositions are objective.

3. **Self-reflection**
   Another criterion is that when an act is to be committed, a person has to reflect in three ways; *Attadhipateyya*, *Lokadhipateyya*, *Dhammadhipateyya* (D.III.220; A.I.147)
   1) **Attadhipateyya**- conscience: Evil acts result in self-blame. One conscious is disturbed. That is one reason why one should refrain from committing evil acts. The internal monitor, the watcher is within anindividual. One controlsonself.

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1. *Sabbetasantidandassasabbesamjivitampiyamattanamupamamkavatvanahaneyyanaghataye.*
   All are afraid of the stick, all hold their lives dear. Putting oneself in another's place, one should not beat or kill others.
2) Lokadhipateyya: It refers to what the world thinks about, because evil acts will be condemned by the wise, good acts will be appreciated by the wise (vinnu). Here the standard is vinnu (wise people), not bahujana [ordinary people].

3) Dhammadhipateyya: One must think whether it is in consonance with righteousness. All what one does must be conformed to dhamma (righteousness), because according to Hinduism and Buddhism, the distinction between man and animal is dhamma, moral sense, consciousness, righteousness. One who is devoid of moral sense is like a beast. Therefore, hiri [moral shame] and ottappa (moral dread) are guardians of the world.

So, the first one is self-control by conscience, the second is controlled by the world, and the third is righteousness. Therefore, there alwaysis self-reflection, self-examination. One must reflect before one does [paccavekkhita]. One must examine the act one proposes to do, whether it leads to;

1. Atta-bhayabadha- one’s own harm
2. Para-bhayabadha- the harm of others.
3. Ubbaya-bhayabadha-the harm of both.

Any act which leads to one’s own harm, the harm of others or the harm of both is akusala. Therefore, one must refrain from committing such an act. But any act that leads to following 3 aspects is kusala.

1. Atta-hita-your own good
2. Para-hita-the good of others
3. Ubbaya-hita-the good of both.

Application

From rules and etiquettes set in social media, Reddit and Facebook cited as example above, users are required to follow what should be done (dos) and what should not be done (don’ts). Simply, any activities on social media classified into ‘dos category’ are Kusala, good of both. In contrast, activities leading to harm to oneself and other or both are included in ‘don’ts group). The followings are mindsets on the application of Buddhist ethics before using social media.

1. One must take psychosocial criterion into consideration before committing any social media activities. Be aware of any activity on social media by verbal and written forms committed under the power of lobha [covetousness], dosa [hatred], and moha [illusion]. Rethink before post and share words and images or whatever form of the message. Critically think with self-examination if his or her post or share and other activities are conducive to benefit or undesirable results to himself/herself, others or both.

2. Comparison criterion is taken into account before doing any social media activity. Rethink what one likes and dislikes. Keep in mind that ‘what is disagreeable to me is disagreeable to others as well. If you do not like aversion, others certainly do not like aversion as well”. So, before posting and share, critical thinking is needed. Someone just posts and shares when he or sees the
posts and shares without investigation whether they (posts and shares) are good for oneself and other or both. Such activities may bring about defamation or harmful result to individual or public as a whole like sharing rumors of some untrue events.

3. Self-reflection – conscience

Social media users know and experience consequences of their own undesirable acts. Once the evil act is committed, one’s mind is disturbed. Consequently, always keep in mind that an action has reaction in return. When one posts and shares something with the intention to harm another, the owner of the post and share knows that is his/hers. Besides, if his/her evil act is known by the wise, the action will be condemned by the wise. Social media users are aware of their adverse acts although the wise do not know. But later these acts will be disclosed. In addition, social media users should build up moral shame or hiri and moral dread or ottappa. Before sharing and posting detrimental messages, images, and other digital forms to people or public, moral shame should come first in the users’ mind, thinking about negative consequences and estimating undesirable results as well. With moral shame, social users fear of evil acts. Then, they can control themselves before doing averse social activities.

Conclusion

Social media in this digital age in the 1st century play acrucial role in every aspect of life of human society. They have both pros and con. Great benefits can be gained if one uses them wisely and appropriately. In contrast, great loss on various dimensions can take place if the users cannot control themselves and utilize these technological tools to serve their purpose to harm others. Social media in verbal form and written, including images and other digital form can be used as an effective tool to make people’s job successful and also terminate people as well. As a result, countries worldwide enforce laws on computers and internets to prevent crimes from internet. Problems in social media can be lesson if the users apply Buddhist ethical principles before committing social media activities, particularly undesirable shares, posts and other related act. The most applicable ethics are ethics with human conduct in enhancing social media users in social media activities. The users can apply criteria to judge what they post and share are right or wrong, desirable or undesirable, good for oneself, other or both. Also, the criterion of self-comparison to make users know what one likes and dislikes. They will not commit averse social media activities to others, knowing that others also dislike. Moral shame on undesirable acts that lead to unwholesome consequences can also be generated by the social media users.
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Kalamasutta: Principle for Cultivating Critical Thinking

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Abstract

In Pali Tipitaka there are many suttas which deal with the principles of wisdom. Kalamasutta is one of them which is very interesting to study. It provides a suitable base for practice for the study of critical thinking in 21st century. Today, information comes from various sources, which may be true or may be false. How does the teachings in the sutta, help to cultivate critical thinking to differentiate the reliable and unreliable sources? According to the kalamasutta, there are ten sources of information among them eight are external sources and two are internal sources.

These sources can direct one, to know and understand the self in order to believe that knowledge is the basis of truth and for inquiries in the practice that relates to the discipline of seeking truth. Thus, the Buddha named ten specific sources where knowledge should not be immediately viewed as truthful without further investigation in order to avoid fallacies, partly in subservience to the reigning paradigm of objective scientific knowledge, as it has become fashionable to hold, by appeal to the Kalamasutta.

We found that the Kalama people had three questions of critical thinking; 1) What, what is the truth or what is false?, 2)How, how to amend their question and last one 3)Why, why is it so? It is these three questions that are based on critical thinking. When we analyze the Kalamas framework in the Kalamasutta, we find that the Buddha does not reject the teachings of all Brahmins. He presented the Dhamma in Buddhism to the Kalamas. If the Buddha does that, it shows that he himself is not different from the Brahmins. He expounded & glorified his own doctrines, but as for the doctrines of others he did not denounce.

Keywords: Kalamasutta, critical thinking, cultivating critical thinking
Influence of Zen Buddhism on Buddhadasa Bhikkhu

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Abstract

Zen is one of Mahayana Buddhism which is propagated in China, Korea, Japan, Vietnam, and many counties in the West. In Thailand Zen was known widespread because of Buddhadasa Bhikkhu’s translated works. Furthermore, he has studied and applied its teachings for developing Thai society through establishing Suan Mokkhabalarama. There is the center of study and practice the Dhamma which reflects the concept of Zen, such as Spiritual Theater, Curved Stone Court, Natural Uposatha, Dhamma Ships, Avalokiteshavara Bodhisattva’s Statue, and Nalike Pond. These places are strongly influenced by Dhamma puzzle of Koan and Zen garden arrangement which emphasize the cultivation of wisdom, living simple and in harmony with nature. In the term of Dhamma teaching Buddhadasa Bhikkhu mixes the principle of Theravada and Zen teachings properly, that is the principle of working with empty mind.

Keywords: Zen Buddhism, Buddhadasa Bhikkhu, Suan Mokkhabalarama
Law and Politics
The 'Role' of Law in the Perception of Thai Political Science Students: A Report of the Case Survey at Phetchabun Rajabhat University

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Abstract

The study of law and politics first developed in the 1880s. The interdisciplinary connections of the study of law and politics have varied over time. Law is an essential instrument of government to govern, to structure, to regulate and to control society. In short, indeed, law shapes how politics is conducted. In Thailand, a Political Science graduate has been requested by the labor market to not only know how to govern but also to know about laws. Many Political Science curriculums have been designed to contain some law subject, and the Political Science curriculum of Phetchabun Rajabhat University has no exception. This article is a report of the case survey from the 2018 classroom subject which was organized to answer the question “Do or Do not the education of government and politics need the knowledge of law, and why?” The result of the report revealed the paradox in the perception of Political Science students on the ‘Role’ of laws in politics which may be influenced by the important contemporary political situation in Thailand.

Keywords: Politics and Law, Political Science Education in Thailand, A case survey at Phetchabun

Introduction

The most crucial concept of Political Science is ‘Politics’. One of the most basically definition of Politics is ‘what concerns the state’. This is the traditional tendency for Political Science academic who focus upon the ‘personnel and machinery of government’. To study politics, in the other word, is to study how the government exercises of it power or authority. Indeed, the most formal and most powerful characteristics of government in doing the public affair are about the law especially the using of law enforcement (Heywood, 2010).

Cerar (2009) distinguished three fundamental dimensions of Politics: the institutional dimension, the normative dimension, and the process-related dimension. The institutional dimension is the operation of Politics in various regulated state and non-state institutions; political parties, social movements, public media, the legislature, and the government. The normative dimension is the policy and entails which define the basic societal values and objectives. And the process-related dimension is the implementation of the social power and authority and built up through conflict and consensus. Cerar pointed out that;
“… from an institutional perspective the law is expressed primarily through two factors: the establishment of specific state bodies legitimized by means of their specific professional legal structure and functioning (e.g., the courts and the state prosecutor's office), and non-state institutions where the attorneyship belongs. From the normative perspective, the law is the creation of general and individual legal norms. From the process-related perspective, the law appears by means of various procedures like the legislative or criminal procedures where legal solutions are formed through the functioning of state bodies and individuals. . . The relation between politics and law has both a progressive function and a safeguarding function. Law and politics, separately or together, both encourage and suppress the development of societal relations, while they both also function to bring about justice and order. The essence of their "separate and connected" but not integral existence is to help set each other's borders. These borders prevent excessive one-sidedness in politics or the law, similar to a "checks and balances" mechanism. In actuality, all legal institutes are a partial reflection of individual or collective political decisions at a certain time and in a certain environment, which have assumed a legal form and nature…”

In short, law is one of the products of politics. Law is not only the principal instrument by which the government exerts its will on society, but law is also the means by which the government organizes itself. Law is not only the product of politics but also constitutive of politics.

The study of law and politics first developed in the 1880s. The interdisciplinary connections of the study of law and politics have varied over time. Till this day, there is no single best way to divide up the field of law and politics, but, like the discipline of political science, the field of law and politics has readily borrowed concepts and methods from other disciplines making the study of law and politics a wider-ranging. (Martin, and Hezelton, 2012; Whittington, Kelemen, and Caldeira, 2013). Law and politics are deeply intertwined. Law is an essential tool of government action, an instrument with which government tries to influence society. Law is also the means by which government itself is structured, regulated and controlled. It is no surprise, then, that law is an important prize in the political struggle and that law shapes how politics is conducted. (Whittington, 2015)

The study of Law in Phetchabun Rajabhat University’s Political Science curriculum

Rely on every Phetchabun Rajabhat University (PCRU) academic year’s labor market survey since 2013, the basic requirement of Political Science graduated is “must have both the basic knowledge government and the basic knowledge of law” (Self-Assessment Report of the Department of the Political Science, PCRU, Academic Year 2013, 2014, 2015, 2016, 2017, and 2018; http://academic.pcru.ac.th). These results have compelled the Political Science curriculum to design subject to meet the labor market demand. Consequently, PCRU Political Science students always are requested to enroll both political science subjects and laws subjects.
Indeed, this trend has been fashioned in most Thai Political Science curriculum, and the PCRU’s has no exception.

From the beginning of the department of Political Science of PCRU which the first admission was occurred in 2009. There are 3 curriculum; Bachelor of Art (Political Science) 2009, Bachelor of Political Science (Political Science) 2012, and Bachelor of Political Science (Politics and Government) 2017, were used to pilot the political science education in Phetchabun Rajabhat university (PCRU). In every curriculum (2009, 2012, and 2017), the subject of ‘Introduction to Laws’ or ‘Jurisprudence Law’ is the mandatory subject for first year of the political science undergrad students. In the 2009 and 2012 curriculum describe ‘Introduction to Laws’ as below;

“ This subject, entitled "Introduction to law" explores the meanings, branches and subjects of laws. It also examines the legislative processes, starting from submissions to the proclamation of the laws, abolish, its precedent and interpretations, and judiciary processes and procedures. This subject will also examines the principles of civil, commercial, and criminal laws”. (note: underlined by the authors)

While the 2017 curriculum describe;

“Introduction to laws, legal meaning and important of laws, legal process starting and canceling, the legal interpretation, etc. Methods and approaches to interpret laws. Introduction to Civil laws and Criminal Laws”. (note: underlined by the authors)

Other mandatory subjects were ‘Constitutional Law’ and ‘Administrative Law’ which can be orderly enrolled in first and second semester of the 2nd year. For the subject of Constitutional Laws in the 2009 and 2012 curriculum mention;

To study historical background of the Thai constitutions. This includes the purposes and aims of the Constitutions of Thailand from past to present, as well as investigating the rationale and philosophical behind the proclamation of the law. This subject of study also include the examination of the doctrine of separation of power, particularly with reference to the interrelation between legislative, executive, and judiciary, the comparative analysis of the Thai Constitutions, as well as its amendment. (note: underlined by the authors)

While the 2017 curriculum is;

Definition, history and evolution of constitution, types, political institution status of constitution, civil right and freedom, theories; separation of power, sovereignty. Including other organic law. (note: underlined by the authors)
And For the subject of Administrative Law in the 2009 and 2012 curriculum define;

Study process of drafting or source of the Administrative laws, enforcement, role, status of political institution, political actors, responsibility of political officers. (note: underlined by the authors)

And the 2017 curriculum is;

Fundamental principles and significant characteristics of an administrative officer and the administrative laws. Source, definition, using, and interpretation on administrative laws. Theories on action and regulations of governmental administrative, administrative contract and liability, power controlling system on governmental administration. Definition, significant, jurisdiction, procedure, provision measure before judgment, appeal process in the administrative court. (note: underlined by the authors)

As we have seen from these course descriptions, the concept(s) of ‘law’ which the PCRU Political Science students need to understand can be easily organized into 2 groups. The basic knowledge (source, history, evolution, definition, meaning, principle, theory, status) on the one hand, and the applications (action, provision, process, implementation, enforcement, purpose, examination, analysis) on the other hand.

**A case survey at PCRU on the 'role' of law in the perception of political science students**

In 2018, in the class subject ‘Seminar on Politics and Government’ which is organized for the 3rd year political science student, the seminar topic deployed for discussion was “Is laws still matter for political science?”. There were 84 students enrolled in the subject. The seminar was organized for 4 hours in 15 weeks; 10 weeks for normal discussion, 3 weeks for preparation for the final seminar, and 1 weeks for the final seminar. Every week except the weeks of preparation for the final seminar, the instructor ignited the discussion by deployed 10 questions as follow;

1. “Why we need law?”,
2. “Is law matter for the state officers, and why?”,
3. “If politics is something about power relation, and the basic usage of power is by force, why we still need law?”,
4. “Is the dictator who can siege all political power in the state still need law?”,
5. “Some theorists said, we do can govern by not to govern, is the govern by not to govern needs laws?”,
6. “If politics is something about interest, and for Buddhism, interest is something about greed, Is politics ethical?”,
7. “If law can be enforced to kill bad people, but even bad people is a human, law can be used to kill some human for some good reason of society, Is law ethical?”,
8. “What is the good, what is the bad, It is something about morality of just a human justification, Is ethics ethical?”,
9. “Is law a state officer ethics or instruments?”. 
10. “Do we clearly understand law, what ‘is’ law, and what ‘law’ is?  

After the 10th discussion, student had been divided into 4 groups. Every group were assigned to make a 30 minutes speech on the topic “Do or Do not the education of government and politics need the knowledge of law, and why?” Every group had 3 weeks for the preparation. In the last week, the final seminar was organized. Every group had 30 minutes to declared the speech. After each speech, there were some discussions from other groups to support or dispute any logic of the speech. Lastly, after the last group’s speech and discussion, the final assignment was deployed.

Students were requested to write at least 5 pages essay in the topic “Do or Do not the education of government and politics need the knowledge of law, and why?”

The recurrence answer of the question in these essays can be summarized and categorized into 2 groups; the (basic) knowledge of law, and the use (application) of law. As follow;

The (basic) knowledge of law;
1. Law is a social contract.
2. Law is the most formal societal norm, principles, or creed that must be respected.
3. Law is created by the basic of morality and ethics.
4. Law is the secularized religious morality and ethics.
5. Law is the government order and instrument to make peace.
6. Law is modernity and humanity version of brute force.
7. Law is subjects that should be known not only the political scientists, but also everybody.
8. Law is also, not only the history writing, created by the winner.

The use (application) of law.
1. Law is the most formal and powerful instrument for officers in secure society.
2. Law make human equal before the law. But the richer always has ‘more right of equal’ than the poorer.
3. Law must be used not only in ‘a law principle’ but ‘a political science principle’ also.
4. Law can be used both to manipulate and/or protect the poor. The officers who involve in the law process must be trained to be the righteously.
5. Law is rigid, it must be more flexible.
6. Law should be not generalized.
7. Law must be enforced according to situations.
8. Law should be exempted for some situations.
9. Law must be easy accessed by everybody.

These answers are paradoxically. While many of the students realized the normative characteristics of law as we have just seen by the answers in the (basic) knowledge of law group. At the same time they reclaim the application of law should not be generalized. To answer ‘How the norm can’t be used in general?’ is as interesting as to ask “Why the students demanded this paradox?”

Many of their answer made me recall to one of the most important situation in Thai politics. In August 2001, Thai constitutional court decreed ‘not guilty’ on the unusual share transfers case of prime minister Thaksin Shinawatra. By that ‘honest mistake’ case, Thai public was first introduced with two powerful jargons; ‘a political science principle’ (Thai: หลักรัฐศาสตร์), and ‘a law principle’ (Thai: หลักนิติศาสตร์).

These two jargons still have been used by Thai press and have found public favor from that day. Although, many conflicts in Thai political arena demanded a political science principle than a law principle. Some said the two principles can be employed together with some conditions (ie. Nidhi, 2005; Chamnan, 2014).

Generally, Thais understand loosely on these jargons. Without an academic understanding, while a law principle is recognized as a ‘stiff’ method, a political science principle is understood as a ‘flexible’.

Many answer explicitly mentioned ‘a political science principle’ of law enforcement will make the solution by law which fit for everybody and every situation. This is clearly that for the PCRU political science student percept ‘law’ as an instrument for governance than government. In every single name of peace and order, the governor should be the user of laws, not the used by laws. The good character of the good governor is a flexibility one. Here is the final result of a report on the case survey at PCRU on the 'role' of law in the perception of Thai political science students.

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The Strengthen Guideline of Democratic Citizenship of the Youth in Surin Province

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Abstract

The purposes of this research were 1) to study democratic citizenship of the youth in Surin province 2) to compare the democratic citizenship of the youth in Surin province categorized by gender, age, educational level, school size, and participation in school activities 3) to examine the guidelines for strengthening democratic citizenship of the youth in Surin province. The samples were 395 upper secondary school students from district schools in Surin province under the Office of Secondary Educational Service Area 33. In this mixed methods research investigation, a questionnaire was used as a quantitative instrument for data collection, a group interview was used as a qualitative method instrument, and statistical analysis used were t-test and F-test.

The research results revealed that: the overall democratic citizenship of the youth in Surin province was at a high level When each aspect was considered, all aspects were arranged in order from the highest to the lowest mean as follows: respect for the rights of others, social responsibility, and respect for rules. The comparison of democratic citizenship of the youth in Surin province classified by gender, age, educational level, and participation in school activities showed no statistically significant difference while the school size displayed statistically significant difference. In addition, The guidelines for strengthening democratic citizenship of the youth in Surin province included: 1) trainings and activities to strengthen the nature of citizenship in democracy for youth to gain knowledge and understanding for applying in their everyday life, family, school and community 2) teachings and learnings in social studies, religion and culture to emphasize students to perform democratic citizenship activities. 3) rising awareness about the role of youth cultivating and creating in the level of family, school, community and nation 4) having parents, teachers, community and country leaders as a good role model of good citizen for youth in democracy and 5) promoting a campaign through social media.

Keywords: strengthen guideline, democratic, citizenship, youth
Create Consciousness Citizenship of Local Administration Organization in Loei Province

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Abstract

The research entitled “Create consciousness citizenship of Local Administration Organization in Loei Province.” aimed at studying policy 1) Study of the concept of citizenship consciousness in local government organizations. 2) Study of the present state of affairs in the citizenship of the local administrative organization, Loei Province and 3) To propose ways to raise awareness of citizenship in local administrative organizations, Loei Province. This research uses the research methodology is Apply Research between Qualitative Research and Quantitative Research by In-depth Interview from key informants. And group discussions by qualified and relevant people. Researchers randomly sampled Local government organization in Loei area, 7 districts, one each. (1) Tambon Na-Or, amphoe muang (2) Municipality of Chiangklom, amphoe Pakchom (3) Municipality of Thart, amphoe Chiangkan (4) Municipality of Nadokkam, amphoe Naudung (5) Municipality of Thalee, amphoe Thalee (6) Municipality of Pakpuan, amphoe Wangsapung (7) Municipality of Erawan, amphoe Erawan. The research found that.

1. Analysis of participation in political / community activities found that 1) Involvement with the community for complaints. Suggestions for policy proposals for the benefit of the community are the most engaging activities is once in a while 71 people, 50.4% and 2) Community volunteering / donation of money or things to help others in the community. The most engaging part is, once in a while 74 people, 52.2%.

2. The results of the analysis on the consciousness of citizenship in the 7 local administrative organizations in Loei Province were as follows. The leaders and personnel of the local government organization had the opinion on the awareness of the citizenship in 3 aspects. At the level of agreement. The average was 4.65. When considering each side, found that. Respect the rules at the agreed level. The mean score was 4.63. Respect the rights of others At the level of agreement. The average was 4.68.

Keywords: consciousness citizenship, local administration organization
Challenges for Moral Right of Authors in Myanmar: Perspective on Tortious Liability System

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Abstract

This paper is concerned with the impact of judicial perspective on the moral right of authors in Myanmar. The fitness to reproduce, modify and redistribute on copyright works through technology has made it extremely difficult for authors to monitor the use of their works and, where problems arise, to affirm their moral rights. In spite of these difficulties, however, this paper argues that the protections of moral rights are actually importance for the honor of copyright owner. This paper suggests that to contributiona new approach of the moral rights: the focus in the future should be on grant award on their efforts authors and also their public to protect culture by ways of joins tortious liability. Consequently, Myanmar needs to adopt adequate and systematic protection for the interest of copyright owner because of new growing technologies advance and to fill the gap of social and mutual interest through international standard.

Keywords: tortious liabilities, moral right, infringement, Myanmar, copyright awareness

Introduction

In contrast, the premise of moral rights is that creative work is, in essence, personal, and gives rise to a privileged relationship between an author and his work. The most widely recognized moral rights are the rights of attribution and integrity. As its name suggests, the attribution right means simply that an author is consistently entitled to have his name associated with his own work. According to the integrity right, the author also has the right to demand that the artistic integrity of his work remain uncompromised by modifications or distortions though, in most jurisdictions, the author must show that his reputation is at stake in the matter. The essence of attribution and integrity interests is the author’s ability to respond to the exploitation of his work by asserting his rights in a court of law. Currently situations in Myanmar, the copyright owners have faced many problems of copyright infringements and enforcing in their rights, of course, not only on the exclusive right but of in moral right for that no one can deny. Copyright has become the legal companion to technological innovation, allowing copyright principles to enjoy a revived status in the world of information technology. In the current Myanmar legal environment, two
kinds of basic difficulties confront the authors’ moral rights. First, there is the practical problem of enforcing these rights when the author’s capacity to control the use of his work is severely limited. Second, at a deeper level, the conceptual integrity of moral rights doctrine is threatened by the transformation of culture in the information era. The practical and conceptual problems confronting moral rights should not be underestimated. They are grave and fundamental questions going to the heart of the doctrine. It is unlikely that they will be resolved by the realistic determination of how moral rights protections for authors can be implemented and applied more effectively, a technical issue that will need to be clarified over time through legislative and judicial action by way of tort. Moderately, the present difficulties of moral rights reflect for Myanmar not only domestic but of foreign works concern. This paper is concerned with one particular aspect of the problem: granted on the moral right by route of tortious liability. It argues that the future of moral rights infringements to understand this doctrine as part of a shifting cultural landscape, in which the terms of the relationship between author and audience have changed fundamentally. Indeed, these changes present exciting opportunities for cultural development. Far from becoming irrelevant, moral rights could play an integral role in realizing the democratic possibilities for culture inherent in the information technology age.

Aims and Objectives

The purpose of this paper is to explain the copyright law International and Myanmar and Its aim is to protect the non-commercial interests of artistic authors. Extend preserved in copyright statutes around the world, the scope of moral rights provisions transcends the general legal objective of protecting the professional livelihood of authors. It enables to aware the existing Moral Right of Authors in Myanmar.

Methodology

The Methodology of this paper requires a detail studying and undertaking the quantitative as well as qualitative research methods including a questionnaire to get data, the interview may also be conducted in Myanmar IPAM Organization, Myanmar IP office in Naypyidaw. This documentation will include first the copyright law and decided cases Myanmar based on the questions of Tort liability. The main method base on the case study instrument investigates a fashionable occurrence within its real-life perspective. It helps researchers understand a difficult issue or object and spread experience or add a strong point to what is already known through previous research. Using this method, the researcher can associate the theory and practice under a particular condition in order to obtain a clear insight into complex issues. It is expected that a better understanding will be obtained of how the courts apply the laws, thereby exploring the difficulties the courts and right of holders are facing. Based on this, the author will attempt to express possible approaches to solve the problems.
Findings

According to WTO and WIPO and TRIPS Agreement, Myanmar should enact the of tort liability system to fill the gap of the protection on Author’s Moral Right in copyright regime for the advanced technology era. The finding of this study has shown that the need for strong legal instruments for copyright protection by liability principle and its remedies. Thus, to become an adequate provision for the basic requirement of the legal function, it is necessary to fulfil and amend the relevant legal standard of remedies and penalties for the Myanmar Author Moral Right in accordance with the TRIPS Agreement under the guidance of WTO and WIPO. The findings have further suggested that Myanmar should also develop greater sensitiveness towards deterrent copyright infringement. Therefore, the urgently required is the generation of copyright consciousness as an aspect of Myanmar's social, economic and cultural development.

Discussion

Moral Rights in Republic of the Union of Myanmar

Moral Right is a legal right for the protection of honour and reputation. In Myanmar, authors are facing plagiarism on their moral and property rights in various ways. The verdict even happens in Myanmar, the greatest composer of Myanmar; "Myoma Nyein" committed suicide by emotionally because he could not prevent his economic right and moral right from his creative works. Although, the songs and music composed by “Myoma Nyein” are very popular among Myanmar people up till now, the person who has made these intellectual properties could not have any advantage on the moral right for their creations in Myanmar. In general, the moral right can be considered directly protection for infringement of the writer until now in Myanmar, the authors are facing with infringement of their moral right in various ways but it does not come before the Court. But some cases may be considering only infringement of property right but they may, of course, be facing the moral rights.

On the case of the novel, “Gone Myint Thu” written by Daw Dagon Khin Khin Lay was published in 1939. Afterwards Daw Dagon Khin Khin Lay filed before the Civil Court, for the case of copyright infringement against Moe Film Company and U Kyaw Swe for their movie “Pone Pama”, claiming that the movie had been based upon her novel without her authorization to do so, and on the same day of filing the case, Daw Dagon Khin Khin Lay applied for and was granted an injunction against the showing of the movie at the “Royal” and “Ya Da Na Pone” cinema halls. It is the infringement of integrity right of the author. The dispute over the adaptation, without authorization, of Saya Shwe Oo Daung’s “Yadanabon” novel, to the movie of the same name by the A 1 Film Company has settled amicably out of Court. It is the infringement the right to withdraw or retract. Pho Parlay, the director of Yangon Films adapted without authorization, Saya Thar Du’s novel “Chit San Namuna” to the movie. Saya Thar Du filed a case at Criminal Court of the copyright infringement under Section 7 of the Copyright Act against Daw Khin Ma Ma, the owner and Pho Parlay, the director of Yangon Films. The case never reached a Higher Court. Following the framing of charges, the two parties came to terms and the case was amicably settled. It is the infringement of the right to withdraw or retract. The dispute

over the making of the movie “Hnin Si Ni Ein Met” by the director Win Pe from the novel written by the author, Tet KaTho KhinMaung Aye without getting the latter’s authorization, was amicably settled out of Court. It is the infringement of the right of disclosure. Maung Za Ni Ya wrote and published the novel called “HKa Paik Hneik” and the Film Star, Kyaw Hein made a movie called “Mon Htat Chein Dwin Nay Win Thi” based on the said novel. Maung Za Ni Ya made a complaint of copyright infringement to the Tamwe Township Literary Workers’ Association. The Association in conjunction with the Bahan Township Literary Workers’ Association intervened between two parties and the case was settled amicably out of Court. Some disputes over copyright are neither taken to Court nor settled amicably out of Court. Few cases in the field of copyright are mostly settled by negotiation, mediation through a non-governmental organization such as Music Association, Motion Picture Federation and Writers Association. 

U Hla Win and Other v. Daw Kyi Kyi alias Daw Yin WaeLwin case, on infringement of the copyright of the writer by the name of Yin Wai Lwin in regard to her novel, “Hmine Wai Chit Tai KhetThitsar”. The writer filed the suit against the Daw Kyi KyialiasDaw Yin Wai Lwin for the compensation in order to infringe the of the copyright for her novel which was used for the script of the film entitled: “Hmine Wai Chit Thaw KhetThitsar”. The Supreme Court ordered to compensate kyat 50,000 to the original author quoting Section 2(1) of the Copyright Act as follows: copyright in a work shall be deemed to be infringed by any person who, without the consent of the owner of the copyright, does anything the sole right to do which is by this Act conferred on the owner of the copyright. This case was decided on 4th November 1999 at the Supreme Court before Justice U Tun Shin under Section 2 (1) and Section (6) of the Copyright Act. The Court awarded damages of amounting Kyats 50,000 be paid by the infringer U Hla Win, proprietor of “Pho Wa” Video Production, to the copyright owner Yin Wai Lwin (Pyay) for adapting without authorization, the author’s novel “Hmine Wai Chit Tet KhetThitsar” to a video movie under a slightly changed name. According to paragraph 6(1) of the schedule, if the copyright has been infringed, the owner is entitled to all such remedies by way of injunction or interdict, damages, accounts and otherwise, as are or may be conferred by law for the infringement of a right. Section 54 of the Specific Relief Act, 1877 is applicable as the legal remedy for the infringement of copyright.

Above the mentioned case, the problems of who is the author are important. If the Right of Author has who is the original creator of that property, he or she is getting the status of favour. Therefore, the effective way of protection will be needed for the author or the original creator. So to protect their rights plays an important role in their life. From historical perception human being is an inventive creature and therefore mankind gains the progress step by step from the stone age to nowadays, internet age. Any Inventor should have an advantage of his/her invention. Nevertheless, the inventor was not sure to receive profit for the invention in the far previous time; of course, no specific law protected the inventor, at that time. The economic growth of the nation is driven increasingly by creativity and knowledge of their people. Effective Intellectual Property systems which create incentives for innovation and structures for sharing the results are keys to unlocking this human potential. An efficient and equitable intellectual property system can help all countries to realize intellectual property’s potential as a catalyst for economic development and
social and cultural well-being. The intellectual property system helps strike a balance between the interests of innovators and the public interest, providing an environment in which creativity and invention can flourish, for the benefit of all.

There are a few examples of copyright infringement cases which have occurred in Myanmar over the years. Although Section 13 of the Myanmar Copyright Act 1914 states that every suit or another civil proceeding regarding infringement of copyright shall be instituted and tried in the High Court or Court of District Judge. Most of the above disputes eventually came to an end with no final decisions as to who the true owners of the copyright were. This is because of a cause of much frustration for the genuine inheritors of the copyright and a waste of time and money for all concerned. Nevertheless, artists still tend to follow this means of dispute settlement, rather than to use the official legal channels. This leads to the assumption that the reluctance of authors and artists to register their work and make use of the law to settle their dispute is because they feel that the paltry amount of damages which the law provides is absolutely out of proportion with the high cost of legal proceedings. This shortcoming of the Copyright Law 2019 needs to be addressed by introducing fines and penalties which are adequate enough to offer fair compensation and at the same time acts as a deterrent to infringement. Therefore, it is needed to have an effective way and new, enacted laws and to establish systematic machinery for the protection of the infringement of author moral rights in Myanmar.

Tortious Liability for Copyright Infringement in Myanmar

In looking for a state in the law of Myanmar applicable to torts, from English common law experienced significant changes over the 150 years in which it was developed. One Indian decision took the view that the ‘justice, equity and good conscience’ provision, which is replicated in section 13(3) the Burma Laws Act, provided the basis for the English common law rule of double actionability to be applied to torts committed outside India; and in the absence of other authority, this section 13(3) has to serve as the legal foundation for the modern law. A tort, for the purposes of the law of Myanmar, must be taken to mean an obligation which is not contractual, whether the obligation arises under Myanmar law or foreign law. There is no sense in attempting to find a more exact definition, for the only effect of doing so would be to leave some obligations out of the law overall, on the ground that they are neither tortious nor contractual in nature. There would be no sense in that. That is not to say, of course, that every such obligation arising under a foreign system of law will be recognized and enforced in a Myanmar court in the same way that a tort would be as understood in Myanmar domestic law. If the issue or claim before the court is based on an obligation but is not contractual in nature, it will fall within the scope of as a tort, or as though it was a tort. According to the Myanmar legal theory torts can be classified into three different categories. They are an invasion of interests in person, invasion of interests intangible property or intangible property and invasion of interests in reputation. The forms of intangible or incorporeal property in the legal field are patients, copyright, registered trademarks, and the various franchises i.e. (Legal rights or privileges) which may be vested in private persons, such as markets and ferries. Clearly, the law to these matters belongs to the law of property. And every man has an absolute right to protect his reputation. It is a right in rem, i.e., a right absolute and good against the entire world. It is the most valuable property of which a
man own for himself. Reputation is not what a man thinks of himself. It is what others think of him. In Myanmar when a tort action arises the proper plaintiff is the person injured by the wrongdoer or, in case of death, the person with a vested right to sue. Where several persons are injured by a tort, any one of them may sue without joining the other injured parties. Where there is more than one plaintiff, one or more of them may be authorized by the others to appear, plead, or act for them in any proceeding. This authority must be conferred in writing, signed by the party or parties giving it, and filed in court. The same principle also applies to multiple defendants. The proper defendant in a tort action is the wrongdoer or the person who is liable for the acts of the wrongdoer, such as a vicariously liable employer. “If several persons jointly commit a tort, the plaintiff may sue any individual wrongdoer and is not obligated to join any other defendants. On the basis of the Copyright Tort Liability of Myanmar shall be concluded when the violation upon the civil right and interest the victim have the right to sue against on the wrongdoer to protect his or her legitimate rights on their work creative on the brainpower. In Myanmar there is not prescribed the tortious liability but according to the Burma Laws Act (India Act XIII, 1898) (4th November 1989) section 13 wherein any suit or another proceeding in the Union of Burma it is necessary for the court to decide any question regarding succession, inheritance marriage or caste, or any religious usages or institution. In cases not provided for by sub-section (1) or by any other enactment for the time being in force, the decision shall be according to justice, equality and good conscience.

The law of tort as administered Myanmar courts is the English law of torts, so far as it is applicable to own circumstances of Myanmar. A tort is a class of civil wrong or civil injury. A civil wrong gives rise to a civil proceeding. The purpose of a civil proceeding is to enforce some rights claimed by the plaintiff as against the defendant such as: recovery of debt, restitution of property, specific performance of the contract, recovery of damages for an injury committed or, to issue an injunction for stopping the wrongful conduct.

In contract, criminal proceedings are these which have for their object the punishment of the accused, because a crime is an offence against the public. Thus we can say that while a civil action is essentially a demand for the enforcement of some right vested in the plaintiff, a criminal action merely demands the punishment of the accused of the offence committed by him. Very often one will find that same wrong is both civil and criminal capable of being made the subject of proceedings of both kinds, for instance, an “assault” or “libel”. Assault is an act of the defendant which directly and either intentionally or negligently causes the plaintiff immediately to apprehend a contact with his person. On principle, the plaintiff must establish the absence of consent. It has been held in a case that “an assault must be an act against the will of the party assaulted, and therefore it cannot be said that a party has been assaulted by his own permission”. To point a loaded gun at half-cock at the plaintiff is an assault because there is a present ability to do the act threatened. Assault which is the form of invading to the person connected probable to consequence in a disruption of the reconciliation so for that criminal action should also be taken.

In Myanmar Penal Code Sections 351 to Section 358 provided to take criminal actions for assault. Therefore at the same time, one can claim compensation in an action for assault in a civil court. It is also the same as “libel”. So whoever’s reputation is defamed by another can sue for damages, because, the injured person can
take criminal action on that person who did the wrong; Section 499 of the Penal Code provides the kind of offence and Section 500 provides the punishment of that offence that “when a person shall be said to commit defamation, whoever commits such offence shall be punished with simple imprisonment for a term which may extend to two years or with fine or with both”. The remedies which can be attained for these matters are therefore not alternative, but concurrent each is independent of the other. In other words, the wrongdoer may be punished criminally by imprisonment or otherwise and also compelled in a civil action to make compensation or restitution to the injured person.

When the copyright tort Liability will happen the plaintiff can claim remedy to the court. There are four categories the victim can join tort liability in Myanmar. They are an invasion of interest in person, invasion of interest in the property, invasion of interests in intangible property and invasion of interests in reputation. According to the above four categories, tort liability copyright are fall in short of an invasion of interests in intangible property and reputation. In Williams v. Settle case, the defendant was a professional photographer who had taken photographs of the plaintiff’s wedding, the copyright is vested in the plaintiff. Two years later, when an event had occurred which caused the plaintiff to be exposed to publicity, the defendant sold the photographs to two newspapers, and the publication caused the plaintiff great distress. The County Court held that the plaintiff entitled to get 1,000 pound as damages for the breach of copyright. This award was upheld in the Court of Appeal and in both Courts; it was described as one of the exemplary damages. It is clear that there are various interests of the people of which the law of tort has so protected. If anyone invades the legally recognized interest of another person, the law of tort makes adjustments for the loss suffered by providing compensation. In Myanmar there are three kinds of remedy are provides that is damages, injunctions and restitution of property. In basically the court shall award against the wrongdoer on his her infringement act three kinds of damages they are nominal damages, substantial damages and exemplary damages. Nominal Damages, an award of nominal damages is intended as an affirmation that the type of conduct the defendant engaged in should not be permitted. When a judge finds in courtesy of one party to a lawsuit often because a law requires them to do so but accomplishes that nonexistent harm was done and therefore grants a very slight quantity of money. Nominal damages are awarded to vindicate a right or claim of the plaintiff, giving the plaintiff, in effect, a moral victory. Substantial damages are awarded as compensation for and are measured by, the material loss suffered by the plaintiff substantial or ordinary damages are awarded where it is necessary to fairly compensate the plaintiff for the injury he has in fact sustained. Under the circumstances of each particular case, a fair and reasonable compensation has been awarded to the party wronged by the defendant. For calculate, the damages are the duty of the court. For substantial damages, the court may have difficulties when deciding upon the amount of compensation for infringement; the court should be calculated as soon as they can. It should be noted that there was no rule of calculate for compensation of infringement.

Exemplary damages are essentially different from ordinary damages. The object of damages is in detail to compensate. The entity of exemplary damages is to deter and punish, the main essence of this principle is that the defendant must not be allowed to make a profit from his own deliberate wrongful act. Above all in doing
such as wrong, he must have the knowledge that his proposed act is unlawful, directs his mind to the material advantage of committing the tort and comes to the conclusion that it is worth the risk that he may have to compensate the plaintiff if he should bring an action. There is no case apply for the tortious liability for copyright infringement in Myanmar. An issue for the moral right happened 2017. The problem is concerning with the "Thu Htay Wa Da" song in the music album of "Yaw Tha Ma Tat Mhwe" which was performed by a singer, Thar Soe. After released such album, 10 days later, the objection for using the song "Thu HtayWa Da" was pronounced by the family of Nann Taw Shae Saya Tin who wrote the song. The problem was negotiated, between singer Thar Soe and Daw Nan Khin Aye (granddaughter of Nann Taw Shae Saya Tin), by the settlement of Myanmar Music Association (Central) on 29 March 2017.

So, singer Thar Soe apologized in government's newspaper that when he offered the permission, there were defects that he played different version and he did not get the permission for not using all lyrics which made disgraceful to the moral right of Nan Taw Shae Sayar Tin and his family. Besides, he made his official apologizing to the family of Nan Taw Shae Sayar Tin at the hall of Myanmar Music Association (Central) on 4th April 2017. Even the invasion of the reputation of Nann Taw Shae Sayar Tin, but they do not sue by tort and just negotiated and amicable out of court. From the perspective of this fact Myanmar people are lack of knowledge of legal perception and from the mind self of Myanmar People hesitate to apply for the case before the court and they just ignore that. This is the disadvantage of existing legal provisions of the Copyright Act and it very lacks beneficial for the disputing parties.

Therefore, it can draw the conclusion that at the present time, a “tort” is generally understood as the conduct of civil wrong. In Myanmar there are certainly other forms of civil liability are probably to be seen as torts and it does not always work in a wholly satisfactory way. Myanmar tort law has based on Section 13 (3) of the Myanmar Laws Act 1898. Myanmar, as it applies to torts, is that the domestic law of Myanmar on torts is not well developed. Lacking any real statutory basis there is nothing to compare with the Contract Act 1872, for instance the domestic law of Myanmar on tort appears to consist of a single statute concerning torts to the person, that is the fatal accidents act and suppose the English common law would be a guide to the development of the domestic law of Myanmar on tort. Myanmar government also needs to consider solving this problem the policy also implies that in civil compensation, the private interests for the copyright holder. If not the suitable rule for a deterrent against copyright and another right the foreign investment will on come. It is a great serious problem for Myanmar because for a developing country, investment in every sector of its economy, both domestic and foreign, is a key factor to promote its economic development, which forms the basis for all other developments. To inspire and encourage investment, there must be translucent and active laws constant with the predominant economic situation.

Suggestion and Recommendation for Myanmar

In Myanmar when the 2019 Copyright Law is enforced for the right of the exclusive right are can be protected relevant offences and penalties commendably for copyright infringement. Nevertheless, in the civil proceeding, it did not afford to consider for the remedies of infringement in the moral right. Advancing the concept of moral rights is one strategy that has not been verified as a means of promoting
copyright protection. Scholars often propose procedures for improving the general consciousness of copyright law for Myanmar. The most racially invasive begin with a general change to the behaviour of the entire nation the trick, therefore, is to develop a way to begin to change normative behaviour in Myanmar society so that acceptance of the principle of private ownership of intellectual property becomes the norm. From that acceptance, one can build a concurrent norm wherein enforcement of copyright ownership is a necessary part of that principle.

Actually, perfecting legal remedies for copyright infringement in Myanmar will be closely related to the two facts they are Personal Injury Law and social justice organizations. For Myanmar powered personal injury law should widespread need to be accurately determined. Myanmar needs to have grievances prosecute for the public interest. And also social justice organizations are required to enact specific legislation does, by enforcing the progress and prosperity of Myanmar. According to public demand that even the laws exist, but in the real problem have huge flaws in the administration system. Myanmar needs to fix the legal and justice system to use existing laws effectively with true judgment.

In this fact, if the specific rules are enacted, the justice system to use existing laws could be effective. So from this perspective, Myanmar still has a gap to upgrade of the law of tort, and tort liability system to the copyright regime. In Myanmar, the law of tort subsists for the tenacity of preventing men from hurting one another whether in respect of their person, their property, their reputation or, whatsoever else. Sometimes although there is harm or legal wrong or injury done to a person, for which the law takes no account. To constitute a tort there are three ingredients: first legal wrong, second legal damage and the legal remedy. “The sphere of tort is to give responsibility for injurious conduct” or can state “a civil or private wrong”. Under the Myanmar, Legal system tort is not an enacted law, therefore, that it is said that like a customary law which is the result of the English Common Law. Therefore, the law of tort is concerned with those situations where the conduct of one party causes or threatens harm to the interests of other parties. Thus the essential aim of the law of tort in Myanmar is to compensate those who have suffered harm through the invasion of certain of their interest occasioned by the conduct of others. In fact, tort really protects the interests of the people at large. As Myanmar resumes its place in the modern world, particularly the world of international commerce, its legal system will accept what all the civilized legal systems do accept. As commerce, including international commerce, starts to grow in Myanmar, there will be many cases in which a contract gives rise to a dispute between the parties to it. The question whether a Myanmar Court will or should adjudicate a contract dispute but if it does adjudicate the rules which tell it whether to apply the domestic law or the private international rules of which leads the court to the rules of a foreign legal system. Precisely, the jurisdiction of a court in Myanmar over a party is defined by a statute, Penal Code or Civil Procedure Code. It is varieties Myanmar unlike from many other common law jurisdictions. In general, in Myanmar, a claim based on a contract will give the court jurisdiction under Section 20(c). If the tort is a wrong to the person or to moveable property, then if the tort was committed in Myanmar, the court will have jurisdiction under Section 19. If the tort was not committed in Myanmar but damage resulted in Myanmar, the court will have jurisdiction under Section 20(c), because in a tort claim, the damage is normally an essential part of the cause of action. However,
the Indian Courts, whose jurisdictional rules are practically identical, have shown that these rules apply to cover international as well as innocently internal cases and it is clear that Myanmar court would do similarly. As concerns limitation period is apprehensive, there are two methods in which this could be done and the approach of a Myanmar court to this common question is subject to the way the time bar rule found in the law which governs the substance of the claim. The time bar rules of Myanmar are providing in the Limitation Act 2007. The limitation time for the Tort is Three years from the cause of action accrued or the date on which the wrongful act caused loss or damage. In the case where any special or local law prescribes for any suit, the appeal of application a period of limitation different from the period prescribed therefor by the first agenda, the provision of section 3 shall apply, for decisive the dated of limitation. Most of the Myanmar outdate case is regret at tort but apply in Penal Code or another form of laws in the case of invasion on reputation. On one case making Newspaper libel U Saw Han v. U OhnKhin and 5 others Case, U Saw Han sued the Bama Khit Press proprietor U OhnKhin and five others for defamation because an article which appeared in that newspaper made him derogate his reputation by using absence violent and insulting word. Although he claimed Kyats200000 for damages, the High Court (original side) awarded only Kyats100000.

In often, there arises a question in relation to charges which appears in the newspaper against public men. If such a thing happens, the proprietor, the editor, the printer and the publisher are liable to be sued for defamation, either separately or jointly. An editor is in no special position and his liability for defamation is to the same extent as that of any other person, he has an even greater responsibility to exercises due to caution and convinces him that his comments are fair and true.

Thus an effective defence would be:

(1) Truth and public good (Exception 1. Section 499, Penal Code)
(2) Truth and good faith on the part of the person making the statement when it concerns public servant. (Exception 2 and 3 of Section 499 Penal Code)
(3) Truth and good faith and for the public good. (Exception 9 of Section 499 Penal Code). A newspaper is not privileged merely because its article is of great public interest. It will be otherwise of course, if the assertion is contained in a fair and accurate report of a public meeting or judicial proceeding. If a newspaper published an article, especially concerning a person of high social standing, or who holds a high official position, the vital point to look is not the number of damages, but whether he has fully vindicated his rights.

More generally, it is important to recognize that, while it is tempting to conceive of tort as a wrongful interference with a particular kind of interest, classic common law torts simultaneously protect several different interests, at least in a functional sense of the term “protect.” The tort of libel, for example, plainly aims to protect reputation, but at the same time, it de facto deters conduct that damages emotional well-being and financial interests, and it certainly allows for recovery of damages in association with the harm of those forms. The predicate injury, however, the one that is a component of the legal wrong of libel is a reputational injury. The consequences of tort liability give rise to the remedies that are available as a matter of law. The purpose of legal redress is both to compensate the plaintiff and to prevent wrongdoing. In the common law system, the primary remedy in tort is compensation.

In civil law countries, in addition to compensation, monetary or in-kind, another
common remedy is restitution. The notion is that compensation repairs harm through the delivery of an equivalent, while restitution restores a state of affairs that has been wrongfully altered. The redress for tort liability in China takes a more diverse approach. First, liabilities are provided separately from damages. The former is considered the legal consequence that the defendant may face while the latter deals with the compensation the plaintiff may obtain. Second, the plaintiff is given different options, depending on the type of grievance, which comprise personal, property, mental, and other sufferings. This poly-folded way of redress helps tackle the complexity of tort liability development, and, more importantly, offers certain more appropriate protections for, such rights as the right of personality and the intellectual property right.

In 2019 Copyright Law protects the work of both domestic and foreign. That is why actually Myanmar prerequisites to enact the law of tort, because in near future issues concerning with not only for the moral right but also the complex cases of Internet-related infringements will increase in both number and diversity in Myanmar which no one can deny including infringements on trademark, copyright, unfair competition and other matters. Myanmar needs to consider the law like of other countries provides on special torts liability system in the field of Internet Service Provider Liability, The copyright works on Digital concerned.

From this respective take example from China and other countries, take a look under the law of tort of China for Internet service providers (ISPs) provides the obligations and gives supplementary protection to the rights of individuals. In ISPs cases in the event they infringe upon an individual's civil rights or interests through the Internet will bear tortious liability. Where an Internet user engages in tortious conduct through the Internet, the injured party shall have the right to inform the ISP and request that it take necessary protective action, such as deleting content, screening content or denying service to the offending individual. Where an ISP fails to take necessary action after being informed of such offences, it shall be jointly and severally liable with the Internet user for additional damage. Therefore, perfecting legal remedies for copyright infringement in Myanmar should be applied to the law of tort. Because tort law covers torts or civil wrongs injuries done to someone’s person or property. The punishment in tort cases the court orders the plaintiff to pay is the monetary compensation for the defendant. An intentional tort is an intentional performance that stances damage to the plaintiff. Intentional torts which negligence, strict liability torts may be committed against a person, a person’s property, or a person’s economic interests. In the near future, Myanmar has to face the issue concerning with complex copyright problem when managing the issues necessary to have affective law and regulation for mutual interest.

Conclusion
Moral right is not transferrable right. Moral rights are personal and cannot be waived, licensed or transferred; it is different from economic rights. Authors cannot transfer their moral rights to someone else, whereas they would be allowed to sell their economic rights. In Fundamental Principles Chapter 1, Section 37(c) The Union shall permit citizens right of private property, right of inheritance, and right of private initiative and patent in accord with the law. Fundamental Rights and Obligations of the Citizens Right Chapter 8, Section 372 provides that private invention and patent in
the conducting of business is guaranteed if it is not contrary to the provisions of 2008 constitution and the existing laws. IP right is “Constitutional Right” “state-guaranteed Intangible Right”. He shall protect his IP Rights. It should be respected the others’ IP Rights at the same time. So the Republic of the Union of Myanmar needs to establish intellectual property Office and Agencies and to give intellectual property knowledge for such Agencies. Moreover, Myanmar has no new law for intellectual property in line with TRIPS Agreement although Myanmar is as a member of Agreement on Trade-Related Aspects of Intellectual Property Rights 1994; Myanmar needs to provide protection and enforcement with the intellectual property rights in line with the TRIPS Agreement. It needs to provide the minimum enforcement standard providing in this agreement as well as to establish Intellectual Property Offices and Agencies for the Effective Enforcement of Intellectual Property Rights.

The Government and Civil Society must have substantial connection relevant to copyright law. So, for public awareness by Intellectual property education programmer, the government needs to arrangement for training, forum, seminar, workshop in the field of protection in intellectual property. By this way, the result of the promotion of national creative and innovative activity is the bedrock on which the foundation of national industrial and economic progress must rest, and to promote it, adequate and effective protection of intellectual property rights is a basic precondition. Innovation in technology is moving fast and confidence in the intellectual property system is a powerful stimulus to such innovation.

In conclusion, the protection of intellectual property rights also influences investment decisions enhancing competitive and accelerating social-economic development. For the implementation and widest enforcement in the field of the intellectual property, sector depends on the government and the entire citizen. To effect the protection of IPRs the government must forward by way of four E. Four E is Enactment, Enforcement, Encouragement and Enhancement. Even with the increasing globalization of legal practice, laws will never be uniform across nations, for each country’s laws must be a unique reflection of each society’s culture, values and aspirations. Furthermore, there will also be hope to apply and develop the law in a way that is consistent with the values of our society.
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Constitutional Remedy for Fundamental Rights of Citizens in Myanmar

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Abstract

Before 2011, Myanmar was ruled by a military without a constitution for some decades and citizens have no right to seek constitutional remedy for the violation of human rights. The right to challenge the violation of human rights before the court is the fundamental right of the citizens. To complaint against the illegal action, to determine institutions of accountability and to complain the constitutional remedy, we need to develop the effective mechanism. As the political situation in Myanmar is the transition period, there is an opportunity to develop the review mechanisms for strengthening the role of judicial branch and to implement the public complaint system for protecting the fundamental right of the citizens. At present, the main weapon to challenge the administrative action by the judiciary is the constitutional writs under the 2008 Constitution of the Republic of the Union of Myanmar. This research will explain the application of writs as a method of judicial review in Myanmar and how this right has been developed and used since 1947 till 2011. It then identifies to consolidate the use of the constitutional writs, strengthen understanding of how the writs can be exercised, and the role of the courts in reviewing to handle the violation of human rights given by the 2008.

Keywords: constitutional remedy, writs, constitution, judicial review, human rights violation

Introduction

Writs application custom in Myanmar came from English Common Law System. There were no reported cases concerning the writs under colonial rule in Myanmar. After independence, Myanmar introduced the constitutional remedies, and it can be found in the Constitutions. The constitutional writs (constitutional remedies) in Myanmar need to be understood in historical context.

Development of Constitutional Writs in Myanmar

In studying the development of writs in Myanmar, it can be trace back to three historical periods: writs under the 1947 Constitution, the 1974 Constitution, and Writs after the 2008 Constitution, the third and current Constitution.

Writs under the 1947 Constitution

In 19th century, Myanmar fought three wars against British colonist and was annexed to British Empire on 1st January 1886. After losing her independence, traditional legal system was abolished and Common Law System was introduced by British. The statutory laws which were designed on British Common Law were extended to Myanmar.
Myanmar became an independent State in 1948. The 1947 Constitution provided for constitutional writs and conferred the Supreme Court to issue the writs as follow:

"The Supreme Court shall have power to issue directions in the nature of habeas corpus, mandamus, prohibition, quo warranto and certiorari appropriate to the rights guaranteed in this Chapter."²

From 1948 till 1962, the Supreme Court was regarded as free from executive or military influence. The Supreme Court used the writs as the weapons to protect individual rights against government and to check and control over lower courts from exercising their power ultra vires. 'Lower courts in here mean the administrative decision makers or other entities exercising quasi-judicial power.'³ For example, the Public Order Preservation Act 1947 provided that 'if the President of the Union is satisfied with respect to any particular person that with a view to preventing him from acting in any manner prejudicial to the public safety and the maintenance of public order, the President of the Union may make an order directing that he be detained".⁴ "No order made in exercise of any power conferred by or under this Act shall be called into question in any Court."⁵

In Bo San Lin vs. The Commissioner of Police and one⁶ case, in a proceeding under section 25 of the 1947 Constitution in spite of the Public Order Preservation Act 1947, it is competent for the Supreme Court to consider whether the order made by the Commissioner of Police under Section 9(1) of that Act is legal or not. The Supreme Court decided that the provision in Section 9(1) of Public Order Preservation Act was inconsistent with the Constitution. Section 9(1) of the Public Order Preservation Act 1947, if it can be read as purporting to exclude the jurisdiction of the Supreme Court, is, to the extent it is repugnant to the provisions of Article 25 of the Constitution, void. The right conferred on the citizens by the constitution is one which is indefensible. In that case, we can see that the rights given by the Constitution of 1947 could not be overruled by the Act of Parliament.

In 1962, Revolutionary Council took over the State power. Although cases continued to be brought before the court after General Ne Win's coup 1962, these cases began to decrease in number.

The 1974 Constitution

In 1974, Socialist Constitution was adopted and constitutional writs were abolished. The power to conduct constitutional review of legislation was also taken away from the courts.

Writs after the 2008 Constitution

Before 2011, Myanmar was ruled by a military without a constitution and citizens have no right to seek judicial review of administrative decisions. Since the introduction of the 2008 Constitution, there have been some changes in the area of public law. The Constitution of the Republic of the Union of Myanmar was adopted

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² Constitution of the Union of Burma, 1947, s 25(2)
⁴ Public Order Preservation Act, 1947, s 5(a).
⁵ Ibid, s 9(1).
⁶ 1948, BLR 372.
in 2008.\(^7\) The 2008 Constitution reintroduced constitutional writs, and conferred exclusive jurisdiction on the Supreme Court to issue the five kinds of writs: Writ of Habeas Corpus; Writ of Mandamus; Writ of Prohibition; Writ of Quo Warranto; and Writ of Certiorari as constitutional remedies for the citizens when their rights are violated. The two other highest courts, the newly established Constitutional Tribunal and the Court Martial do not have power to hear constitutional writs.

**Meanings of Writs**

The meanings of these writs were defined in the *Law on the Application for Writs*, adopted in 2014.\(^9\) Constitutional writs are also mentioned in the *Handbook for Media Access to the Courts*\(^10\) published by the Supreme Court of the Union in 2015.

**Writ of Habeas Corpus**

"The formal written order issued by a court of the Republic of the Union of Myanmar or a competent authority by which the detainee is brought to the Writs Department, and his detention is scrutinized and heard to determine its legality".\(^11\)

**Writ of Mandamus**

"The formal written order issued for the omission of a legal authority or an organization or a government institution to act according to the law with the power conferred to them".\(^12\)

**Writ of Prohibition**

"The formal written order issued for the execution of a court or a judicial matter prohibiting from taking a specified action that is beyond the limit of the judicial authority vested in it or is against justice".\(^13\)

**Writ of Quo Warranto**

"The formal written order issued for a government department or an authority under scrutiny to ensure its legality that it has performed in accord with the law enacted for an individual or the general public, rules, regulations, procedures, orders, announcements and directives".\(^14\)

**Writ of Certiorari**

"The formal written order issued for the decision of a court or of a certain quasi-judicial matter after finding under scrutiny that it is not in accord with the law so as to legalize that decision".\(^15\)

The Law on the Application for Writs 2014 conferred the Supreme Court jurisdiction to issue writs and to hear the writ cases.\(^16\) But in practice it is unclear that Supreme Court can decide a law unconstitutional or not because the Supreme Court has power to issue writs and hear writs cases in theory, but in practice there was no

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\(^7\) The New Light of Myanmar, 10 January 1993.
\(^8\) Constitution of the Republic of the Union of Myanmar, 2008, s 296(a); Union Judiciary Law, 2010, s 16.
\(^9\) Law on the Application for Writs, 2014, s 2.
\(^10\) The Supreme Court of the Union, Handbook for Media Access to the Courts, 2015, p.3.
\(^11\) Law on the Application for Writs, 2014, s 2(c), English Translation by the Supreme Court in Handbook for Media Access to the Courts, 2015, p.5
\(^12\) S 2(d), Ibid
\(^13\) S 2(e), Ibid
\(^14\) S 2(f), Ibid
\(^15\) S 2(g), Ibid
\(^16\) Law on the Application of Writs, 2014, s.3.
writ application case that the Supreme Court decided a law unconstitutional even after passing the law and till now.

**Limits on the Application of the Writs**

Although the 2008 Constitution reintroduces writs, it restricts the application of writs: writs cannot be issued in emergency situations (s.296 (b)). The term "emergency situation" means "in time of war; in time of foreign aggression" and "in time of insurrection."\(^{17}\)

This restriction has a negative effect on the individual rights. For example, the state of emergency was declared in June 2012 and August 2017 in Rakhine State and another one was invoked in Meikhtila District in March 2013 after unrest between Buddhist and Muslim communities broke out.\(^{18}\) Therefore, the "state of emergency" permits the government to arrest and detain people, and the detainees have no right for petition the Supreme Court by means of a constitutional writ application.

The Supreme Court has exclusive jurisdiction to issue writs and it is located in the capital city, Nay Pyi Taw. In relation to the writs application procedure, the *Writ Application Law 2014* and the *Writ Application Rule 2015* provided that the applicant must submit the 'personal justification letter'; 'Oath' (the applicant must describe all the reasons of illegally being arrested in there) together with the 'application' to the Supreme Court at the Writ Department.\(^{19}\) At the first hearing for writ application, the Supreme Court hears the complaints of the applicant or his/her lawyer on behalf of applicant. After the Supreme Court heard thinks fit to issue the writ, it must issue the writ and appoint the attorney to serve on behalf of the Union.\(^{20}\) If some documents are missing, those have to be added in person. The hearing takes place on another day, at the Supreme Court as well. Nay Pyi Taw is far from the country’s major population areas, and the application process cannot be finished with one day. The application process necessitates multiple costly journeys to the seat of the Court: the applicants need to spend on a hotel as well as the costs of transportation. As legal aid has not yet developed to cover such expenses, writs application is effectively beyond the budget of most people in Myanmar.\(^{21}\)

Despite these difficulties, several constitutional writs were filed to Supreme Court since 2011, even before the 2014 *Law on the Application for Writs* was adopted. Importantly, there were no habeas corpus cases reported in Myanmar Law Reports till 2015. Scholar Melissa Crouch wrote in 2014 that “It is unclear how many of these applications listed received a fair hearing, partly because the hearings of the Supreme Court are not necessarily open to the public.”\(^{22}\) For example, 97 writs cases had been filed in 2015, but only 6 cases were reported in the 2015 Myanmar Law Reports. Among these 6 cases, two were for writ of prohibition; two were for writ of certiorari and two for writ of mandamus. There was no writ of habeas corpus and writ of quo warranto cases reported in the Myanmar Law Reports 2015.

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\(^{17}\) Constitution 2008, Chapter IX; Writs Application Law, 2014. S 3(c); Union Judiciary Law, 2010, s 16(c).


\(^{19}\) Writs Application Law 2014, s 6; Writs Rules 2013, s 4.

\(^{20}\) Writs Rules 2013, Chapter II.


Although the writs application process is not yet well-known and it is expensive, it has the potential to improve the ability of individuals to challenge government decisions in the Supreme Court.

<table>
<thead>
<tr>
<th>Year</th>
<th>Habeas Corpus</th>
<th>Mandamus</th>
<th>Prohibition</th>
<th>Quo Warranto</th>
<th>Certiorari</th>
<th>Count</th>
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**Analysis of Myanmar Law**

The current situation in Myanmar, the writs is the only way to claim judicial review against administrative decisions. There is no any other means to claim judicial review in court against the illegal administrative action. The meanings of writs in Myanmar are defined in the Law on the Application for Writs, adopted in 2014 and we can see the English Translation of the meaning of writs in the Supreme Court in Handbook for Media Access to the Courts published by the Supreme Court in 2015.

Constitutional writs are issued on the grounds to scrutinize and determine the legality of detention, to compel the government institutions to exercise their power conferred by law, to prohibit the specific action exercising beyond its power, to scrutinize the performance of government departments or authorities whether they perform in accordance with law and to cancel the decision of a court that is not conformity with law.

A person who was violated his or her rights enshrined by the 2008 Constitution may apply to the Supreme Court, the highest Court of the Union, to get constitutional remedies. Only Supreme Court of the Union has the power to issue constitutional writs to review of administrative decision and no one can bring the writs cases to the Region or State High Courts. In England, the reliefs are available not only in form writs but also in form of declaration and injunction in proceedings for judicial review and the power to issue writs is conferred to the High Court. And then, in Myanmar, application of writs is prohibited in the areas of emergency and this exception is not found in England.

In issuing these writs, the Supreme Court will never interfere the judgment of a subordinate court, if the judgment is made within the competent jurisdiction. In other words, the Supreme Court gives its emphasis on the legality of the decision, that

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23 The Supreme Court of the Union, Handbook for Media Access to the Courts, 2015, p.5
24 *U Myint Than & 5 vs. President of the Republic of the Union of Myanmar & 2*, 2011 MLR 79.
is, whether the courts had exercised power within their endowed jurisdiction or not, and does not take into account the merits of the case. In addition, if any decision made by the administrative body is in the nature of the quasi-judicial function, and is ultra vires the powers of the administrative authority, Supreme Court shall review the said decision and will issue writ of certiorari and (if necessary) a writ of prohibition to quash said decision.

In the case of *U Htwe (a) A E Madari vs. U Tun Ohn & 1*, the then Supreme Court defined the quasi-judicial function. It provides that if an act to be controlled by the superior court, it includes four points such as (1) having legal authority (2) to determine questions affecting rights of subjects (3) having the duty to act according to law, and (4) act in excess of their legal authority, and then those writs will be issued. As this is an existing principle followed by Myanmar courts, purely administrative function will never be judicially reviewed by the Supreme Court by means of issuing writs.

As a principle, Myanmar Supreme Court will issue the writs to prevent violation of his or her legal rights as a consequence of act or omission of judicial and administrative authorities; and to ensure its subordinate courts, tribunals and administrative authorities to perform their designated duties by using respective power in accord with law.

Professor *Dr. Daw Kyin Htay vs. Union Minister for the Ministry of Education* of 2013 was the very first case to issue writ of certiorari, and Supreme Court quash the administrative decision made by the Ministry of Education. The applicant Daw Kyin Htay, the then Professor and head of the Economic Department of Yangon University of Distance Education was forced to retire by Ministerial order without any right to be heard, right to explain, and right to appeal. It was argued that the decision of the Minister of Education was *ultra vires* the power of the Minister endowed by Civil Service Personnel Law. After this case, there are many other similar cases claiming the ultra vires act of the administrative actions.

In Myanmar, there are some legislative activities that restrict the jurisdiction of the court. For example, according to the Myanmar Farmland Law 2012, if there is a dispute for the use of the farmland, the decision of the Region/State Farmland Management Body is ‘final’. It means that the disputed persons cannot go to the court to claim judicial review and that provision tries to remove the jurisdiction of the court. At present, there is no reported case relating to this provision. The Supreme Court of the Union should interpret the provision like above to protect the constitutional rights of the citizen and to extend its jurisdiction to review administrative action.

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25 *Daw Than Than Te & 2 vs. Magwe Regional High Court Judge & 7*, 2011 MLR 127.
26 *U Htwe (a) A E Madari vs. U Tun Ohn & 1*, 1948 BLR (SC) 541.
27 *Myanmar Supreme Court followed the concept of judicial act laid down by Atkin, L. J., in the case of Rex vs. Electricity Commissioners, [1924] 1 KB 171, with some modifications since 1948 up to now.
28 *Mg Tin Ko Latt (@) Bi Lay vs. Township Administrative Office of Pyay Township General Administrative Department & 1*, 2012 Criminal Miscellaneous Case No 6 (SC). *U Nay Win & 90 vs. Head of Department of Yangon City Development Committee*, 2014 Civil Miscellaneous Case No 222 (SC).
29 *U Dar Ron vs. Director General from General Administrative Department & 1*, 2012 Civil Miscellaneous Case No 138 (SC).
30 *Professor Dr. Daw Kyin Htay vs. Union Minister for Ministry of Education*, 2013 Civil Miscellaneous Case No 290 (SC).
31 Farmland Law, 2012, s.25
Conclusion

Writs are issued on the grounds to scrutinize and determine the legality of detention, to compel the government institutions to exercise their power conferred by law, to prohibit the specific action exercising beyond its power, to scrutinize the performance of government departments or authorities whether they perform in accordance with law and to cancel the decision of a court that is not conformity with law. A person who was violated his or her rights enshrined by the 2008 Constitution may apply to the Supreme Court, the highest Court of the Union, to get constitutional remedies. Only Supreme Court of the Union has the power to issue writs to review of legality of government action and no one can bring the writs cases to the Region or State High Courts. And then, application of writs is prohibited in the areas of emergency.

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U Htwe (a) A E Madari vs. U Tun Ohn & 1. (1948). BLR (SC)
Social Development and Social Studies
Freelance Sex Worker Violence Re-examined in ASEAN

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Abstract

This article compares two research claims about violence experienced by freelance sex workers in Thailand. It concludes with a recommendation to do a better job of studying this issue in Thailand, and throughout the world.

New research by this team was conducted in Fall, 2018. It produced data regarding violence experienced by freelance Thai sex workers in a single week preceding the survey. Methodology attempted to duplicate methods and wording of questions of an earlier widely disseminated 2007 study. A team of three surveyed a sample of 500 in Pattaya and Bangkok heavily skewed to freelance sex workers on the job. Claims of violence were low, 2.6%.

In 2007, a Thai university study claimed that 29% of freelance sex workers (N=148) experience violence in one week preceding their survey. This claim seemed high, but this study can also be considered the primer source of violence data in Thailand and maybe in the world. It was this data which went unchallenged at the time and was widely disseminated in academic journals and media on the world’s stage.

It is time to seek the truth. If freelance sex worker violence is not high, but rather low, this is important to know

Keywords: Sex work violence, freelance sex work, 2007 Mahidol Study, Mahidol University, Harvard University, Johns Hopkins University, UNFPA, World Bank

Introduction

Many studies have taken place regarding sex work in Thailand. But only a few (Guest, Farley, Ratinthorn, Kane) have offered specific data with claims to understanding violence experienced by sex workers. Some large studies make no mention of violence as if board spread research had found no violence to report. (Steinfatt, 1)

Claims about violence against sex workers are extremely important because concern about the welfare of all women, including sex workers, has become the justification for a process of globalization of many issues related to sex. Depending on one’s age, it is easy for people to think back to a day not so long ago when each country had their own obligation to either protect or not protect the citizens of their country. That, of course, includes all women. Now we know that when countries fail in this obligation, the largest countries step in to protect all women everywhere, or at least they have made their decision to do that. A misunderstanding about violence plays a part in that decision to globalize concern about women who are subject to violence.
The United States Government has ten agencies of their international bureaucracy which conduct missions to end trafficking. Trafficking is a new word appearing in the late days of the last Century. The word trafficking has yet to reach a clear definition. Like many new words it is still under development and often more so than most. We have no problem understanding a word like “app” as being a computer application. But trafficking is a category under which many sexual issues are covered. The word trafficking is flexible because so many circumstances are tossed under that umbrella and trafficking, as a word, seems to steadily expand in its meaning.

The media in particular is confused by this word. Around the world headlines often scream out about “trafficking” mostly for emotional affect, or so it seems. Sex workers are often referred to as victims of trafficking although that is not accurate if they are consenting to that work; if they are not being abused or subject to violence; and they are adults, defined as being over 18 years old. A state of near hysteria seems to be settling on the world about trafficking.

Sex work, also known by the more stigmatized term prostitution, has been common around the world in one form or another throughout history. It is legal in several places around the world. Sex work is de facto legal when local sex culture leads to ignoring aspects of sex work usually with no local recrimination. Yet first-world sex culture attempts to globalize their sex culture with trafficking as their tool to do so.

Under this circumstance we should do our best to not mistake sex work anywhere in the world for trafficking, if it is not. The best possible research should be carefully scrutinized to be sure simple consenting sex work is not confused with the horrible new crime labeled as trafficking. It is important to understand sex work and know if it is abusive. Honest understanding of violence is critical to policy regarding sex work.

A common way this becomes harmful is when claims of violence against sex workers are exaggerated, fabricated or honestly reached through bad methodology. Thai policy makers must ask themselves this - -

**Research Question**

Are Thai consenting adult sex workers subject to high levels of violence or low levels of violence related to this choice of work? And is there any reason not to ask sex workers themselves if they have experienced violence?

**Objectives of the Study**

1. To contrast data about violence between two Thai studies with different results.
2. To suggest if more study is warranted, or not.

**Research Methodology**

**First study’s Methodology**

The first study to consider is “The 2007 Survey of Sexual and Reproductive Health of Sex Workers in Thailand” or, for short, the 2007 Mahidol Study. This study was conducted by four academics from Mahidol University’s Institute for Population and Social Research (IPSR) and one leader of a Thai Non-Government Organization.
(NGO) the Service Workers in Group (SWING). This was a large project which received funding, support and guidance from the United Nations Population Fund (UNFPA) and licensing information provided by Thai government agencies.

An elaborate process was followed to select a sample of 815 sex workers who took a 120-question quantitative survey in Thailand language conducted by NGO staff and other volunteers. This can be assumed to take an hour, and therefore at least 815 man-hours to collect data. Twenty-six workers received an in-depth interview. There were five forms of sex work surveyed and described in section 3 of the study. But from the descriptions it appeared that the most common form of sex work in Thailand specifically the venue favored by Thai men – sometimes called the “fish-bowl” brothel – were not included. The fish-bowl brothel is so visually unique that its description would have been clear if it was included. If this is not true, it should be defended. Otherwise, the study will be of tourist and expat venues and not all sex work since the fish-bowl brothel is the most common sex work style.

The article you are reading now is about violence attributed to freelance sex workers and so it is important to point out that the 2007 Mahidol Study segregates a sixth category: “freelance”. There were 148 freelance sex workers surveyed in that category with virtually no specific description of who they were or where they came from. A sample of 148/815 is 18.16% of the total sample.

Samples were conducted in four locations in Thailand: Bangkok, Chonburi which is presumed to mean Pattaya, Chiang Mai, and Songkhla. Of course, it is the first two where the most prostitution is easily found. Both Pattaya and Bangkok have a worldwide reputation of availability of sex work. The study reports that the mean age of those studied was 28.3 years old and no children were found. 62.6 % of the sample were mothers with children. The study states that, regarding income, quote “sex workers appear to be paid a considerable premium to compensate them of the risks and stigma of their occupation”. It is not surprising that economic need was the primary reason to enter sex work and coercion or deception were uncommon. Virtually all sex workers either made their own decision of where to work or made that chose with recommendation of friends or family. Thus, the myth of pimps was exploded. Two percent said they had been forced or tricked into sex work. Also two percent volunteered that they enjoyed this work. Many (22%) said they had changed employers in the previous year which is an indication that no one was a slave to one job or location. This freedom of movement and freedom to leave this work debunks the myth of slavery in Thai sex work.

Please note that everything the 2007 Survey of Sexual and Reproductive Health of Sex Workers in Thailand discovered and reported to this point is remarkably positive showing that sex workers in Thailand were not subject to many of the common myths associated with trafficking and sex work. Everything here would assist in a sanction free Trafficking in Persons report from the United States Department of State.

And the claims of violence experienced by Thai sex worker are - -

Violence experienced by Thai sex workers according to the 2007 Mahidol Study is where the story changes. In the study’s Annex A we find the Questionnaire used in those 815 interviews. And after careful reading we find one question upon which all data about violence experienced by sex workers is based, question Q804. It is reproduced here - -
Q804
In the last seven days, have any of the following happened to you at work? Read all options)

<table>
<thead>
<tr>
<th>Choices</th>
<th>Yes</th>
<th>No</th>
<th>No</th>
</tr>
</thead>
</table>

- Yelled at
- Hit
- Forced to perform sex acts you did not want to perform
- Not paid
- Paid less than agreed
- Made to do other things you didn’t want to do

In section 9, page 65 table 9.2 we see that only the second and third choice of the six choices above are added to create the basic claim of violence used elsewhere for all sex worker categories. Clearly the other options of being yelled at or having an issue over payment did not count as violence in the 2007 Mahidol Study.

**The claims of violence which this writer considers to be suspicious.**

There are three. The first listed is the degree of violence experienced by all sex workers everywhere in Thailand and of ever style. The second is of urban Bangkok sex workers of all types. The third, is the largest claim and applies only to freelance sex workers everywhere. All are based on a ONE WEEK period of time.

1) 15% of all sex workers in Thailand experienced violence in the week before the survey
2) 20% of sex workers experience violence in urban Bangkok in the week before the survey
3) 29% of all freelance sex workers experience violence in the week before the survey

These are the three rates of violence reported in the Nation newspaper on May 28, 2016, as well as multiple academic journals and other publications around the world.

I will leave it to readers to consider if these numbers seem large. For the sake of propriety, this writer calls them suspicious. The biggest number is that 29% of all freelance sex workers experience violence each week. This can be extrapolated to 116% experience violence in one month (every month) and 1,392% of all freelance sex workers can anticipate experiencing violence each year. Or in other words every freelance sex worker, of which there are many, can anticipate violence 14 times per year. But, again, I will leave it to the reader to consider whether this seems like a questionable number just as peer reviewers, the function of guidance provided by the UNFPA as mentioned earlier, and two American academic journals which were professionally bound to make that decision. All had responsibility to evaluate this data as deserving of immediate publication or not. Is it possible that violence, based
on one question, was effectively hidden among the positive conclusions and was, thus, overlooked? This writer thinks this is curious, even suspicious.

One explanation might be that the wording of the violence question is based on a World Health Organization methodology designed to study spousal abuse and not sex work violence, according to an email from Dr. Philip Guest the lead named author of the 2007 Mahidol Study. This implies two problems, first that the critical questions regarding violence do not apply to sex work, and, second, an emotional understanding of the word “violence” is deliberately being sought here.

Even at the lowest reported rate of violence – 15% - all Thai sex workers throughout the country and in every form of sex work can anticipate experiencing violence every seven weeks (100% / 15% = 6.66). This is the mildest conclusion about violence resulting from the 2007 Mahidol Study. Of course, some sex workers may be magnets for problems in this job while others may never attract violence.

Section 1 page 3 of the Mahidol Study quotes estimates of the number of sex workers as 200,000 to 300,000 (without explain the source) and therefore at the lowest rate of violence according to this study, 15% experience violence every week, that means an estimate of 30,000 to 45,000 (200,000 X 15% = 30,000) sex workers experience violence every week. At that rate it must be assumed that there are many physical examples of that violence, women with black eyes, split lips, and similar physical effects of violence as well as higher rates of pregnancies and STDs. Again, I will ask readers to be the judge of this data - just as the peer reviewers, the UNFPA and academic journals had that responsibility.

Normally this would be the end of the story behind this suspicious data. Research by one of the top ten universities in Thailand with local publication of those conclusions would likely receive little attention. This case was different.

A new team was formed which included two members of the original 2007 Mahidol team – Dusita Phuensamran (Mahidol) and Surang Janyyam (NGO) - and several American academics led by Dr. Michele R. Decker (Harvard), and included Heather L. McCauley (Harvard), George R. Seage (Harvard), Jay G. Silverman (Harvard).

There is no indication of how this team was formed. An interesting question is whether the people from Thailand approached the Americans or if it was the other way around. This is a good question for further consideration by Mahidol University, Harvard University and Johns Hopkins University.

This group published only the claims about violence in several publications in American academic journals and other publications.

There was no mention of the many positive conclusions of the 2007 Mahidol Study.

A 2010 publication is titled “Violence Victimization, Sexual Risk and STI Symptoms Among a National Sample of FMSWs in Thailand”. It appeared in Sex Transmission Infection, 2010 June, 86(3): 236-240 Published on 2010 May 5. This publication contained only the suspicious violence data from the 2007 Mahidol Study with no indication that the folks from Harvard had any role in authentication the violence data.

A 2011 publication was titled “Sex trafficking, sexual risk, sexually transmitted infection and reproductive health among sex workers in Thailand”. In April 11, 2011 this appeared in the Journal of Epidemiology and Community Health.
Note: the title starts with the words “Sex trafficking” but there is nothing about trafficking in the original 2007 Mahidol Study. This publication contained only the suspicious violence data from the 2007 Mahidol Study with no indication that the folks from Harvard had any role in authentication the violence data.

In each of these academic publications Dr. Decker’s work shows no methodology of her own. And, no indication that she had ever been in Thailand herself at that time.

Dr. Decker has made friends at The World Bank through her use of the 2007 Mahidol Study data because she has credit in the 2013 “The Global HIV Epidemics among Sex Workers”, a publication of The World Bank. In this case she used the data for all sex workers, in this case 14.6% instead of the rounded 15% used everywhere else. Dr. Decker draws Thailand into the issue about HIV/AIDs though use of suspicious conclusions about violence experienced by Thai sex workers.

A third publication of the same data about Thai sex worker violence is a publication of The World Bank in this case submitted only by Dr Decker on June 8, 2016. The title is “Ending the invisible violence against Thai female sex workers”. There appear to be several regional publications of this The World Bank magazine. If so, there could be several publications of this same article with one in each region. There is no explanation violence data should be called “invisible” nine years. It is possible that, for Dr Decker, violence is “invisible” because after nine years, no one has challenged her borrowed claims. It can be called “invisible” because it is a myth, not true, but it serves an ideological purpose.

**Second study’s methodology**

This writer has been studying, “The 2007 Survey of Sexual and Reproductive Health of Sex Workers in Thailand”, for several years with frustration over how difficult it will be for a lowly student to challenge research published under the banner of Harvard University, etc., with guidance from the UN (UNFPA) and a love affair with The World Bank. What can a student do? This student has learned that the ethical academic response is to do more research. And here goes!

First, in 2016 this writer conducted two quantitative surveys, each of 100 Bangkok sex workers. The first was about family history and background, and not about violence. That sample of 100, located in Nana Plaza area of Bangkok, was split evenly between sex workers in bars and on the street ( freelancers) and also included 20 ladyboys. It was completely anonymous to encourage truth. The results were surprising. A myth of the abolitionists is that most sex workers were sexually abused as children. In this survey the vast majority, and I won’t go into detail here, had very happy childhoods and claimed no abuse of any kind. Their father was a regular member of the family. The majority did not get involved in commercial sex until over 18 and until they had a child of their own to support.

The second survey was only about violence experienced by sex workers. Again, a sample of 100 were split 50/50 between bar and street and split 80/20 to include a sample of ladyboys which were also split between bar and street. Quantitative surveys consisted of three questions with five choices each. Questions asked about the most serious experience involving violence they had ever had with (Q1) customers, (Q2) co-workers/managers, and (Q3) their family or intimate partners.
The choices for each question were presented in this order:

- Verbal confrontation with no physical contact
- A slap or other physical contact with no harm
- More serious physical contact
- Physical contact resulting in injury or loss of work
- No violence

Almost everyone chose No violence. Several chose Verbal confrontation with no contact but crossed it off and changed to No Violence because the option to mark no violence came last as you see it presented above. One person chose Physical contact resulting in injury or loss of work which is by far the most serious example of violence. Since that was such a rare choice (the only one) the surveyor asked what happened. It was a ladyboy who said “she” just welcomed the chance to tell someone about an incident that took place several years earlier. She was beaten up badly, but it had nothing to do with sex work.

So, in a diverse sample of 100, 1% told the researcher about serious violence but unrelated to sex work. No one feared violence. This too called for more and better research.

In the fall of 2018, a sample size of 500 was surveyed in Bangkok (about 30%) and in Pattaya (about 70%). Since violence data attributed to freelance sex workers of the 2007 Mahidol Study was clearly the most suspicious, this survey was heavily skewed to freelance sex workers. Over 60% of women surveyed were surveyed on the street while they worked. The remainder where sex workers sitting in front of the lowest level of bars usually with no management in evidence.

In the previous studies Thai sex workers proved to be highly literate and pleased to answer anonymous questions. A survey document was created asking only a yes or no response to the exact words of Mahidol’s Q804 to make their claims of violence. In this way this new study copied as closely as possible the 2007 Mahidol Study in an attempt to recreate in an academic manner the Mahidol violence claims. Frankly, we had the 2016 studies and our familiarity with Bangkok freelance sex workers in Bangkok to convince us that this is an important study.

This new research used large white paper (A4) with large size black font so as to be easy to read when the light is not the best. Previous research by the same team counted as many as 400 sex workers and on another occasion 256 of the purest form of freelance sex workers on Beach Road in Pattaya. Surveys were concentrated there. Other sex workers on Soi 6 in Pattaya also were happy to answer our survey and street sex workers mostly on Soi4 and Sukhumvit on Soi 4 and Soi 5 in Bangkok answered too.

Research Results and Discussion

Thirteen questions were answered YES that they experienced violence in the preceding week. 13/500 gives a percent of 2.6%. This is the conservative number this study uses.

Since each survey document had two questions that is a total of 1,000 questions. And 13 YES responses can also be counted as 1.3% of 1,000 separate questions about either physical violence or sexual violence in the same period of time.
as the 2007 Mahidol Study has claimed - and then helped disseminate on the world stage.

Also, circumstances became apparent which indicated even that might be high. While surveying on Beach Road it was normal to find women standing in groups of two or three. On one occasion three marked all YES answers meaning that all three answered both questions by saying that YES they experienced both physical and sexual violence in the preceding week. When that had happened researchers – Wan, a volunteer was there – were surprised at our first YES answers. But we accepted that data and moved on down the street. Soon another cluster of three responded the same way. This time we asked about that since it was so usual. Their answer is important: they volunteered that the previous night the Pattaya police swooped in with a pickup truck and took them way. All three were placed in the bed of the pickup and were driven around for several hours. Ultimately, we voided those responses as not answering our questions, but the three women were very pleased to share this experience with us. I repeated told them we could do nothing about that and we had no role in it. This is not an unusual police harassment method used around the world.

The next night while sitting at a Beach Road outdoor bar, this writer observed the same behavior. Police took away a group of six in the back of a pickup as we watched. Clearly even the result of 2.6% claims of violence can be attributed to police behavior.

Since each survey document had two questions, with a sample of 500, this means there were 1,000 questions and the result of 1.3% is also an accurate conclusion. There is no way to know how many of our responses in Pattaya were skewed by anger over police harassment methods and whether police harassment should be counted when using the 2007 Mahidol Study words verbatim?

Two volunteers helped collect this data. Dr. Singha Jantriwong, PhD Assistant Professor at Surindra Rajabhat University and Phee Sriprephal Wongchanda (nickname Wan) pitched in to help survey. Dr. Singha collected 20 surveys on Soi 4 in Bangkok on a rainy night and stopped when the rain increased.

Wan is well known in Bangkok as a person who sells handbags and cosmetics in the area near Nana Plaza. That was her way to help her son through college as an accountant. He graduated this year and is working – and that is one reason Wan was available to help. She collected 39 surveys in Pattaya. In this way 12% of surveys were collected by women older than most of the sex workers. It is assumed that these volunteers were similar to many people who collected data in the 2007 Mahidol Survey. There was no noticeable difference in their results and those of the one elderly man who did the remainder of the surveys.

The original 2007 Mahidol Survey claims that volunteers received three days of training which included “aims of the survey”. The two volunteers in this new survey received ten minutes of “training”. They were told to say as little as possible. They were told to be careful not to say anything that indicates that they want or expect a YES or No response to the questions. The proper procedure for them, and for the team leader John Kane, was to hand the survey document to the sex worker and, at most, ask for their help. Assuming they take the document in their hand, give the sex worker a magic marker. Stand silently and wait for them to hand it back. Previous studies showed high sex worker literacy.
How different is 2.6% compared to 29% all in one week

Of course, 2.6%. (or 1.3%) is almost nothing especially if several of only 13 people who claim violence are responding to police harassment. On the other hand, if 15% or especially 29%, of taxi drivers, as an example, have an accident in the same week, that would be a front-page news story. If 15% or especially 29% of nurses take a sick day off - all in the same week - that would be examined as a possible epidemic. 29% of any sex workers experiencing violence starts to look dishonest if the claim is that it happened in only one week, a random week and therefore every week. This study prefers the word suspicious to explain this data.

Conclusions and recommendations

On the difference in claims about violence and defend the importance for new and broader study of possible dishonest claims of violence.

We have examined two vastly different studies both asking the same questions about sex worker violence. One shows very high levels of violence. The other shows very low levels of violence even though identical questions were used. One, in theory, had the support and guidance of some of the most prestigious organizations in the world. The other a small team of a Chulalongkorn student of demography, an accomplished Thai researcher, and a woman with experience on the street. The second research began specifically because of suspicion of the high levels of violence claimed by the first study.

Here are six recommendations

The large difference in violence between the two studies must be respected. This means it should not be ignored. It screams out for new study.

Claims of high levels of violence must be defended, not ignored, by those who make that claim. If they make the claim repeatedly in respected media, they must defend it.

After a period of 12 years since the claims of high levels of violence were first made, new government sponsored official research should be conducted to reach current understanding about violence experienced by sex workers. It is only the claims about violence that were widely disseminated in the United States and international media. All other aspects of the original 2007 Mahidol Study were ignored. Violence should be the focus of new study possibly including guidance/funding from the UNFPA and other respected participants with careful scrutiny regarding their role.

Mahidol University should not be included in any future research on this subject. And Mahidol academics should be investigated. When there is such a huge difference in data there should be either some discoverable role leading those high claims or some traceable weakness in methodology. A smoking gun may be discovered if potential sources of extremely high data are investigated. Also, all work by Dr. Decker (around the world) should be examined for patterns showing other suspicious data in other countries.

All adjacent ASEAN countries should be encouraged to do similar research to investigate claims of suspicious sex worker violence.

A standardized quantitative method should be used to study sex worker violence. A rule of thumb that should be included is that if sex workers show no fear of
violence and describe no incidence of violence, sex worker opinion should be accepted that they are not in danger and need no rescue.

Sex workers should be protected from zealous rescue behavior.

I will conclude this article with a quote from Dr. Thomas Steinfatt, a very active researcher in both Thailand and Cambodia in the mid-80s and still active today. Quote: “In the late 80’s an estimate began circulating in Bangkok that 800,000 children under 18 were working in Thai sex culture. It originated in print from a single individual employed at the Children’s Rights Protection Center. A Bangkok Post editorial on January 17, 1989, questioned the basis for the estimate, joined by several Thai media outlets. No study or empirical data of any kind can be found to support the number. As with the false claim of 800,000 child sex workers in Bangkok, the presumed propaganda value of large trafficking numbers may be at work.” (Speaking of other research in Cambodia) “. . . this author is forced to conclude that these numbers (in Cambodia) are simply bogus, that they are fabricated at some point by someone. . .” Steinfatt (2).

And history repeats itself. There has been no defense offered to explain the high claims of sex worker violence by “the 2007 Survey of Sexual and Reproductive Health of Sex Workers in Thailand.”

There is surprising first world interest in “rescuing” Thai sex workers based on this violence that does not seem to exist. It is the right time for stringent and monitored new research about sex worker violence.

References


State and Problems in Receiving Cross-border Health Services of Cambodian Patients: A Case Study of Hospitals in Surin Province

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Abstract

This article is a part of the research entitled "Phanom Dong Rak Studies: A Survey on the needs in the area to develop research questions on language, archaeological sites, tourism, health and environment, two sides of Phanom Dong Rak mountain range" with the purpose of investigating problems and factors contributing to cross-border health care research in border areas adjacent to Phanom Dong Rak mountain range. The target group in data collection was 50 Cambodian patients who crossed the border to receive health services in a medical facility in Surin Province. Data collection methods were questionnaires, interviews, and observations. The findings were as follows: 1) In terms of the problem of the use of health care services, it is found that most problems were cross-border problem, which is 50 percent, followed by travel problems, counting for 20 percent and the slightest problem (14%) was from care of relatives because most patients have no documents for cross-border and in cross-border, there are procedures that must be complied with the rules of both countries. These problems cause more problems than any other issues.

As for the opinions and satisfaction of Cambodian patients who received treatment, percentage of patients (92.11%) indicated the confidence in the services of private hospitals in terms of better treatment whereas the satisfaction on service of government hospitals was 66.66 percent. Other aspects which make Cambodian patients satisfied include the cause of the disease, facilitation, medical specialist, and worth for money, 24-hours service, accessing to services, waiting for service, intention to serve, and confidence in medicine. Opinions and satisfaction at the same level were on the equipment, which is 100 percent. This showed that Cambodian patients were confident in the medical equipment of hospitals in Thailand, and 2) in terms of factors contributing to cross-border health care research, an important factor contributing to cross-border health research is the adjacent areas, language and culture, Thai medical facilities in border areas, and the state agency.
The Study of the Empirical Data on Career Management and Income for Development Plan Approach of Tubnum Sub-district, Bangpahun District in Ayutthaya Province

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Abstract

The objective of this project was to study a model for occupation and income management in the Tubnum Sub-district. It aimed to construct the community’s occupation and income database. The process included the data review, which was co-analyzed by the research group and the community. Then, the problem and its solution would be identified. The project raised the community strategic plan for quality of life promotion. The Participatory Action Research-PAR was employed, while the focus group and the social mapping were conducted. 130 subjects from rice producers, sweet potato producers, bamboo weavers and leather groups participated in this project. The representative officers from 9 villages were management level, member and administrative officers were joined this project. The frequency, percentage, mean and standard deviation were used for the statistical analysis.

The results revealed that most of the subjects were male with age older than 45 years. The requirements for their occupation were the support of a related organization of the tools used in their work and the financial support. The income was mainly from selling their products and the support from member and non-member family. The expenses were mostly for the occupation and for family consumption. The difference of the income and the expense depended much on the continuity of the occupation and the production capital. The sweet potato group showed the highest difference and high capital led to high income. The second and third differences groups were the leather group and the bamboo weavers, respectively. Both groups demonstrated continuous occupation. The most influencing factors in rice producers group was the production factors, especially the water supply.

The recommendation from this study was that the related organization should provide effective water management system for all benefits of the agricultural products in this area.

Keywords: community, community potential, social mapping
A Study on Minorities of Elephants Feeding in Asian Countries Related to Policy Determination on Elephant Atmosphere, Religion, and Culture for Elderly Mahouts in Thailand

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Abstract

This research is a study about minorities of elephants feeding in Asian countries such as; Thailand, Lao P.D.R., Cambodia, Vietnam, Myanmar, related to the policy determination on elephant atmosphere, religion, and culture. Methodology used with qualitative and quantitative research. Samples were the elderly mahouts in Thailand (15) and the other four countries (20), using the strategic random sampling. Research instruments were the dept interviews, focus groups, action conference, criticizing and evaluation. All were investigated by three experts, and they used a realizable achievement test, (IOC.=0.97). There were about three stages of data collection, 1) gathering the qualitative data about the elephant atmosphere, religious, and the culture of senior mahouts, 2) mapping the diagram and matrix of the elephant atmosphere, religious and culture, and 3) gathering the quantitative data again with criticizing and evaluation. Analysis qualitative data with content analysis, and quantitative data with the basic statistic. The research result found that, the senior mahouts life style and the elephants atmosphere were related to religious and culture. Living together between human and elephants were allowed to the economic system. The boarder between country was difficult for the elephant atmosphere and the senior minorities mahouts. A young mahouts come on the process of commercial and tourism system. Geo–social mapping could be explained and described, was also highest level (X = 4.85). The criticizing of the policy proposal development regarding minorities feeding the elephant, the senior mahouts, were related to religious, Thai culture, culture of humans and elephant in Asian countries, were still highest level (X = 4.87). Thus, government in Asian could be awareness, cooperating the policy about the elephant atmosphere and the senior mahout in the greater efficiency.

Keywords: elephants feeding, minorities, Asian countries, policy determination on elephant atmosphere

Introduction

The Elephant is the biggest animal in the world. However, they are smart. They are merciful to all kind of small animals. Any forest where the elephants live, is fertile with a healthy ecological system and food chain of plant and animals. Therefore, the elephant is the special most attractive animal to all kinds of plant and animals, gathering together in various biological forest. There is the source of food, moisture, and human health who live near the forest. So, this research calls this type of area; “Elephant Atmosphere”. 
Elephant atmosphere is the large forest and evergreen. Currently, elephant atmosphere overlap borders between the countries in Asian, such as: Long Chou San Forest on the Phanom Dong Rak mountain, Surin province (the border between Thailand and Cambodia), Doi Phu Kha, Nan province (the border between Thailand and Laos P.D.R.), Biological Forest Park of Salween, Cheing Mai province (the border between Thailand and Myanmar), Biological Forest Park of Weerachai, Attape province (the border between Laos P.D.R. and Cambodia), Biological Forest Park of Jumonre, Dug Noong town (the border between Cambodia and Vietnam). All of these are ancient elephant atmosphere and also communities of elephant mahouts. Senior mahouts keep a secret code and the knowledge of elephant science, elephant art, elephant nature, elephant atmosphere of ancient elephant knowledge including the kinds of plants and animals in elephant forests, and local wisdom preserving of water, forest, and moisture. Therefore, this knowledge should be studied to establish guidelines for elephant homes and care of elephants.

Mostly, the cooperation of Asian society was interested on urban economic, but they focused the minorities group only on the equal right between urban and rural country. The minorities group feeding elephants were the special character. They should be increased more both of the humans right and the elephant atmosphere. All of them were valuable together, the elephant were also valuable to the forest and ecological system.

The minorities group feeding the elephant were the special group of ethnicity with local wisdom, language, believe and religious, and their own traditional medicine. They were many kind of minorities group in Thailand such as; Kuey Achaing in Surin, Khamu in Nan, Khar in Chiang Mai, Kuey in Prachoupkhireekhan. In Cambodia, they were Kuey in Kumpongthom, Phanong in Monthonkiriee. In Lao P.D.R., they were Ta-oye in Salawan and Uttapear, Khamu in Luang Phrabang. In Vietnam, they were Pa and Dong in Duglad and Buanmatour. In Myanma, they were Pao in Charn, Morn in Raman. All those minorities mahouts feeding the elephants were use their language to control their community. They had a special language to communicate with the elephant. Considering carefully, they need to spread their area for their people and the elephant atmosphere in order to increate abundance of forest and environment.

The senior mahouts were a few group of minorities mahouts feeding elephant, who were also the scientist or artist. They had the various knowledges of the elephant. Some person said that their knowledge could not finish teaching in seven years. In current, they were just the elderly who were not interested. They had to put on the ancient costume, and were interviewed by the T.V. charnel, or radio for a few time. The valuable of the elephant sciences related to ecology system and elephant atmosphere were also reduces and lost away. Each country promote only the tourism policy, and they cooperated together creating the area for the tourist. In some place, they used the elephant for the commerce in the general market and illegal market. Those were all the phenomena of the elephant and mahout who just the actors in the circus. They could not used their knowledge to improve their life and elephant back to the natural. Government should get benefit of the elephant and mahout for the various of ecological system in Asian society.

The Study of the relationship between elephant and mahout, found that there were many researches such as; “The Study of the Elephant Local Wisdom in Cultural
Ecology of Phanom-Dongrak and Sepian” (Suwat Unethanon. 2011: Abstract). It was about the mahout strapping the elephant along the way of Phanom Dongrak Mountain, (Thailand), Attapear and Rattanakhiree, (Lao P.D.R.). They used their local wisdom to strap the wild elephant to be the home elephant. They taught their elephant for the tourism promotion. The ecological system of the elephant was more destroyed. Nicharpat Mortong (2011: Abstract) studying about “Ethnic Economic of mahout in Lower Mekong Basin”, was found that the way of life and the identity of mahout ethnic group were Kuey, (Thailand), Lao Lume (Lao P.D.R.), Khmer, (Cambodia). All of them had the same believing about predecessor ghost living in the rope which was in side the spirit house. They also had the similar predecessor about character, language, and ceremony. More over, Phurit Phumpratate, (2014: Abstract), studying about “Leadership of Mahout in Thailand and Lao P.D.R.” It was found that the context of culture, believe, and local wisdom of mahout were similar in the both countries. The story about elephant atmospheres and mahouts were all spread over Thailand such as; Surin, Burirum, Nakhornrachasimmar, Chiyaphum, Karnchanaburee, Rachaburee, Prachoupkhireekhan, Cholburee, Trad, Phuket, Phunga, Suratthanee, Chiangrai, Chiang Mai, and Nan. They were also related to the research of Boonyong Katetate (2013: 13-17), Charern Wairawajanakun (2006: 173-179), and Harn Panyatharo (2017: 12-15)

Thus, social status changes quickly. Technology has an important role in people’s daily life. The problem of elephant atmosphere and mahout are still in the minority groups. The government in Asian society should be interested, inspired to the researcher would like to research about “A study on minority mahouts feeding elephant in Asian related to policy determination on elephant atmosphere, religion, culture for the elderly mahouts in Thailand”

Objectives of the Study

1. To study the way of life of minorities feeding the elephant, and elephant atmosphere in Asian countries; Thailand, Lao P.D.R, Cambodia, Vietnam, and Myanmar.

2. To mapping the Geography and Sociology of elephant atmosphere related the policy determination on various biological restorage, and the part of elephant atmosphere between the boarder.

3. To criticizing and evaluation the policy development for the minorities feeding elephant, and respecting the senior mahout regarding religious, Thai culture, and the culture of humans and elephant in Asian.

Research Methods

This research using the mixed methods between qualitative research and quantitative research as the followings,

1. Qualitative research

  1.1 The samplers were the senior mahouts in Asian countries; Thailand (15), Lao P.D.R.(5), Cambodia (5), Vietnam (5), and Myanmar (5), by using the purposive sampling. The total were thirty five mahouts.
1.2 The research instrument using interview and focus group. They were created by review documentary, article, and research about principle, theory, and information about the elephant atmosphere and elderly mahout. Then, they were evaluated by three experts, before trying out in the area of research.

1.3 Data gathering collection by interviewing the elderly, and focus group, checking the completely of the data, and analysis.

1.4 The data using content analysis, synthesis the group of data category, explain the text, then creating the questionnaire for the next quantitative research.

2. Quantitative research

Researcher using the category issues from qualitative research to continue the research,

2.1 To mapping the Geography and Sociology of elephant atmosphere in the action research conference, the samplers were Thailand (100), Lao P.D.R. (20), Cambodia (20), Vietnam (20), and Myanmar (20), by using the purposive sampling. All of the samples were the students, lecturers, mahouts, who were invited to join the conference. The total were one hundred and eighty.

2.2 To criticizing and evaluation the policy development using the same samplers on No. 2.1

2.3 The research instrument was questionnaire which dividing into three parts, such as; principle data, the list of questions about six aspects, using five level of rating scale (Likert referring to Best. 1982; 181–185). The meaning of level were between highest to lowest. They were created by reviewing documentary, article, and research about principle, theory, and information about the elephant atmospheres and mahouts.

2.4 Research instrument was evaluated by three experts, then examining by index of item objective congruency (IOC= 0.97), the method of Rovinelli and Hambleton, and internal consistency examining of Alpha–coefficient 0.928, the method of Cronbach (Boonchom Srisart. 2007: 76)

2.5 Data gathering collection using three stages such as; 1) mapping the Geography and Sociology of the elephant atmospheres and mahouts in the action research conference), 2) criticizing the policy of the elephant atmospheres and mahouts in Asian, and 3) evaluation the satisfaction on the over all of Geo-social mapping and policy determination.

2.6 The data analysis using basic statistic such as; percentage, mean, and standard division. Data evaluation by computer program.

3. The conceptual frame work as below,
Figure 1: Conceptual frame work of the research

Research Results
This research uses mix methodology between qualitative and quantitative research, the results were as following.

Qualitative Research Result
The way of life of minorities mahout feeding the elephant, and elephant atmosphere in Asian countries; Thailand, Lao P.D.R, Cambodia, Vietnam, Myanmar, were all similar in two categories of way of life and elephant atmosphere. The way of life of minorities mahout feeding the elephant were found in four aspects such as; characteristic, religious and believe, culture, and quality of life.

The characteristic of them were descended from minorities of Kuey Achaing in Surin, Khamu in Nan, Khar in Chiang Mai, Kuey in Prachoupkhireekhan,(Thailand). In Cambodia, they were Kuey in Kumpongthom, Phanong in Montonkiree. In Lao P.D.R., they were Ta-oye in Salawan and Uttapear, Khamu in Luang Phrabang. In Vietnam, they were Pa and Dong in Duglad and Buanmatour. In Myanmar, they were Pao in Charm, Morn in Raman.

Their religious and believe were all similar in well practices. Both of mahouts and their family had to practice in the same thing while mahout going out of home to strap the wild elephant such as; telling a lie, being not to dress up or make up, doing not to cut their finger nail, doing not to have a relationship with another guy or woman. They worship the spirit rope with the same believing that predecessor ghost living in the rope in side the spirit house.

The culture of mahouts were their own language and ceremony. They used their language to speak and control the elephant. When they went out to strap the wile elephant, they and their family having a ceremony to worship the spirit rope. Everybody had to practice seriously in order to protect the mahout while being in the forest. The predecessor in the spirit rope will save them from the wild elephant.
Quality of life of the elderly mahouts, mostly were healthy. They were living with the natural food, fresh air, exercise, entertainment, and their society. So, they had a quality of life in a six aspects such as; mental and physical health, economic, social, local wisdom, environment, and social welfare. The elderly mahout had a long age, between 80-90 years old. Unfortunately, the young mahout feeding elephant were in the civilization. They didn’t practice themselves well like the elderly mahout, so some of them were sick with a cancer and HIV. More over, the tourism and commerce caused them to enjoy more than taking care of themselves.

Researchers arranged focus groups with the elderly, so that more information got out about the elephant atmosphere. There were the large forest and evergreen. Currently, elephant atmosphere overlap borders between the countries in Asian, such as: Long Chou San Forest on the Phanom Dong Rak mountain, Surin province (the border between Thailand and Cambodia), Doi Phu Kha, Nan province (the border between Thailand and Laos P.D.R.), Biological Forest Park of Salween, Cheing Mai province (the border between Thailand and Myanmar), Biological Forest Park of Weerachai, Attape province (the border between Laos P.D.R. and Cambodia), Biological Forest Park of Jumonre, Dug Noong town (the border between Cambodia and Vietnam). All of these are ancient elephant atmosphere and also communities of elephant mahouts. Senior mahouts keep a secret code and the knowledge of elephant science, elephant art, elephant nature, elephant atmosphere of ancient elephant knowledge including the kinds of plants and animals in elephant forests, and local wisdom preserving of water, forest, and moisture. Therefore, this knowledge should be studied to establish guidelines for elephant homes and care of elephants.

**Qualitative Research Result**

Mapping the Geography and Sociology of the elephant atmosphere related the policy determination on various biological restorage, and the part of elephant atmosphere between the boarder. Including, the characteristic of mahout, religious and believe, and culture. The satisfaction of the Geo-social mapping were highest level ($\bar{X} = 4.77$), as the table 1.

<table>
<thead>
<tr>
<th>Content Lists</th>
<th>$\bar{X}$</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Elephant atmosphere on various restorage</td>
<td>4.86</td>
<td>.586</td>
</tr>
<tr>
<td>2. The part of elephant atmosphere between the boarder</td>
<td>4.84</td>
<td>.535</td>
</tr>
<tr>
<td>3. The characteristic of mahout in each area</td>
<td>4.83</td>
<td>.505</td>
</tr>
<tr>
<td>4. The knowledge of religious and believe</td>
<td>4.85</td>
<td>.536</td>
</tr>
<tr>
<td>5. The cultures and ceremony of humans and elephants</td>
<td>4.82</td>
<td>.514</td>
</tr>
<tr>
<td>Total</td>
<td>4.77</td>
<td>.560</td>
</tr>
</tbody>
</table>
From table 1, found that the satisfaction of the samplers in over all were highest level, \( \bar{X} = 4.77 \).
The elephant atmosphere on various restorage were highest, \( \bar{X} = 4.86 \). The lowest were The cultures and ceremony of humans and elephants, \( \bar{X} = 4.82 \).

Criticizing and evaluation the policy development for the minorities feeding elephant, and respecting the senior mahout regarding religious, Thai culture, and the culture of humans and elephant in Asian. The satisfaction were also highest level \( \bar{X} = 4.83 \).

Table 2
The satisfaction of the criticizing and evaluation the policy development

<table>
<thead>
<tr>
<th>Content Lists</th>
<th>( \bar{X} )</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Elephant atmosphere on various restorage</td>
<td>4.85</td>
<td>.582</td>
</tr>
<tr>
<td>2. The part of elephant atmosphere between the boarder</td>
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<td>.530</td>
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<tr>
<td>3. The characteristic of mahout in each area</td>
<td>4.84</td>
<td>.503</td>
</tr>
<tr>
<td>4. The knowledge of religious and believe</td>
<td>4.83</td>
<td>.535</td>
</tr>
<tr>
<td>5. The cultures and ceremony of humans and elephants</td>
<td>4.81</td>
<td>.514</td>
</tr>
<tr>
<td>Total</td>
<td>4.83</td>
<td>.533</td>
</tr>
</tbody>
</table>

From table 2, found that the satisfaction of the samplers in over all were highest level, \( \bar{X} = 4.83 \).
The elephant atmosphere on various restorage were highest, \( \bar{X} = 4.85 \). The lowest were The cultures and ceremony of humans and elephants, \( \bar{X} = 4.81 \).

Meanwhile, receiving more suggestion about the policy determinant regarding the policy development for the minorities feeding elephant and respect the elderly mahout regarding religious, Thai culture, and the culture of humans and elephant in Asian society.

Discussion

The way of life of minorities mahout feeding the elephant, were found in four aspects such as; characteristic, religious and believe, culture, and quality of life.

The characteristic of them were descended from minorities, related to the research by Nicharpat Mortong (2011: Abstract) studying about “Ethnic Economic of mahout in Lower Mekong Basin”, was found that the way of life and the identity of mahout ethnic group were Kuey, (Thailand), Lao Lume (Lao P.D.R.), Khmer, (Cambodia).

Their religious and believe were all similar in well practices, related to the research by Suwat Unethanon (2011: Abstract) studying about “The Study of the Elephant Local Wisdom in Cultural Ecology of Phanom-Dongrak and Sepian” and
Nicharpat Mortong (2011: Abstract), they found that mahouts using their local wisdom to strap the wild elephant to be the home elephant. They had the same believing about predecessor ghost living in the rope which was inside the spirit house.

The culture of mahouts were their own language and ceremony. They also had the similar predecessor about character, language, local wisdom and ceremony, related to the research by Nicharpat Mortong (2011: Abstract), and Phurit Phumpratate, (2014: Abstract).

Quality of life of the elderly mahouts, related to the research by Singha Jantriwong such as; Model Development Suitable for Quality of Life of the Elderly in Rural Area by using Family Center (2008: 203–215), Model development About Quality of Life of the Elderly in Rural Area in Kingdom of Thailand and Cambodia by using Family Center (2010: 310–327), Handbook Promotion Regarding Quality of Life of the Elderly For the Family (2012: 118–130), and Factor and Need to Development the Quality of Life of the Elderly Living Alone in Surin District (2015: 106–119), and Model development regarding quality of life of the elderly in an era Thailand 4.0 (2018: 112–116). The health problem of young mahout related to the research by Somsri Boonmee (2018: Abstract), studying about “Taboo and Well being of Mahout in Thailand and Lao P.D.R.”

Mapping the Geography and Sociology of the elephant atmosphere related the policy determination on various biological restorage, and the part of elephant atmosphere between the boarder. Including, the characteristic of mahout, religious and believe, and culture, related to the research by Achara Phanurat (2008), studying about “The Route of Surin Elephant”.

The policy development for the minorities feeding elephant, and respecting the senior mahout regarding religious, Thai culture, and the culture of humans and elephant in Asian related to the research by Phurit Phumpratate, (2014: Abstract), studying about “Leadership of Mahout in Thailand and Lao P.D.R.”

Thus, social status changes quickly. Technology has an important role in people’s daily life. The problem of elephant atmosphere and mahout are still in the minority groups. The government in Asian society should be interested in mahout and elephant atmosphere more efficiency.

The suggestions by this research
1. It was useful for the elderly minorities mahout and elephant atmosphere, being in sustainable for the characteristic, religious and believe, culture, and quality of life.
2. Asian society, could having an cooperation and apply all these information in the policy determinant efficiency.
3. The tourism and commerce should be awareness for the the elderly minorities mahout and elephant atmosphere more efficiency.

The suggestions for additional research
1. There should be studied and compared between quality of life of the elderly mahout and young mahout.
2. There should be studied and researched about creating and developing the model of preserving mahout and elephant atmosphere.
3. There should be both quantitative and qualititative studies about mahout and elephant atmosphere.
4. There should be studied and researched about mahout and elephant atmosphere in another countries cover Asia, and Asia.

References

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The Development of Community Products from Solid Waste Processing for Occupation Groups

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Abstract

Value adding and processing of solid waste for household use were proposed to villagers at Banyang Sub-district, Muang District, Buriram Province as ways to handle the problems with waste management and household income. Through discussions, workshops and AAR (After Action Review), Banyang villagers who were farmers and workers together with researchers came up with the development of community products from solid and household waste for occupation groups. This kind of waste management could help reduce community waste and strengthen this semi-urban and farming community socially and economically as they voluntarily formed occupation groups to earn extra income from reducing, recycling, reusing waste such as the plastic flower group, the fabric scraps group, the handmade paper group, and shoe polishing cream group.

Keywords: solid waste processing, waste and scraps value adding, community occupation groups

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**Abstract**

The present study was conducted to estimate the population size of two *Hipposideros* spp. and assess the relation between emergence time and sunset time at Kyoe-pin-kone cave and Shame-ma-kar monastery, Shwebo Township, Sagaing Region from June, 2010 to October, 2010. Population estimates of two colonies (one colony of co-existing *H. pomona* and *H. larvatus* in Kyoe-pin-kone cave and another colony of *H. pomona* in Shame-ma-kar monastery) were assessed using tally counter at emergence time from August 2010 to February 2011. The colony size ranged from 80 to 1068 individuals in Kyoe-pin-kone cave and from eleven to 216 bats in Shame-ma-kar monastery. In Kyoe-pin-kone cave, fluctuations of colony size depend on temperature changes but not on humidity and rainfall. Changes in the number of individuals at Shame-ma-kar monastery are influenced by human activities. In both colonies of two sampling sites, sunset time was positively correlated to emergence time with $r = 0.623$, $F=3.174$, $P>0.05$ (Kyoe-pin-kone cave) and $r = 0.844$, $F=12.365$, $P<0.05$ (Shame-ma-kar monastery). In addition, there was a positively correlation between colony size and duration of emergence with $r = 0.713$, $F=5.169$, $P>0.05$ in Kyoe-pin-kone cave. The present study provides the baseline information regarding with colony size important for conservation of group-living organisms and shows the need to do the conservation of bat species.

**Keywords:** population size, emergence time, sunset time

**Introduction**

Bats are an order of mammals (Chiroptera) whose conservation is vitally important for the sustainability of many of the world’s ecosystems. They pollinate many desert and rainforest plants. Insectivorous bats devour thousands of pounds of insects nightly, and frugivorous bats spread seeds, replanting patches of rainforests. However, it is estimated that 45% of the world’s bat species are endangered, threatened or near-threatened (Mickleburgh *et al*., 2002). Given the rapid loss of forest biodiversity elsewhere in Asia (Whitmore, 1997), the substantial forested areas remaining in Myanmar may be some of the last refuges for this country’s native mammal fauna (Struebig *et al*., 2005). Lack of information is one of the greatest, but perhaps least appreciated, threats to bats (Hutson *et al*., 2001).

The genus *Hipposideros* are insectivorous, are the primary consumers of nocturnal insects, and play an important role in controlling insect numbers. Colony
size is an important variable for understanding the biology, ecology, and conservation of group-living organism (Kunz, 2003).

According to Struebig et al. (2005), their studies have shown the importance of Myanmar for the conservation of bat diversity. Effective bat conservation relies on gathering information to identify changes in populations that are of conservation concern and to measure the population response to management (Walsh et al., 2003). There were no previous studies on bat population data and no conservation status in the present study site.

**Objectives of the Study**

1. to insect bat populations in Kyoe-pin-kone cave and Shame-ma-ka monastery at Shwebo Township using evening emergence count method
2. to find out the population size in relation with weather parameters
3. to test the relationship between emergence time and sunset time.

**Previous Studies**

Several workers have documented the projects concerning importance of colony size in conservation strategy and bat monitoring methods. According to Chauvenet et al. (2014) effective management of European bat populations can be achieved through the understanding of life histories, and local demographic rates and population dynamics, in order to anticipate the presence of source and sink sites in the landscape. Pennisi et al. (2004) states information based on studies of wildlife tourists seeking other species is presented, as are examples of bat conservation initiatives based on tourism to change attitudes toward bats while stressing awareness of both potential negative impacts on bat species and economic benefits for local communities. According to Barlow et al. (2015) bats play an important role in ecosystems and are highly relevant as indicators of environmental change. Long-term monitoring of bat populations is therefore fundamental to verifying environmental change over time. Although in the past, significant declines in bat populations have been reported across Europe, only limited data are available from systematic monitoring schemes over long periods. Use of volunteer programmes can be successful in monitoring bat populations, provided that key features including standardised survey methods and volunteer training are incorporated. Some species that are more difficult to detect and identify may however require specialist surveillance techniques.

**Methodology**

**Study Area and Study Sites**

Shwebo Township lies in central Myanmar of Dry Zone. It is one of the 38 Townships of Sagaing Region and it extends from latitudes, 22° 29’ north to latitudes 22° 41’ north and longitudes 95° 29’ east to 95° 58’ east. Because Shwebo Township lies in Tropical Dry Zone, Tropical Savanna type of climate prevails. The type of the forest is mostly scrub forests of xerophytes where thick growth of forest is almost absent. The sampling sites in Shwebo Township included Kyoe-pin-kone village in the vicinity of Peik-taw village and Shame-ma-ka village (Fig. 1).
Study Period
The present study was carried out from June 2010 to February 2011.

Species Capture
Bats were caught using mist net from the entrance of the Kyoe-pin-kone cave. Bats were also captured using hand net under the Shame-ma-kar monastery.

Measuring and Identification
The captured bats were held in cloth bags. Then the species, sex, weight (using Pesola, 600 g spring balance) and external measurements (using general caliper) were recorded. Bat identifications were made immediately in the field by using Bates and Harrison (1997) and Borissenko and Kruskop (2003). Specimens that cannot identify immediately in the field were preserved in 70% alcohol. Then, with careful examination of external measurements and external characters these bats were classified in the Department of Zoology, University of Mandalay.

Population Counts
Bats in Kyoe-pin-kone cave and Shame-ma-kar monastery were censused using hand-held tally counter along flight path at emergence time with one helper. Data were collected one day or three days each month from August 2010 to February 2011.

Ecological Parameters
Ecological data such as temperature, humidity, rainfall and sunset time for the study period were obtained from the Meteorological station at Sagaing Region.
Data Analysis

Pearson correlation and linear regression were conducted to test the relationship between population size and emergence duration and between emergence time and sunset time (using SPSS 17.0).

Results

Monthly Population Size Based on Emergence Count

In the present work, there were fluctuations in the number of bats on a monthly basis at Kyoe-pin-kone cave and Shame-ma-kar monastery, Shwebo Township, Sagaing Region. Over the sampling period, the number of bats in the cave (Kyoe-pin-kone) and monastery (Shame-ma-kar) varied from 80 to 1068 and from 11 to 216 respectively (Table 1 and Table 2).

In Kyoe-pin-kone cave, the highest colony size was found in August 2010 and the lowest in January 2011. The colony remained relatively stable in August 2010 and September 2010 (1068 and 1012 individuals respectively), and decreased suddenly to 537 bats in October 2010, then further decreased to 314 in November 2010. Only 80 individuals were recorded in January 2011. But, the number increased again up to 134 in February 2011.

In Shame-ma-kar monastery, there were 32 bats in August 2010. But, the number increased sharply to 216 in September 2010. The colony size remained nearly stable in October 2010 and November 2010 (195 and 150 individuals respectively). But, sharp decreases in size were recorded in December 2010 (eleven bats) and 25 bat each in January 2011 and February 2011.

Colony Size Based on Weather Parameters

In terms of temperature, at Kyoe-pin-kone cave the number of bats (1068) was highest with highest temperature (30.2 °C) in August 2010 and the number lowest (80 individuals) with lowest temperature (21.65 °C) in January 2011 (Fig. 2). But at Shame-ma-kar monastery, colony size was not dependent on temperature (Fig. 3). According to humidity, the sizes of the colony were not changed in relation with humidity at both Kyoe-pin-kone cave and Shame-ma-kar monastery (Fig. 2 and Fig. 3). Based on the rainfall data, colony size did not depend on rainfall at both sites of cave and monastery (Fig. 4 and Fig. 5).

Relationship between Sunset Time and Emergence Time, Between Colony Size and Emergence Duration

In Kyoe-pin-kone cave, according to Pearson correlation, there was a positive correlation between sunset time and emergence time with $r=0.623$, $F=3.174$, $P>0.05$ (Fig. 6). Thus bats emerged from the roost in response to sunset time. Moreover, the colony size was correlated to the duration of emergence ($r=0.713$, $F=5.169$, $P>0.05$) (Fig. 8) and thus the larger the colony size was, the longer the duration of emergence.

In Shame-ma-kar monastery, there was a significantly positive correlation between sunset time and emergence time with $r=0.844$, $F=12.365$, $P<0.05$ (Fig. 7).
Table 1
Monthly colony sizes, emergence onset, end time and sunset time at Kyoe-pin-kone cave from August 2010 to February 2011

<table>
<thead>
<tr>
<th>Month/Year</th>
<th>Colony size</th>
<th>Emergence onset (h)</th>
<th>End time (h)</th>
<th>Emergence duration (min)</th>
<th>Sunset time (h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>August, 10</td>
<td>1068</td>
<td>18:45</td>
<td>20:00</td>
<td>75</td>
<td>18:18</td>
</tr>
<tr>
<td>September, 10</td>
<td>1012</td>
<td>18:25</td>
<td>19:50</td>
<td>85</td>
<td>18:00</td>
</tr>
<tr>
<td>October, 10</td>
<td>537</td>
<td>18:15</td>
<td>19:20</td>
<td>65</td>
<td>17:41</td>
</tr>
<tr>
<td>November, 10</td>
<td>314</td>
<td>18:00</td>
<td>19:10</td>
<td>70</td>
<td>17:25</td>
</tr>
<tr>
<td>December, 10</td>
<td>207</td>
<td>18:00</td>
<td>18:45</td>
<td>45</td>
<td>17:16</td>
</tr>
<tr>
<td>January, 11</td>
<td>80</td>
<td>18:20</td>
<td>19:25</td>
<td>65</td>
<td>17:20</td>
</tr>
<tr>
<td>February, 11</td>
<td>134</td>
<td>18:43</td>
<td>19:47</td>
<td>64</td>
<td>17:34</td>
</tr>
</tbody>
</table>

Table 2
Monthly colony sizes, emergence onset, end time and sunset time at Shame-ma-kar monastery from August 2010 to February 2011

<table>
<thead>
<tr>
<th>Month/Year</th>
<th>Colony size</th>
<th>Emergence onset (h)</th>
<th>End time (h)</th>
<th>Emergence duration (min)</th>
<th>Sunset time (h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>August, 10</td>
<td>32</td>
<td>19:00</td>
<td>20:00</td>
<td>60</td>
<td>18:18</td>
</tr>
<tr>
<td>September, 10</td>
<td>216</td>
<td>18:40</td>
<td>19:30</td>
<td>50</td>
<td>18:00</td>
</tr>
<tr>
<td>October, 10</td>
<td>195</td>
<td>18:15</td>
<td>19:15</td>
<td>60</td>
<td>17:41</td>
</tr>
<tr>
<td>November, 10</td>
<td>150</td>
<td>18:00</td>
<td>19:10</td>
<td>70</td>
<td>17:25</td>
</tr>
<tr>
<td>December, 10</td>
<td>11</td>
<td>18:00</td>
<td>-</td>
<td>-</td>
<td>17:16</td>
</tr>
<tr>
<td>January, 11</td>
<td>25</td>
<td>18:20</td>
<td>-</td>
<td>-</td>
<td>17:20</td>
</tr>
<tr>
<td>February, 11</td>
<td>25</td>
<td>18:43</td>
<td>-</td>
<td>-</td>
<td>17:34</td>
</tr>
</tbody>
</table>

Table 3
Mean temperature, mean humidity and rainfall from August 2010 to February 2011

<table>
<thead>
<tr>
<th>Month/Year</th>
<th>Mean temperature (°C)</th>
<th>Mean humidity (%)</th>
<th>Rainfall (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>August, 10</td>
<td>30.20</td>
<td>82.00</td>
<td>222</td>
</tr>
<tr>
<td>September, 10</td>
<td>29.20</td>
<td>85.00</td>
<td>157</td>
</tr>
<tr>
<td>October, 10</td>
<td>29.55</td>
<td>89.50</td>
<td>404</td>
</tr>
<tr>
<td>November, 10</td>
<td>27.05</td>
<td>79.50</td>
<td>0</td>
</tr>
<tr>
<td>December, 10</td>
<td>22.65</td>
<td>78.50</td>
<td>48</td>
</tr>
<tr>
<td>January, 11</td>
<td>21.65</td>
<td>72.00</td>
<td>0</td>
</tr>
<tr>
<td>February, 11</td>
<td>22.85</td>
<td>79.00</td>
<td>0</td>
</tr>
</tbody>
</table>
Figure 2: Colony size in relation with mean temperature (°C) and mean humidity (%) at Kyoe-pin-kone cave.

Figure 3: Colony size in relation with mean temperature (°C) and mean humidity (%) At Shame-ma-kar monastery.

Figure 4: Colony size in relation with rainfall (mm) at Kyoe-pin-kone cave from August 2010 to February 2011.
Figure 5: Colony size in relation with rainfall (mm) at Shame-ma-kar monastery from August 2010 to February 2011

Figure 6: Relationship between sunset time and emergence time at Kyoe-pin-kone cave
Discussion

In the present study, two colonies (coexisting colony of *Hipposideros pomona* and *H. larvatus* and a colony of *H. pomona*) roosted in Kyoe-pin-kone cave and Shame-ma-kar monastery respectively changed markedly in population size on monthly basis. Highest colony size (1068 bats) was recorded in August 2010 and lowest (80 bats) in January 2011 at Kyoe-pin-kone cave. But, in Shame-ma-kar monastery, highest number (216) was noted in September 2010 and lowest (11) in December 2010. Hristov et al. (2010) described that the size of the bat colony at Carlsbad Cavern is highly variable on a seasonal and daily basis and over the sampling period the number of bats in the cave varied from 67602 to 793838. Such fluctuations represent natural responses of the colony to factors such as seasonal food availability and local and large-scale weather patterns. Changes in colony sizes in the
present study sites may be response to changing environmental conditions like human disturbances and microclimatic conditions.

In the colony of Kyoe-pin-kone cave, emergence time was positively correlated to sunset time while in that of Shame-ma-kar monastery emergence time was significantly correlated to sunset time (P<0.05). Hence, two colonies at both sites emerged from the roost in response to sunset time in which bats emerged earlier (18:00h in December 2010) when sunset time was earlier (17:16h) and emerged later (18:45h and 19:00 in August 2010) when sunset time was later (18:18h).

Shirley et al. (2001) also supported that sunset time was a significant predictor of the time of bat emergence. Bat emergence time is naturally associated with the onset of darkness. It varies from species to species, and there are various factors that determine the time of emergence, but the average time for each species is determined by sunset time. Russo et al. (2007) further noted that bats may adjust emergence timing according to several other factors, whether exogenous (i.e. environmental) or endogenous (i.e. related to life cycle phases). Among the former, local levels of light intensity, such as those determined by clouds, or canopy cover, may cause variation in emergence time. From comparing the above studies, it may be concluded that bat species can be roughly identified by assessing the emergence time.

In Kyoe-pin-kone cave, there was a positive correlation between colony size of coexisting species and duration of emergence. The result of the present work was similar to that of Hristov et al. (2010) who gave the information that there was a significant positive correlation between the colony size and duration of emergence.

The present work at the Kyoe-pin-kone cave indicated that the number of bats changed in response to temperature factor while the colony size in Shame-ma-kar monastery did not depend on temperature. The result of Kyoe-pin-kone cave coincided with that of Shirley et al. (2001) who reported that the total numbers of bats emerging was independently related to the outside temperature and the time of the year. Temperature is important in determining the number of bats emerging, and it is possible that the bats use temperature as an indicator of insect abundance.

In Shame-ma-kar monastery, the fluctuations of colony size may be due to human impact in which villagers disturbed the roosting habitat of Hipposideros pomona. According to Willig et al. (2007), the effects of human activities manifest primarily as changes in bat abundance rather than by alterations in the presence of species.

Other weather parameters such as humidity and rainfall did not affected on colony changes of both sites. The result of the present work in relation to rainfall was in agreement with that of O'Farrell and Studier (1975) who gave the information that wind and rain did not affect overall activity but did effect emergence time.

Higher numbers (1068, 1012, 537 individuals) were found at higher temperatures (30.2°C in August 2010, 29.2°C in September 2010, 29.5°C in October 2010) respectively. Lower colony size (314, 207, 80, 134 bats) were recorded in lower temperatures (27.0°C in November 2010, 22.6°C in December 2010, 21.6°C in January 2011, 22.8°C in February 2011) respectively. These fluctuations in colony size at Kyoe-pin-kone cave may be related to torpor or hibernation.

According to Sichmeller (2010), torpor is an important strategy for many endothermic organisms. By decreasing body temperature, animals can conserve energy that would otherwise be needed for internal heat production and other
metabolic process. Altringham (1998) also described some members of the Molossidae, Hipposideridae, Rhinopomatidae, and Mystacinidae use torpor. He also stated that torpor is characteristics of insectivorous bats.

Kingston (2010) stated bat conservation research is urgently needed to reduce the impact of forest loss and hunting on the bat fauna of Southeast Asia, yet for historical, financial and logistical reasons, research in many countries is in its infancy. To address this need, the Southeast Asian Bat Conservation Research Unit (SEABCRU) was established in 2007. The SEABCRU is collaboration between academic institutions and NGOs intended to provide an organizational framework to coordinate and implement research, capacity building, and outreach to promote the conservation of Southeast Asia’s diverse but threatened bat fauna. Therefore, the present research work of colony size and emergence data do provide the public interests which promote the people’s perceptions of these bat species which are important for conservation of group-living organisms.

**Recommendations**

Human induced environmental stresses like disturbances during roosting time at Shame-makar monastery and climatic factor like temperature change at Kyoe-pin-kone cave may cause changes in colony size and lead to decline in population. Starting from this point, species extinction appears to occur. Therefore, bat species in the present study site do be conserved by paying awareness and especially local people, stakeholders, NGOs and government should coordinate the conservation efforts by determining the current population, distribution, autecology of each species, sharing knowledge on advantages of bat regarding with ecological and economic services and localized conservation methods.

The followings would like to be suggested for further study.

1. The autecology of each bat species recorded in the present study should be studied for assessing the success of conservation efforts.
2. Population changes of bat species should be observed in long time and style of long-term monitoring.

**References**


Study on the Ta’aung (Palaung) Ethnic People’s Life-Style

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Abstract

This paper was conducted to assess the Ta’aung ethnic People’s Life-style among the ethnic groups which are inhabitants in Myanmar and it was written with the aims that any ethnic people have to stand with their history, culture and tradition. It is also presented about the development of Ta’aung society from historical documents. This paper is based not only on the field trip records but also the ancient records, papers written by scholars and other records which are life-style, social relation, tradition, belief and culture of Ta’aung ethnic people who are mostly inhabitants in northern and southern Shan State. The present study surely support anthropology subject concerning with human races with emphasis on Palaung ethnic group. Moreover, studying the traditions and life style is beneficial to human society which receive good culture patterns to Palaung’ life style.

Keywords: ethnic people, life-style, Ta’aung society, social relation, tradition

Introduction

In the eastern most of the Republic of the Union of Myanmar which is the Shan State, there live the ethnic people who are known to the Myanmar people as the Palaungs, and who call themselves as the Da-Un (Ta’aung). The Palaungs usually built villages in places near the water resources, places of high rainfall, and on mountains and mountain sides, without getting mixed up with other tribes. It can be assumed that the term “Pa-Laungs” referred to by the Myanmar people may have derived from the word Pon-Lon, the term of Yu-nan in China. The chinese referred to the Palaungs as the Pan-Lons, who were the races deriving from the God of the Sun and the female Dragon according to the legend. It is noted that there exist (31) Palaungs villages in the surrounding area of Mansi or Mein-Khaung Town in Yunan of China. It can be assumed that the Myanmar word Palaungs may have derived from the Chinese word Pon-Lon. Those who had come down along the Thanlwin lived far and wide in the east and southeast of Myanmar. Objectives of the study are to investigate the ritual and ceremonies of Palaung and to find out the livelihood of Palaung.

Methodology

The present study was carried out mainly by observing and using the questionnaire responded by the local people living in Shan State.
Results and Discussion

Region where the Ta’aung (Palaung) Live

In the easternmost of the Republic of the Union of Myanmar which is the Shan State, there live the ethnic people who are known to the Myanmar people as the Palaungs1, and who call themselves as the Da-Un (Ta’aung)2. The name Ta’aung means the race that live in high mountain tops and mountain slopes. The Shan people, who are the maximum population in the Shan States, usually refer to these people as Thai-Lwe (Thai= Shan tribe, Lwe = mountain Shan people living on the mountains) or Kun- Lwe (Kun=Man; Lwe= mountain: people living on the mountains)3. The Ta’aungs (Palaungs), who had come down from Yunan High lands, China along the Shwelee, reached the Northern Shan State, Myanmar, and settled there far and wide. Some Ta’aungs (Palaung) coming down from northern Shan State came down along the Ayeyawaddy via Moe-goke, and lived far and wide up to over the west part of Bagan Region.4

In northern Shan State, Nam-san Township, Nan-Kham Township, Muse Township, Kut-khaing Township, Man Ton Township, Nammatu Township and Kyauk-me Township are the areas where they live the highest population of the Palaungs. In Thibaw Township and Lashio Township, they live and share together with other races. In southern Shan State, in Mai-kaing Township, Lè Char Township, Nam-san, Kho Lan, Mai-seik, Kun Hein and Mai Naung in Loi Lin District, and Kalaw, Yak-sauk, Pintaya, Ywa-Ngan and other township in Taunggyi District, there live the Palaungs. They also live in Kyai-Tong Township in eastern Shan State.5

According to 1931 census, there existed over 600,000 populations of Thai-Shan, and the population of over 178000 of Ka-yin (Pa-0) ethnic group6 while the population of the Palaungs and Palays7 was over 140,000.8 In 1955 Report of the Ministry of the Shan State, in mentioning the approximate population of the ethnic groups living in the Shan State, it was recorded thus: 800,000 populations of the Pa-Os, and 100,000 population of the Palaung.9 In the report which mentioned the ethnic groups of the Shan State in 1982 in percentage it was recorded thus: 47.44% Thai

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2 Ibid.P.87
7 The Palaungs are of two types, namely Shwe Palaung and Ngwe Palaung: the letter is called Pa- Lay in southern Shan State. They live in Lew-Lin District Maikai Township and the inner part of Kalaw Township, taunggyi District, southern Shan State (U Min Nain, Do-Thwe Do-Thar Tai-yin-Bwar, Yangon. The Union of Myanmar Buddhist Sāsanā Press, 1967, pp.51-52. (Henceforth: Min Nain, 1967)
Shan, 5.2% Pa-O and 5.2% Palaung.\textsuperscript{10} So it can be assumed that the Palaung races have been a principal ethnic group in the Shan State.

**The Life-style of the Palaungs**

In the former times, the Palaungs usually moved to another place when another stranger had moved in or when their cultivated lands had got poor in soil. The Life-style of the Palaungs was based on the communal land system separate villages were built according to different races.\textsuperscript{11} To build a village, first the location was chosen. The square shaped plot of land in the center of the village area was cleared smooth and clean. A study was driven in to the ground at the central point. Then twenty or seven or five rice grains were dropped on the ground nicely in order. Then the rice grains were covered with a small bowl. The central square was protected by the bamboo patch work. Prayers for the guardian spirits of the hill forest and mountains and the guardian spirit of the religious belief were said. A sentry was appointed to spend one right there. On the following morning, the bowl was opened, and the rice grains were checked. If the rice grains lay there undisturbed in the original order, it was assumed that this piece of land was fit for building a village. Then plots of land were laid out in blocks. Mostly, the houses were built on the east and west sides of the mountain range and on the slopes, the ridge of the roofs in line from north to south. Mostly, the villages were built in places where mountain springs and streams are available.\textsuperscript{12} However, today, the traditional customs for building a village and houses, etc., have been on decline.

In building a house, in the former times, a cook was killed, and the blood of the chicken was smeared on the pole in the centre of the house. Today, however, a piece of wood with the shape of a cook’s crest is placed at the roof top, which is getting popular.\textsuperscript{13} Again, it is noted that in the former times, the Palaungs of southern Shan State built the traditional barrack like houses. A traditional house consists of only two rooms. Only when the children have grown old and got married, more rooms are extended in partitions. Thus the new family does not live separately, but under the same roof.\textsuperscript{14} In the three central rooms there live parents and grandparents, while the newly married some and daughters live on both sides.\textsuperscript{15} One household might have about 15 families: over 100 people live under the same roof. Each family sharing the same meal has at least one bed room and one sitting room. The stove is kept on a smoked shelf dangling from the ceiling of the bad room.\textsuperscript{16} Since a family is separated with a stove, the number of stoves tells how many families there live.\textsuperscript{17} The staircases and the entrances are built at each side of the barrack. Some barracks have only two windows, one or the east side and the other on the West side, but other has no windows at all. So the whole barrack has only one entrance and one exit. Underneath


\textsuperscript{11} The Customs of the Myanmar National Races (Shan)”, 1970, p. 149

\textsuperscript{12} Daw Mon Mon Than (Accountant-3): “The traditional Cultural Customs of the Palaungs in Kalaw Township”. Department of Archaeology and National Museum (Taunggyi Brauch). Computerized copy 31 March 2016, p.54 (Henceforth: Mon Mon Than, 2016)

\textsuperscript{13} Min Naing, 1967, pp.30-88

\textsuperscript{14} Traditional Customs of the National Races, 2014, p.130

\textsuperscript{15} Min Naing, 1967, p.54

\textsuperscript{16} Daw Yin Yin Myo (Deputy superintendent, Museum and Library). "The Trend of the Palaungs in Nam-Sam Township: A study of ICH". Department of Archaeology and National Museum (Taunggyi Brauch). Computerized copy 31 March 2016, p 30 (Henceforth: Yin Yin Myo, 2016)

\textsuperscript{17} Mon Mon Than, 2016, P.55
the house some poultry farm animals like pig, buffalo, axon or cow, and chicken are bred. The granary and the cottage for keeping fire wood are built separately. The house is built in two levels, upper and lower: the lower floor is meant for entertaining the guests, there was a custom of having a stove at the low shelf right in front of the respective room. Nowadays, the custom of building barracks for residence has disappeared, since the buildings today have the modern design.

There existed a custom related to the construction of a house. There are three ethnic sub-group, namely Gan-done (Myo-gyi), Gan-de (Myo-To) and Gan-dan (Myo-shc) under the umbrella term of Palaung. The first ethnic sub-group (Gan-done) was to build mansions, the Gan dē, to build small houses, and the Gan-dan, to live in stilted houses. It is noted that the houses of each ethnic sub-group used to bear a representing logo.

In the style of consumption, in the former times, the Palaungs cooked rice as follows: rice is put in a wooden container, which is like a steaming pot, and which is heated until the rice is half cooked. Then a certain amount of the half cooked rice is placed in a bowl, in which due amount of water is poured and stirred. Then the half cooked rice is put back in the steaming container, which is heated until it is well cooked. Today the custom of cooking rice in a steaming wooden container has almost gone into oblivion. Bamboo shoot, fermented bamboo shoot, tofu and fermented custard are always consumed as curries. A little oil is used, but the curries are usually boiled. The meal is set as follow: a large tray resembling the Myanmar traditional Daung-Lan is placed on the floor. A soup bowl is put in the center of the tray. The rice is heaped on the tray, and shared by all the family members, seated around. It is noted that there still exists such a custom of the family eating together in certain region.

The Dress of the Palaung

The dresses of certain national races living in the Shan State were related to the traditional legends from which these people were supposed to have descended. The Pa-Os believed that they descended from Father the Demi-God and Mother Female Dragon, and naturally, the Pa-Os women wore layer after layer of dresses. Loi Similarly, the Palaungs, believing they had descended from Father God of the Sun and Mother Female Dragon, wear unique dresses: in the women’s dresses, while those who, according to the day time, wear dresses of daggling hues, those who according to the legend had seen Mother Female Dragon at twilight, wear dark costumes. Moreover, the Palaung women wear the head gear (Khaung-Saung Chon-The), woven in the shape of a dragon’s crest. The red stripes or the blouse are woven in such a way as would look like the wrinkles on a dragon’s mock. On each side of the head gear is woven a bright circular piece of cotton, representing the eyes of a dragon. The spots and the flowers below the mock line of the blouse represent the scale of a

18 Yin Yin Myo, 2016, p. 31
19 Min Naing, 1967, p.54
20 Traditional Customs of the National Races, 2014, p.124
21 Mon Mon Than, 2016, PP.46-47
22 Min Naing, 1962, p.48
23 Min Naing, 1967, p.53
24 Yin Yin Myo, 2016, p. 27
25 Min Naing, 1967, p.53
26 Traditional Customs of the Nationak Races, 2014, p.135
dragon. Some wear small silver fish toys fixed on the waist line, representing the scales of a dragon.  

The dresses of the palaungs vary from region to region. The Palaung women wear the stiff collared, white shite inside and a black shirt over it. As the head gear representing Father God of the Sun, a pink head gear is wrapped anti-clockwise. Young men wear a pink waist tie. As the nether garment, they wear baggy pants kike the Shans. The Palaung men’s dresses vary only a little from region to region. On the other hand, the palaung women’s dresses are of thirteen types varying according to region and ethnic tribe. They are:

1. The head gear has a dragon’s crest. The dragon like dress has yellow sequins over the red. The Hta-mein (woman’s nether garment) is wrapped around the waist, a piece of cloth covering the front. She wears silver hat, silver waist tie and silver ancients. In the older times, they also wore gold era plugs.

2. Young women wear a hat while the married woman wraps her head with a towel. The colours of the dresses can be blue for the blouse, and black for the Hta-mein. Their calves are covered with a black piece of cloth.

3. A palaung woman wears a white head gear. The dress has a green fringe, sometimes white or red. The black Hta-mein has horizontal, red lines. She wears silver wares on the head, on the hands and the legs around the waist.

4. A palaung woman wears a white head-gear. The green dress has a red fringe, while the Hta-mein has silver around her waist, and silver wares on her head, her hands and legs. She puts on an anklet around her calf.

5. A palaung woman wears a dark head-gear on her head. Her dark dress has a red fringe, stitched with small silver plates on it. The dark Hta-main has horizontal red stripes. She wears silver-wares on her head, hands and legs and around her waist.

6. A palaung woman wears a head gear adorned with red fringes. She wears a red dress, and the Hta-mein of purple and dark in mixed hues. She wears a wicker waist tie, and silver wares on her head, legs and hands.

7. A palaung woman wears a pink head gear. The dress is dark and red. The dark Hta-mein has a wite or red stripe, the fringe being a colourful one. She wears a silver waist tie, silver ear drop rolls, and silver coins, as well as anklets.

8. A palaung woman wears a pink or white head gear. The black velvet gown has a red fringe, the Hta-mein is red.

9. A palaung woman wears a dark head gear, adorned with beautiful sequins. The green velvet dress has a red fringe. The red Hta-mein has yellow stripes. She wears silver wares in her dress and around her waist.

10. A palaung woman wears a white or colourfull head gear with silver chains as the adornment. She wears orange velvet dress. The Hta-mein woven in arrange and a red hue has a dark strip at the upper part.

11. The dress is woven in cherry hue, with a red fringe, with the white dress inside. The Hta-mein is cherry-hued, with dark stripes.

12. A Palaung woman wears a white headgear. The dress is red velvet in colour. The red Hta-mein has a white cover in front. She wears a silver waist tie. She puts a red shawl on her hand.

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27 Min Naing, 1967, p.6
28 Traditional Customs of the Nationak Races, 2014, p.135
29 Min Naing, 1967, p.87
13. A Palaung woman wears a red head gear and red dress, with yellow stripes. The red htamein has a red waist cloth for tying around the waist.30

The dresses vary not only according to the region but also according to accessories. The Palaungs are of two groups rammed Shwe Palaung and Ngwe Palaung, depending on the places of settlement, “Atwin Taung” (Inside the Hills) and “Apyin-Taung” (Outside the Hills). Besides, they are classified according to the dress styles. The Shwe Palaung, as the name implies, wears all kinds of golden jewelry such as gold ring, gold bracelet, gold comb, gold hair pin, gold ear plugs, gold ear rings, gold necklace, gold chain, gold brooch, etc, depending on one’s wealth. On the other hand, though one may be very rich, the Ngwe Palaung, as the name implies, highly values silver jewelry.31 The Ngwe Palaung usually lives in Southern Shan State. A Ngwe Palaung women follow the custom of wearing wicker circles around her waist.32 The dress and accessories can distinguish a married woman from a single. A Shwe Palaung single woman shows by wearing flowers in her ear plugs that she is single. A single woman who cannot afford to wear gold ear plugs has to wear a head gear, putting a nicely folded shawl on her shoulder or on her hand.33 A Ngwe Palaung single also called Pa-Lay, wears a head gear while the married one wraps her head with a shawl.34 Moreover, a Palaung single wears a bright-coloured dress, silver bracelets, ear plugs and anklets, with no wicker circle around her waist. Only a married one wears the wicker circles around her waist, putting threads in her hair.35

Livelihoods of the Palaungs

It must be pointed out that the Livelihoods of the Palaungs are simple. Besides mountain paddy, vegetables are also grown together among the paddy plants.36

The main rural economy of the Palaung nationals is tea, their traditional product. Tea business is classified into three pickled tea, dry tea, and dry tea for making tea.

It is well noted that Zayan-Gyi Region in Taung-Pai Region is famous for its best quality tea for having fertile lands. Since the Palaung even consider tea plants as their Life, tea plants are highly valued.37

However, according to some research findings, some Palaungs breed swine and chicken under their houses with fencing or at a separate pen, especially swine. But poultry farming is not done systematically, but it is meant to provide additional income to the family’s insufficient earnings.38 It is noted that in some regions, some Palaungs make a living by hunting.39

There exist hand weaving called Jet-koke, in which bags, Hta-mein and head gears are woven.40 Weaving and selling the traditional costumes and colourful hats

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30 The Traditional Customs of the National Races, 2014, p.135-140
31 Min Naing, 1967, p.6
32 Min Naing, 1967, p.29,52
33 Min Naing, 1967, p. 20
34 Min Naing, 1967, p. 52
35 The Traditional Customs of the National Races of Myanmar (Shan), 1970, p. 306
36 The customs of the National Races of Myanmar (Shan), 1970, p. 113
37 Myanmar Encyclopaedia, 162 (Sa), P. 262
38 The Customs of the National Races of Myanmar (Shan), 1970, p. 126-127
39 (a) Mon Mon Than, 2016, p. 26
(b) The customs of the National Races of Myanmar (Shan),1970 pp.127-128
40 (a) Thu Thu Aung, 2016, p. 34
(b) The Traditional Customs of the National Races, 2014, p.147
has been the main business for some Palaungs.\textsuperscript{41} Weaving bamboo baskets is done as a domestic business.\textsuperscript{42} No large-scale trading is not found in the regions of the Palaungs.

**Art and Literature of the Palaungs**

Since the Palaungs mostly live in southern and northern Shan State, there exist differences in art and literature. In 1940, the Palaung man pok Hsan of Namsan Town, Zayar Gyi Region, once again, invented the Palaung alphabet. On 17 July, 1967, the Shan State supervision Committee established the Palaung literature Committee that comprised two members, with the Shan State Supervisory Committee Cultural Officer in Charge U Kyaw Zaw as the Chairman. However, the Palaung students form the universities and colleges of Mandalay, Yangon and Taunggyi held the first Palaung literature and culture conference at Zayan Gyi Village on 29th, February, 1972, and there the literature and Culture Central Committee was established. Then from 30 August 1972 to 2 September 1972 the second Conference was held at Phar Din Village, Nam-kham, and there, the Palaung literature was confirmed. As a result, the day 18th August was announced to be the Ta’aung (Palaung) literary Day.\textsuperscript{43} The Palaungs have their own musical instruments and traditional dances. There is a drum music troupe preformed by the Palaung men. The Palaungs in Kalaw Township, Southern Shan State, sang poems called chalk Lone Sat (six words in each line) in the olden days.

**The Traditional Customs and Belief**

In religion, the Palaung confess the Theravada Buddhism. But while the Atwim-taung Shwe Palaungs confess the Sudamā Sect, the Apyin Taung Ngwe Palaungs confess the Yaw-Ne Sect. Later, some Ngwe Palaungs have come to confess the Sudamā Sect.\textsuperscript{44} In the olden times, the Palaungs of Nam-Sam Region, Southern Shan State confessed the Mahāyāma beliefs belonging to the Yum Sect, but later they were converted to Theravada Buddhism.\textsuperscript{45} It is noted that the Palaungs who confess other religions except Buddhism are only a few.

In Taung Pai Region there lives an old man named Tar-Pa-Leim (Grandpa from the Sky). He is responsible for undertaking the duty of the Spirit propitiating ceremony in the month of Nataw (December) and say prayers for a good harvest of tea and fetch good prices, and say prayers for protecting from the anger of the Spirit of the Mountains. Every year, the Palaungs have to go and pay homage to him with cash, clothing and food. When that Tar-pa-Lein dies, an old person among his relatives is to succeed to his position.\textsuperscript{46}

In the olden days, a married Palaung woman had to cut her hair and shave her head. But today, the educated Palaung women and the Palaung women living in cities no longer shave their heads when married.

In the olden times, in Anauk Kin and Zayan Gyi Village in Taung Pai Region, young people reaching puberty have to gather at a public hall in the village, and water is poured onto their heads by the old maids and bachelors, which marks a new member of the Unmarried Young People Group of the Village. There stands the

\textsuperscript{41} Mon Mon Than, 2016, p. 57
\textsuperscript{42} Thu Thu Aung, 2016, p. 34
\textsuperscript{43} Competitions related to the Palaung Literature are held every year on 30th August. (Mon Mon Than, 2016, p. 14)
\textsuperscript{44} Min Naing, 1967, p. 37
\textsuperscript{45} Yin Yin Myo, 2016, p. 9
\textsuperscript{46} Min Naing, 1962, p. 15
Pagoda of unmarried, Young People on the hill of Zayan Gyi Village, which is the meritorious deed of the local unmarried, young people.47

There exists a unique custom of the Palaung: no matter the parents on both sides have given their consent for marriage, the prospective groom has to get the prospective bride to elope with him three times before the marriage. One or two days later, the bride’s parents come and take her back. Two or three times, the same custom of getting the bride to elope is practiced. The bride’s parents come again and take her back home again, which probably shows that her beloved parents do not want her to get married. It is said that this custom has nearly died out in cities.48

In order to protect the house from the danger of diseases and devils, some people take out the coins from the pot of Kim-pun (soap) while the monks are reciting Paritta texts, and these coins are kept in bags or pockets.49

The Palaungs living in Yaw Ngam and Nam-Sam Regions in Southern Shan State have the tradition to be followed in a funeral service: if a person dies in the month of Taga, the burial service must be dispatched immediately.50 In Yat-Sauk Region, when a person dies, the local chief gets informed, and a day is chosen for the burial service. If the burial service is done on an improper day, bad things must fall onto the rest of the family. If it is a good day, the burial service is done on that very day.51 The Palaungs of Kalaw, Ywa Ngan and Nam-Sam regions in Southern Shan State regard the month of Nataw as the National New Year Month of the Ta’aung (Palaung).52

To sum up, the study of the life style of the Ta’aungs (Palaung) show that since they are Buddhists, since they have lived closely together with other ethnic groups, their life styles, social affairs and religions do not differ much. The Palaungs living in Pintaya and Ywa Ngan Regions mostly live together with the Danu nationals, so in the course of time, they will come to learn the Damu language, and finally get more or less mixed up with other culture, life style and food. However, the unique customs of a particular ethnic group will it is hoped remain forever. Moreover, it is noted that the existence of a separate Palaung region in Taung Pai Region (Nam-Sam), northern Shan State, where the Palaungs are mostly settled, enables them to preserve their life style very well.

Recommendations

The study on the life style of Palaung known as Ethnography is beneficial in conserving species diversity from tree species to human races. Palaung ethnic lives separately with their own literature and culture in Shan State, Myanmar. However, there may be decrease in their culture and life style by mixing to other races. Therefore in addition to life style, distribution, value system on social organization, housing pattern of Palaung ethnic should be studied for further research.

47 Min Naing, 1962, pp. 20-21
48 Min Naing, 1967, pp. 26-27
49 The Traditional Customs of the National Races, 2014, pp. 115-116
50 (a) Thu Thu Aung, 2016, p. 31
   (b) Yin Yin Myo, 2016, p. 34
51 Nay Kyin, 2016, p. 17
52 (a) Mon Mon Tha, 2016, p, 24
   (b) Thu Thu Aung, 2016, p. 14
   (c) Yin Yin Myo, 2016, p. 12
Figure 1: The Barrack-like house of the Palaungs in the Olden Times (Source: Mon Mon Than, 2016, 56)

Figure 2: The traditional Palaung barrack-like house (Source: Yin Yin Myo, 2016, 31)
Figure 3: The costume of the Ngwe Palaung woman in the old style
(Source: Thu Thu Aung, 2016, 8)

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The Palaungs are of two types, namely Shwe Palaung and Ngwe Palaung: the letter is called Pa-Lay in southern Shan State. They live in Lew-Lin Destrict Maikai Township and the inner part of Kalaw Township, taunggyi District, southern Shan State (U Min Nain, Do-Thwe Do-Thar Tai-yin-Bwar, Yangon. The Union of Myanmar Buddhist Sāsanā Press, 1967,.


Cultural Homogeneity through Dances India & Burma (Myanmar)

P. Lilabati Devi

Abstract

The Indian Grantha script in general and the Manipuri History in particular may easily describe the prolonged cultural relationship sustaining between Indian and Myanmar. Hinduism and Buddhism arrival at Burma in ancient times. It is said that ‘Brahma’ is a part of Hindu trinity, a four headed deity and it is not only in closest similarity to ‘Burma’ but also the name ‘Myanmar’ is a regional language transliteration of ‘Brahma’, where ‘b’ and ‘m’ are interchangeable. Arakan (Rakhine) Yoma is a significant natural mountainous barrier between Burma & India, and the migration of Hinduism into Burma occurred slowly through Manipur.

The North-Easterners in general and Manipuri in particular have a long and established relationship with South East Asia and thereby shaping the closest similarities between Manipuri dance and Balinese dance, in respect of gesture, forms, colours of attires. The slow and sedated movements of Myanmarese Bagan dance do have manifold similarities with Manipuri Ras dance and the best known Dasagiri demon form of the 24 classical demon form of Bagan dance is related to India’s Ramayana epic. Bilu dance of Burma originated from the story of legendary race roamed round India and Burma. The Ramayana dance introduced in Burma by king Ksinbyushin of the hounbung dynasty is again a proven mark of India-Myanmar aged relationship.

Hnaparthawa (Elephant dance) of Burma is linked to Temple dance of Kerala. The ethnic minority communities do often performs dances with swords; drums with frisky movement are closely similar to dance forms of indigenous Manipuri communities. The Naban Zan dance and the Ushway dance forms of Burma are having similarities with Kathak form of India. The finger movements of Burmese Kabyalut dance are closely similar to that of Chali & ras dances of Manipur. The uses of Dou: ba drum and Ou-zi drums of Ou:zi dance Myanmar are closely similar to the Meitei pungs and the sembungs of Manipuri folk dance. Myorails of similarities between the dance forms of India and Burma that also can easily be shown off with the dance forms of North east India and Burma exemplifies the inseparable cultural communications of the two countries.

Keywords: Cultural historic of NE India & Burma; -similarities of dance forms; - Future road map of culture of the two countries; Importance of NE India (Manipur in Particular)
Impact of Culture and Gender on Conflict Management Styles of Myanmar People

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Abstract

The underlying value of a culture (e.g. individual competitiveness versus group harmony) often shape communication expectation and attitude. The goal of the present study was to investigate the impact of culture and gender on the conflict management styles of Myanmar people. The research question that guides this inquiry is as follow: Do participation in these types of conflict styles belong to a particular type of culture or gender? The survey was administered to 95 people across Myanmar. Of the total participants who responded to the survey, 81.05 % (N=75) were female and 18.95 % (N= 20) male. The researchers use data from a survey of both government servants and stuff from company and business to identify what kinds of conflict styles they use and how culture and gender influence their conflict styles. The responses reflect the results of a survey in which participants reflect on the past and their current styles of conflict. The results, therefore, are different: 87.23 % are from government sector; 12.77 % are company stuff. The result is discussed with regard to the conceptualization of culture (Individualism and collectivism) and the role of the gender. The resulting analysis showed that Myanmar people tended to be more collectivistic, and utilize a wider variety of conflict management styles including obliging, compromising, integrating, dominating and avoiding. In addition, gender had a significant relationship only with the avoiding conflict management style, the obliging, compromising, integrating, and dominating conflict management styles.

Keywords: individualism, collectivism, Myanmar context, gender

Introduction

In a global workforce, people bring with them different work habits and cultural practices. We find ourselves having increased contact with people who are culturally different. Neighborhoods and communities are changing. In what was once a homogenous community, we may now find more diversity and cultural values in flux. In fact, cultural differences can exist between people from different cities within the same nation (Fitzsimmons, 2013). It is inevitable that employees and customers from dissimilar cultures are in constant contact with one another – whether it is face-to-face, cellular phone, Skype, smart phone, or e-mail contacts.

The underlying value of a culture (e.g. individual competitiveness versus group harmony) often shape communication expectation and attitude. Within any culture, there are people who act more like collectivists or like individualists. The ultimate goal of any organization is to bring together individuals such that they unite to perform a designated mission in order to achieve specific goals (Bernard, Goldstein, & Hazy, 2006). As diversity becomes the beauty of the community,
conflict becomes inevitable, necessitating members within the community to decide their approach to conflict based upon their culture (LeBaron & Zumeta, 2003).

Previous research show that people from Asian countries tend to be more collectivist, there was no definite research concerning with Myanmar people in identifying their culture and their conflict styles. People’s social behavior is the consequences of norms, duties and obligations. Conflict refers to those situations in which differences in interests, needs, and values among people impede or hinder the resolution of a problem. Conflict is a vital part of human beings. Through it we learn and grow. Although many people see conflict as negative, and thus try to avoid it, conflict is not negative or positive. What can be negative or positive is the way we handle it. We modify our conflict style as we grow and develop. Our experiences help us to do that Conflict arises when there is disagreement and it gives rise to affective or emotional reactions (heightened stress, anxiety, frustration, anger, fear, etc.).

Hammer (2003) adds that “conflict is more than misperception or misunderstanding.” To him, people have conflicts because they have substantive disagreements in what they want or need. Hammer suggests that our conflict styles, which are “patterns of stages of our socialization process. This is to say that our behavior related to the way we communicate” (p. 6), are first learned how to respond to conflict situations from others.

Figure 1 illustrates five main conflict management styles. In this case, five conflict styles are defined as dominating, avoiding, obliging, compromising and integrating. The participants were asked to compare their conflict styles in grading such as 4- strongly agree, 3- moderately agree, 2- moderately disagree and 1- strongly disagree when they encounter the specific problem with their acquaintances.

The role of gender in determining an individual’s choice of conflict management style has also been researched extensively in the literature (Heim & Murphy, 2001; Jordan, 2001; Nelson & Lubin, 1991; Rojahn & Willemsen, 1994; Rowley, 2010; Shockley-Zalabak, 1981). The literature on gender’s role in conflict management has fluctuated and remains inconsistent. Some researchers argue that gender plays a significant role in conflict management styles (Nelson & Lubin, 1991) while other scholars argue that gender provides no significant role in choice of conflict management style (Kim et al., 2007).
**Objectives**

This study explores how culture and gender of Myanmar people influence their choice of conflict management styles to resolve interpersonal conflicts in the workplace. In the workplace, differences in expectations regarding workplace nature, norms, and interpersonal relations with co-workers and gender roles religious values can create conflicts. Because people come from different cultural background, they will likely utilize different conflict management styles.

i) To identify whether culture and gender can influence conflict management styles.

ii) To identify the overall trends in conflict management style preferences in the workplace for people from Myanmar.

This research tries to investigate the most favorable conflict style found in Myanmar people, especially if the objective is to identify the culture that Myanmar people tend to have. Thus, the objective of this study is meant to find out the relationship between the culture, gender and their conflict management styles in resolving the conflict.

**Methodology**

Key theories that undergird this research are Ting-Toomey et al., 2000 and C. Chung theory of assessing your five conflict styles. This theory of intercultural communication revolves around the idea how individualism and- collectivism value patterns influence the use of diverse conflict styles in ingroup-outgroup conflict situations (Ting-Toomey & Kurogi,, 1998 ; Ting-Toomey&Takati,2006). This self-assessment is extremely important when people are trying to solve the conflict. In addition to the theory of self-assessment, we also assessed model of cultural conditioning process, personality attributes and ingroup-outgroup conflict situations (Oetzel, Arcos Garcia,& Ting-Toomey,2008)

**Samples**

People from government sector, private sector and students included in this questionnaire. The survey was administered to 95 people around Myanmar. The total participants ($n=95$) responded to the survey, 81.19% ($n=75$) were female and 18.81 % ($n=20$) male.

**Research Instrument**

Questionnaires consisting attitude scales towards the conflict with acquaintances are used to ask the people’s opinion. In the questionnaire, core question items focus on gender, occupation , twenty items corresponding to five conflict styles: (i) dominating or competitive/ controlling style, (ii) avoiding style, (iii) obliging or accommodating style, (iv) compromising style and (v) integrating style.

**Data Collection**

In order to examine five conflict styles of participants, responses to the questions of general indicates scoring on items 1, 6, 11 and 16 indicates avoidance conflict style, scoring on 2, 7, 12 and 17 compromising conflict styles, scoring on items 3,8,13 and 18 indicates dominating or competing conflict style, scoring on item 4,9,14 and 19 indicates integrating or collaborating, scoring on items 5,10, 15 and 20
indicates obliging conflict style. In this study, attitudes towards the conflict with their acquaintances are analyzed by using Google Form.

**Dominating or Competitive Style (14.52%)**
This style emphasizes conflict tactics that push for one’s own position above and beyond the other person’s interest. It is found that 14.52% of the participants use dominating style that includes aggressive, defensive, controlling, and intimidating tactics.

**Avoiding Style (Avg = 27.35%)**
The data presented below are based on weighted response of the participants from the survey. It is discovered that 27.35% of the participants use avoiding style that involves dodging the topic, the other party, or the situation altogether. This style includes behavior ranging from glossing over the topic and denying that conflict exists to leaving the conflict scene.

**Obliging or Accommodating Style (18.59%)**
The responses of 18.59% of the participants indicates obliging or accommodating style which is characterized by a high concern for the other person’s conflict interest above and beyond one’s own conflict position. Individuals tend to use the obliging style when they value their relationship more than their personal conflict goal. They tend to either smooth over the conflict or give in to the wishes of their conflict partners.

**Compromising Style (Avg = 20.19%)**
20.19% of the participants responded that the way in which involves a give-and-take concession approach to reach a mid-point agreement concerning the conflict issue; for example, individuals tend to use fairness appeal, trade-off suggestions, or other quick, short-term solutions. It is an intermediate style resulting in some gains and some loses for each party.

**Integrating or Collaborative Style (19.36%)**
(19.36) % of participants used integrating or collaborative style that reflects commitment to find a mutual interest solution and involves a high concern for self-interest and also a high concern for the other person’s interest in the conflict situation. In this conflict style, individuals tend to use no evaluative descriptive messages, qualifying statements, and mutual-interest clarifying questions to seek common-ground solutions. This is the most time-consuming style of the five conflict style.
Figure 1: shows the percentage of the scores of the participants towards conflict management styles.
Figure (1) demonstrates the percentages of the scores of the participants towards the five conflict management styles. More respondents (27.35%) usually use avoiding conflict style, (20.19%) compromising style, dominating style (14.52%), integrating style (19.36%) and obliging style (18.59%). People were also slightly more likely to use avoiding style to deal with their personal conflicts.

![Conflict Management Styles](image)

**Figure 2: Conflict Management Styles ranged in their choices**

Figure (2) shows the factors ranged in their scores: avoiding style (27.35%), compromising style (20.19%), integrating style (19.36%), obliging style (18.59%) and dominating style (14.52%). To gain an understanding of conflict management styles of Myanmar people, their responses are rated regarding the most favorable one to the least favorable one in dealing with their interpersonal conflicts.
Figure 3: Scores of Male and Female towards conflict managing styles

Figure (3) demonstrates the comparison of the scores between male and female participants in responding the five conflict styles. Male participants use slightly more avoiding conflict style (21.80%) by scores (250) than the scores of female participants (17.00%) by scores (183). The average conflict both of them use is “Obliging Style” with slight difference of (21.10%) and (21.20%) respectively. Dominating style is the fourth least style used by female participants and the fifth least style used by male participants (17.60%) and (17.70%) respectively. The first most style by female and the second most style by male is “Integrating” by (22.40%) and (21.40%) respectively.
It can be assumed that 14.52% of participants tend to be individualists and 85.48% tend to be collectivists according to Cai & Fink,2002; Oetzel, Garcia, & Ting-Toomey, 2008; Oetzel et al., 2001; Ting-Toomey et al., 1991; Ting-Toomey, Yee-Jung, Shapiro, Garcia, Wright, & Oetzel, 2000. Individualists tend to use more self-defensive, dominating or competitive conflict styles in managing disputes than do collectivists. In comparison, collectivists tend to use more integrative and compromising style in dealing with conflicts than do individualists. Moreover, collectivists tend to use more obliging and avoiding styles in a wider variety of situations than do individualists.

**Results**

According to the data, this research suggests that culture and gender of Myanmar people are associated with their managing conflict styles in dealing with their personal conflicts. Firstly, the scores on using avoiding conflict style is the most significant with the highest percentage (27.35%). The second most scores is “Compromising Style” with 20.19% and it is slightly different with the third most scores of “Integrating Style” 19.36%. Additionally, the least score is “Dominating Style” 14.52% that is comparatively less than the one “Obliging Style” with the percentage of 21.90 %. Therefore, this research suggests that people around Myanmar tend to use “integrating style” with average percentage of 19.36%.

More scores on avoiding conflict style (21.80%)(250) are got by male participants than the scores (17.00%)(183) by female participants. The average conflict scores both of them use is “Obliging Style” with slight difference of (21.10%) and (21.20%) respectively. Dominating style is the fourth least style used by female participants and the fifth least style used by male participants (17.60%) and (17.70%) respectively. The first most- used style by female and the second most-used style by
male is “Integrating” by (22.40%) and (21.40%) respectively. So, according to Ting-Toomey, most people who involved in this study tend to be more collectivist. It is found that the least percentage of people tend to be more individualistic with 14.52%. In conclusion, culture and gender are associated with their conflict styles in dealing with their personal conflicts with their acquaintances.

Discussion

The result of this study supports Ting-Toomey (2000) identification of the culture for Asian countries to be collectivist culture and the relationship of culture and conflict management styles. The result suggests that the highest percentage of scores Myanmar people get is “Avoiding Style” among five conflict management styles. Apart from “Dominating Style”, the rest of the four conflict styles are identified to be “Collectivist”. As the least percentage of the scores Myanmar people get is “Dominating Style”, therefore, it can be said that the least percentage of Myanmar people tends to be “Individualist”. The rest of the styles can be identified as “collectivists”. The average score used by both male and female is “Obliging Style” and the least percentage of the scores of Male Myanmar people is “Dominating Style” and it is the second least scores of female. The least scores of female is “Avoiding Style” and it is the second least scores of male. Similarly, the most scores of male is “Compromising Style” and it is the second most score of female. The second most scores of male is “Integrating Style” and it is the most scores by female. Thus, gender influences the choice of conflict managing styles. More research on this topic may help to understand gender and culture influence on resolving interpersonal conflict. Different styles of conflict management have its benefits and weaknesses, users have to identify the most appropriate conflict styles based on the different situation they are in. The advantage of “Avoiding style” is that it can maintain the relationship between people. The weakness of this style does not resolve conflict. Montoya-Weiss, Massey and Song (2001), found that using this style will hurt relationship of a team. People usually let the conflict be lessened while time goes on. In fact, avoiding the problem does not make it go away, but make it worse.

Recommendation

The quantitative research is used to investigate the most favorable conflict style found among Myanmar people. The survey results were analyzed with the responses of questionnaires concerning the conflict with their acquaintances. In order to save time and brainstorming, some responses may be careless mistakes. Sometimes, some questions may be difficult to analyze and they may feel confused, they may respond the questions with moderate answer not to take risk for them. Moreover, there may be differences in understanding and interpretations. As the questions are concerning with their feeling and emotions, rating scale can allow the strength and assertion in responses rather than multiple choice. Lastly, survey or questionnaire fatigue may be in with respondents, lack of accessibility, the validity of the research may be low.

The more qualitative interviews or other interpretive research approaches with participants who have strong interest in conflict resolution are recommended. There may be likely to continue to be a more fruitful research on conflict management styles and adequate accessibility of responses. In addition, it is interesting to do the
research on whether the conflict is with a member of an in-group or a member of an out-group also clearly affects how collectivists manage conflict. Some collectivists tend to use a dominating conflict style with out-group members and an obliging style with in-groups members. But, for individualists, whether they are having a conflict with an out-group member or an in-group member does not influence their predominant styles (Ting-Toomey, Oetzel, 2001, Ting-Toomey & Takai, 2006).

Thus, to gain an in-depth understanding of an individual’s conflict styles, his or her cultural conditioning process, personality attributes, in-group-out-group conflict situations are needed to be considered. (Oetzel, Arcos, Mabizela, Weinman, & Zhang, 2006; Oetzel & Ting-Toomey, 2003; Ting-Toomey, 2007a, 2007b; Ting-Toomey & Oetzel, 2001).

References


Spatial Pattern of Road Transport in Monywa District of Myanmar

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Abstract

Sagaing Region is the largest of Seven Regions and the second largest of States and the Regions of Myanmar. It is an administrative region of Myanmar, located in the north-western part of the country between latitude 21° 30' north and longitude 94° 97' east. It is bordered by India's Nagaland, Manipur, and Arunachal Pradesh States to the north, Kachin State, Shan State, and Mandalay Region to the east, Mandalay Region to the south, with the Ayeyarwady River forming a greater part of its eastern and also southern boundary, and Chin State and India to the west. The region has an area of 93,527 km². The study area, Monywa District falls into the southwestern portion of Sagaing Region, Central Myanmar. The district lies north of the confluence of Ayeyarwady River and Chindwin River. It also lies between 21° 47' 32" and 22° 38' 8" North Latitudes and 94° 56' 4" and 95° 39' 8" East Longitudes. To analyse the road transport of Monywa District, the major administrative towns of respective townships can be analysed. Monywa has existed as the highly connected node in all these phases according to connectivity matrix. In 2014, it had a population of over 750,000 persons. The capital is Monywa. The region lies north of the confluence of Ayeyarwady River and Chindwin River. The region is constituted with four districts including Monywa. Transportation of Monywa District is described by modes roads, railways, waterways and airways. There are six major inter-township roads in Monywa District. In 2013, there are four major inter-township roads in Monywa District such as Monywa-Chaung U-Mandalay Highway, Monywa-Budalin-YeU road, Monywa-Budalin-Kani road, Monywa-Ayadaw-shwebo road, Ayadaw-Minywa, Ayadaw-Naungyieng-Oakshitkyi, Monywa-Chaung U-Tawgyaungyi passing over the Chindwin Bridge and Monywa-Chaung U-Pakokku road passing Sinphyushin Bridge. Accordingly with the construction of the new bridges, the extension and smoothness of roads could raise the vehicles' speed and could save the travelling time. Moreover, the types of vehicles are more improved and comfortable and the number of vehicles, associations also are increased, and consequently commodity flow has become faster than before.

Keywords: spatial pattern of road transport, Monywa District, Myanmar
Introduction

Transportation is vital for the socio-economic and cultural development of a region or a country as well as Monywa district. The various modes of transportation are both competitive and complementary (Hla Tun Aung, 2003). It provides the flow of commodity for one place to another and also offers passengers to move from their place of origin to the desired destinations. Unless there is progress in the modes of transport, the economic development of region will be stagnated. Transportation characteristics of an area can reflect its economic prosperity. Firstly, transport forms the links that enable any form of human activity to take place. Secondly, it can be seen as an indicator of development, thirdly, it gives access to development and finally, it can be seen as a provider of personal well-being. The mode is the form of transport use. Currently there are road, rail, air and water modes of transport. Each mode has its own set of advantages and disadvantages. Which one is chosen depends on the economy of the society and available networks.

The study area, Monywa district is the largest in Chindwin River valley area and it provides about fifty percent of pulses and beans production of the country. After the British occupation of upper Myanmar (1888), some land transportation routes have emerged. British governors constructed motor roads for the purposes of effective administration. After the independence, successive governments maintained existing land transportation routes and started new roads.

Therefore in this research paper dissertation examine the development of motor roads of the Monywa Districts. However because of insufficient supports and some ineffective management there were no outstanding changes on road network of the districts. About forty years after the independence, the governments, there were significant changes on land transport, especially on motor road. Since 1990 existed motor roads were upgraded and new projects were started. Although land transport includes rail and motor road, this study only emphasized on motor road network development.

Since the regime of Myanmar Kings, Chindwin and Ayeyarwady rivers have been used as inland waterways. During the British Rule, motor roads and railway were constructed and then after 1944 railway and motor roads became important in transportation of the district. Transportation of Monywa District is described by modes of (1) Roads, (2) Railways, (3) Waterways, (4) Airways. During the reigns of Myanmar Kings, people used foot-paths and cart-tracks in travelling from place to place. But, horses were also used for administrative purposes, and bullock-carts for transporting goods and people. After the first annexation of Rakhine State in Myanmar, by the British constructed the Maungdaw- Buthitaung road for administrative purposes. Then in 1888 Monywa-Myinmu car road was constructed and in 1912, 11 miles of road was gravelled. Besides, one mile length of within the town area and about 12 miles of Monywa - Budalin road were tarred. In 1940, Monywa-Mandalay road was tarred with a width of about 10 feet and a length of 27 miles.

In 1942-43 during the World War II, the roads were partly destroyed by bombing. During the Japanese rule there were some vehicles using along Monywa-Mandalay road. During 1948-50 the use of the road was stopped due to the disturbance of the insurgents. Since then there have been five major roads in Monywa District, radiating from Monywa: as Monywa-Mandalay road, Monywa-Budalin-Ye
U road, Monywa-Ayadaw road. After the rule of the Law and Restoration Council, two bridges across the Chindwin river namely Sinphyushin Bridge and Chindwin Bridge (Monywa) were constructed in Chaung U township and in Monywa township, respectively. Thus, transportation between the areas east and west of the Chindwin river has improved and becomes smooth. In 2014, there are six major inter-township roads in Monywa District such as Monywa-Chaung U- Mandalay Highway, Monywa-Budalin-YeU road, Monywa-Budalin-Kani road, Monywa-Ayadaw-shwebo road, Ayadaw-Minywa, Ayadaw-Naungyiaing-Oakshitkyi, Monywa-ChaungU-Tawgyaungyi passing Sinphyushin Bridge. Accordingly with the construction of the new bridges, the extension and smoothness of roads could raise the vehicles' speed and could save the travelling time. Moreover, the types of vehicles are more improved and comfortable and the number of vehicles, associations also are increased, and consequently commodity flow has become faster than before.

Objectives
This research composed of two objectives:
1. To analyze the roads network in the study area
2. To find out the improvement of transportation within the study area

Methodology
Data Collection
Primary data and secondary data were used in this paper. Primary data are collected by means of questionnaire method, interviews, and field survey notes. Secondary data are derived from libraries, department offices, organization, research paper and reference books. Preparation of maps based on the topographic maps. Qualitative and Quantitative methods are used in this research work.

Data Analysis
The distribution pattern of transportation routes mainly depends on physical features such as shape and size of the area, relief, arrange climate and underlying rocks. Therefore, physical background of the division are important factors for the distribution of road. Monywa District is located at the southwestern part of the Sagaing Region. It lies between north latitudes 21º 47' 32" and 22º 38' 8" North Latitudes and 94º 56' 4" and 95º 39' 8" East Longitudes and about 40 mile wide. The central part is wider than the north and the south. The district is composed of 4 townships, Monywa, Budalin, Ayadaw and Chaung U. See table (1) The Chindwin River, the western boundary runs the form north-west to southeast about 40 miles. Mu River, the eastern boundary runs from north to south about 20 miles. The total area has about 3000 sq-kilometer or 1341 sq miles. It is bounded by Shwe Bo, Sagaing, Yinmabin and Kalay District (see, figure 1).
Table 1
Area of Each Township of Monywa District (2014)

<table>
<thead>
<tr>
<th>District</th>
<th>Townships</th>
<th>Town</th>
<th>No.of Villages Tracts</th>
<th>Villages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monywa</td>
<td>Monywa</td>
<td>1</td>
<td>58</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>Budalin</td>
<td>1</td>
<td>57</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>Ayadaw</td>
<td>1</td>
<td>41</td>
<td>160</td>
</tr>
<tr>
<td></td>
<td>Chaung U</td>
<td>1</td>
<td>31</td>
<td>89</td>
</tr>
</tbody>
</table>

Source: Agricultural Management and Statistics, Monywa District

Topographically the district can be divided into three parts: the Mu River Valley, the central hilly area, the western Chindwin River Basin. The Mu River valley is located in the easternmost part of the district. The valley lies in Ayadaw Township and is a floodplain of the Mu River. Agriculture thrives in the eastern part. The central hilly area lies below 1000 feet above sea level and between Chindwin River basin lies on riverine areas of the Chindwin River. Within the basin are included the portions of Monywa, Budalin and Chaung U townships. The major drainage of the Monywa district is the Chindwin River and Mu River.

General as Monywa District is located between latitude 21º 38" and 22º 50" north and lies in the dry zone of central Myanmar, it has a hot dry climate or Tropical Savanna Climate.

Population plays an important role in the economic development of a region and consequently in the development of its transportation network. Therefore, the population of Monywa District accounted for 750,000 persons in 2014 census. According to the 2014 population data, among the townships Monywa Township had the largest population 49.13% of districts population figure (2).
The low and level land favour distribution of human settlement. There are four towns and 187 village tracts. Monywa is situated on the east bank of the Chindwin River and are usually engaged in collection and distribution the products from the surrounding regions. Others towns are Chaung U, Budalin and Ayada. About 187 village tracts spread out the Chindwin plain and connect to nearest town along the motor roads.
Then as to the decending order, Ayadaw Township with 155,769 persons, 20.57%, Budalin Township with 123,539 persons, 16.31% and Chaung U Township with 105,955 persons, 13.99%. The largest population was found in the form of Monywa with about 230,000 persons. The population by township of the district is shown in figure(2). Within this district, the highest population density was found in Monywa Township with 540 persons per square kilometer. It is situated the Chindwin basin. Chaung U was second highest with square kilometer and Ayadaw Township ranked third highest population density. Budalin Township, the least population density can be found with 115 square kilometer.

![Figure 2: Township Wise The Population of Monywa District in 2014](source)

**Distribution of Road Transport**

During the British Rule, motor roads were constructed in 1888. After 1944 railway and motor roads become important in transportation of the district. The outstanding change have been found after 1988 especially on moder road network. In 1995, the government established new motor roads and bridge without external supporting.

In 2014, there were miles in motor roads, 60 miles waterway, 61 miles in rail road. In Monywa District shared 74.23% in motor roads, 12.90% water way, 12.79% of railroad. See figure(3).
Figure 3: Modes of Transport in Monywa District (2013-2014)

Source Road Transport

In Monywa Township, the most important and busiest road is Monywa-Mandalay road, which is 84 miles and 1 furlong long in total length, of which 9 miles and 6 furlongs are in Monywa Township. It was firstly constructed from Monywa to Myinmu in 1912 (Burma Gazeteer, 1913). Within the township, there are three branches on the Monywa-Mandalay road. The first branch is Monywa-Amyint road and Chaung U is accessible via Amyint by using it. The second branch is the five miles long Myene-Bawditadaung road which leads to Monyin-Thanboakdae and the pagoda at Bawditadaung with image. The third branch is Monywa-Thazi road which is 10 miles long. Monywa-Alon-Ye U road is an important one through which rice is transported as to Monywa District. Through the branch of this road, Twintaung, a crater lake producing spirulina and a famous sight-seeing place, is accessible.

Budalin-Twintaung road is a metalled road which is 10 miles long. Another important road is Monywa-Ayadaw-Shwebo road and is 13 miles long. It has also become important after the construction of the new Mu bridge. Since 1988, the width and surface of the road had been extended from 12 feet to 18 feet and in 2008 the road was extended with the width from 18 feet to 24 feet. On this road, large volume of local products, particularly rice and beans flow in and out of the township.

In Budalin Township, the most important and busiest road is Monywa-Budalin-Ye U road with its 10 branch roads. Monywa-Budalin-Ye U road passes through the Budalin Township for 19.88 miles. It is the only one good road for the transportation in that area. Besides, there are other important branch roads such as Budalin-Nyaungkan-Kane-Kaniroad, Budalin-Maungdaung-Ywamon-Kudaw road, Yebudalin -Nyaungkan-Kane road, Aung-chantha-Kanhit road, Budalin-Danhtaing road, Budalin-Thanap -Watawma road, Ngayain-Oakpo road, Maungdaung-Wunton-Letpan and Budalin-Twintaung road. Of the roads, Budalin-Nyaungkan-Kane road, Budalin-Thanap-Watawma road and Budalin-Okshitkyi-Myayeik road connect the township with the township of Kani and Ayadaw. Budalin-Twinywa road is also
important for sight-seeing buses, lorries and trucks to transport the raw materials of, spirulina from Twin Taung Crater Lake, particularly for the flow of local agricultural produces. Almost all of the branch roads are used only in the dry season.

In Chaung U Township, of these, two are tarred roads, three are metalled and two are earthen roads. Among them, the Monywa-Mandalay road is the most important and busiest one. The second most important road is Chaung U-Pakokku road. In this township, Monywa-Mandalay road is about 15 miles long. Chaung U-Pakokku road connects Chaung U with Pakokku through Tawkyaunggyi, which lies on the eastern bank of the Chindwin River, and it is 15 miles long in Chaung U Township. After completion of the construction of this road and Shinbyushin Bridge, transportation as well as commodity flow of the lower Chindwin region and western bank areas of the Ayeyarwady has become faster and more smooth than before. ChaungU-Amyint road constructed in 1990 connects Chaung U with Amyint and it is 6 miles long and 16 feet wide. It is a metalled road and via Amyint, Monywacan be accessible by Monywa-Amyint road. In Chaung U township, the Monywa-Mandalay road and the Mandalay-Pakokku roads are the most important ones through which most of the commodities flow throughout the year. Amyint-Tawgyaunggyi metalled road constructed in 1990 is 10.5 miles long.

Khinmun-Kyikon road connects Khinmun village on Monywa-Mandalay road with Kyikon. Khinmun-Kyikon constructed in 1994 is an earthen road, and is 3 miles long. Chaung U-Nwegweroroad constructed in 1990 is an earth road and is 4 miles long. Another road is Chaung U-Magyigwa road, constructed in 1990 is a metalled road and 5.4 miles long. In addition, there are other rural development roads such as Tawgyaunggyi-Thonpanhla road, Myene-Htooni-Paukpinte road and Khinmun-Kyigon road.

In Ayardaw Township, the main road is Monywa-Ayardaw-Shwebo road. It was constructed in 1952 and passes through the township for 14 miles. In 1991, Ayardaw-Shwebo road section was constructed for 13.75 miles. The entire Monywa-Ayardaw-Shwebo road is a tarred road. After the completion of Mu bridge, transportation and commodity flow between Monywa and Shwebo has been better than the past. Other intra-township roads within Ayardaw township which connects Ayardaw, are those to Minywa, Malethar, Watawma and Naunggyiaing villages. All roads are earthen ones except Ayardaw-Minywa metalled road. Wartan-Thikyingyiroad is also a metalled road (see figure 4,5,6).
Figure 4: Motor Road Growth in Monywa District (1980-81 to 2013-2014)

Figure 5: The Types of Road in Monywa District (2013-2014)
Figure 6: Road Distribution of Monywa District (2014)
Source Road Transport

**Motor Road Network Analysis**

In Monywa District, transportation routes are radiating from the focus of Monywa to each head-quarters of townships included in the district. The routes form a network in radial pattern which is composed of linear lines, not only in the entire district but also in each township.

The east of the Chindwin, there are more towns and villages and all-weather roads in the area east of the Chindwin. This is due to existence of flat plain and economic development in such area. In accordance with development in economy, roads are extended and upgraded, followed by fast and smooth transportation. Consequently standard of living has become higher and ever.

As the whole district, road-to-road connection(links / network),(Taaffe, E.J & Gauthier, H.L (1996) and town-to-village or village-to town connection (Vertices or Nodes),(Haggett,P & Chorley, R.J (1969) by township are described in figure (5).
**Vertex-to-Vertex connection**

Regarding vertex-to-vertex connection in Monywa township, there are 25 major vertices connection of which totals 91 with an average value of 3.9. In this cases the average value means that in average any vertex(town or village) has a connection with other 4.4 vertices included in the township. Of the vertices Monywa occupies the most connection (13 Connectivity Matrices) with other vertices and is followed by Myene village with 4C.M and Alon with 4 C.M, Kyaukka with 4 C.M, Thazi with 4 C.M.

In Chaung-U Township, there are 19 major vertices, connection of which amounts to 57 in total with an average value of 2.29. (Similarly as in Monywa Township, and vertex has a connection with other vertices, included in the township.) Of the vertices the most connection occurs in Chaung U with C.M value of 9 and next to in Amyint village, Khinmon.

In Budalin township, major vertice number to 17 occupying total connectivity matrices of 43 with an average value of 2.5. Of 17 vertices, Budalin has the most connection (with 9 C.M value) with other vertices and is followed by Oakpo and Nyaungkan villages each with 3 C.M value.

In Ayardaw Township there are 27 major vertices with an average of 2.43 connectivity matrices (C.M). Of these, the most connection with other vertices is found in Ayardaw with 11 C.M and next to is at Wartawma, Naungyiaing, Maletha Village with 4 C.M.

Concerning inter-township village-to-village connection, generally high connection more than 4C.M value occurs in the townships of ChaungU and Monywa (see table 2 and figure 7).

### Table 2
Connectivity Matrices by Township in Monywa district

<table>
<thead>
<tr>
<th>No.</th>
<th>Township</th>
<th>Connectivity Matrices for Roads</th>
<th>Connectivity Matrices for town or village (Vertices)</th>
<th>Connectivity Index (Beta Index)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Σ R</td>
<td>X</td>
<td>Σ V</td>
</tr>
<tr>
<td>1</td>
<td>Monywa</td>
<td>162</td>
<td>5.6</td>
<td>91</td>
</tr>
<tr>
<td>2</td>
<td>Budalin</td>
<td>99</td>
<td>4.47</td>
<td>43</td>
</tr>
<tr>
<td>3</td>
<td>Chaung U</td>
<td>72</td>
<td>3.5</td>
<td>57</td>
</tr>
<tr>
<td>4</td>
<td>Ayardaw</td>
<td>88</td>
<td>3.25</td>
<td>62</td>
</tr>
</tbody>
</table>
Another important measurement on comparison of network is network density. That meant that the total network length divided by the area and for the regional level as it presents as length of road per hundred square miles.

According to the motor road length data, there were 107.32 miles in the motor roads of Monywa township, 97.0 miles in Budalin Township, 65.0 miles in Chaung U Township, 103.0 miles in Ayardaw Township. Therefore network density value of Monywa Township was 33.8 miles per 100 sq.-miles and it rank first, Chaung U had 4.8 miles per 100 sq.-miles. It had the lowest value of network density.

Results and Discussion

Because of government's enthusiastic projects in this Monywa District, the traditionally the Chindwin river water transportation enters into the new area of communication during the last decade. The construction of new bridges and upgraded new motor road network capable of accommodating all travels in an orderly, safe, efficient and economical manner. The density of population and increase in production make greater public transport and trip-outflows. The greater the accessibility of nodes the more the volume of goods and passengers will grow. The development of motor road network and its impacts on socio-economic and environmental conditions of this districts, and again its chain-effects on socio-economy and environment in the future.
In 2014, there are six major inter-township roads in Monywa District such as Monywa-Mandalay Highway, Monywa-Budalin-YeU road, Monywa-Ayadaw-Shwebo road, Monywa-Pale-Gangaw road and Monywa-Nyaungpingyi-Pakokku road, Monywa-Pathein road, Monywa-Kani-Minkin road, Monywa-Yargyi-Kalewa road passing over the Chindwin Bridge and Monywa-ChaungU-Pakokku road passing Sinphyushin Bridge. Accordingly with the construction of the new bridges, the extension and smoothness of roads could raise the vehicles' speed and could save the travelling time. Moreover, the types of vehicles are more improved as well as comfortable and the number of vehicles, associations also are increased, and consequently commodity flow has become faster than before.

The impacts of motor road could be clearly seen in the public health sectors. According to the statistical records, the numbers of hospitals, health care units, beds and medical staffs have distinctly increased after the construction of new motor road networks.

There are four means of transportation in Monywa District. But road transportation plays an important role in the study area. Motor road transportation can be measured by network indices. Motor road in Monywa District originated since 1988 at the eastern portion of the Chindwin River and there was no motor road at the western portion in that time. The period before the independence had only branch network. In the period between 1962 and 2011, construction of new bridges and routes tend to change the pattern of network. The circuity of that period rather increased than that of the former.

Monywa has existed as the highly connected node in all three phases according to connectivity matrix.

The motor roads in Monywa District are not only north-south linear routes but also east-west linear routes, therefore Monywa, the central place of Monywa District is connected to many directions.

The current motor road network of Monywa District still exists at the developing stage. Not only new construction of roads, but also upgrading of roads to the present road is more suitable for regional development.

After the construction of new bridges such as Sinphyushin Bridge and Chindwin Bridge (Monywa), there were the potential linkages such as Monywa-Pakokku routes, Monywa-Yargyi-Kalewa route and Monywa-Pathein route, Monywa-Pale-Gangaw route.

In addition, the linkages between Township Towns should be connected to meet the complete circuity in the coming future. According to the results mentioned above, other factors such as traffic flow, commodity flow, passenger flow and development of local needs should be examined.

**Conclusion**

In Monywa District, 18% of the population live in urban areas and 82% in rural area. Forest products and commodity come from the in-district rural areas and from the riparian areas of the Chindwin River such as Ye U, Dabayin, and Taze towns mostly flow into Monywa. This shows that the agricultural products play an important role in commodity flow of Monywa District. Therefore, all roads of the areas producing agricultural produces should be upgraded from Grade-3 to Grade-1. Particularly the Monywa-Budalin-YeU road being one through which rice flows in
should be upgraded to 24-foot wide road. Moreover, roads of Monywa-Ayadaw-Shwebo and Ayadaw-Minywa, Ayadaw-Naungyiaing-Oakshitkyi, Budalin-Kane, ChaungU-Tawgyaungyi should be upgraded into asphalt roads. All roads of the areas producing agricultural produces should be upgraded from Grade-3 to Grade-1. Particularly the Monywa-Budalin-YeU road being one through which rice flows in should be upgraded to 24-foot wide road. Moreover, roads of Monywa-Ayadaw-Shwebo and Monywa-Pakokku should be upgraded into tarred and then asphalt roads. Finally the researcher would like to suggest that roads should be upgraded, giving first priority, according to their rank and types, either for each township or for the entire district.

References

Haggett, P & Chorley, R.J. (1969). Network Analysis in Geography, Edward Arnold(Publishers)
Analysis on Public Service: Specular Focus on the Functions of Water Supply and Sanitation Sectors in Mandalay City

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Abstract

Public services have an important role not only in economic activities but also in city development. In pursuing the smart city, the functions of public service helped the public who lived in the city and visitors who came from abroad for their daily routines. The main aim of this study is to emphasize the accessibility and current functions of water supply and sanitation service for the public in Mandalay City and to evaluate how the provider support to the city dwellers in order to conduct in some way of Public Private Partnership. Because of the city have been extended the city areas up to 6 townships since 2011, 1510 household are collected for the sample group. The secondary data was used for the study of the city's population. In addition, qualitative and quantitative data were collected for the primary data and spatial analysis is also used for stations. The questionnaire which was designed to figure out the needed of the water supply and sanitation service under the assessment and the amenities of the public and included different suggestions of the public. There were significant responses to this service the water supply which not has drinkable level although have enough amount of water for daily use. Moreover, the ditches are needed to construct systems and also need to allocate the waste tanks in public places or areas.

Keywords: Public service, population, functions, development

Introduction

Public service is important not only in the building of urban or civilization but also in the territory of human society. Therefore, this is the reason for selecting the "Public Service" as the research theme. In addition, it is needed to transform along with the market economy with the democratic system in Myanmar. The population of the study area is growing because of its urbanization and role of the commercial hub of Upper Myanmar. Therefore, public service is essential to develop and to facilitate the development of infrastructure. The water supply and sanitation sector is play in a major role and important for the improvement for a smart city and a particular area has to do. In this research work, only the public services which run by non-profit purpose were studied, among Government Public Service and Non-Government Public Service, focused and analyzed based on some intellectual report or journals in order to proceed PPP (Private Public Partnership).

A service which is given on public benefit is serving to the public and service which is responsible for public service providing with public goods. In the business sector, the fundamental difference is rival or excludable and done in the
nature of service and based on the goods. That is why; service is not possible to exclude or to give to private or individual because it is not burnt out by using it.

Therefore, this paper considers the space of all residential and urban. Regarding the study area, there was a number of researches or degree-leading thesis or dissertation while the scope of this study has not yet been proposed by the former researchers. In addition, water supply and sanitation service is weak for the public who live in the fringe area of the city as long as it have been extending.

Water supply and sanitation service were considered by dividing 2 portions. For the first part, the source of water and the purpose of water availability for both drinking and household consumptions were collected. As the second part is related to the water distribution, the data of how far the water source to each house, how many times per day supplied water, how long does it supply per day, is the water drinkable or not, etc. were collected through interview method. In the sector of cleaning and sanitation sector, cleaning condition of ditches in the wards and times per week or month for cleaning the ditches, times of collecting wastes in each ward are interviewed in order to evaluate its ability of service.

The acquired respondents were totally 1510 throughout the city. If the questions were not clearly understood by the respondents or if the respondents are not willing to answer the questions, there would not be appropriate responses and such incomplete responses are excluded in this research. Even though the answers are not complete, if the responses could relate to the questions and their personal experience, such responses are considered to analyze quantitatively and qualitatively. The related questions to each sector were formulated by multiple choice method like art scale method.

Objectives

The main aim of this study is to emphasize the accessibility of water supply and sanitation service for the public in Mandalay City and to evaluate how the provider support to the city dwellers. The objectives are:

1. To emphasize the functions and efficiency of water supply and sanitation service based on available data and information
2. To figure out the weaknesses and strengths of the water supply and sanitation sector which supplied by government
3. To manage the breakdown of current unsafe problems or ineffective supports by relocating or allocating the service stations.

Data Methods, and Methodology

First and foremost, the related literature search was conducted thoroughly from the library, books, journals, references, etc. Various type of maps (especially, UTM, DEM) and figures are also applied to display the bases for describing physical phenomena of the study area. It is sure that population characters are essential to describe and to analyze the public services in the city. Therefore, the population growth, density, and distribution will be included as the human bases along with the physical bases and were collected from the Immigration and National Registration Department.

The surplus or deficit conditions of water supply and sanitation service in Mandalay City were analyzed with the help of their distribution patterns and the
responses from the local people. Here, many qualitative methods like interviewing, distributing the questionnaire, open talk and certain GIS technology were also applied. Some methods are used in calculating and inputting the data. In addition, Location Quotient and Loren Curve methods are also used for the analysis. Then, the interpretation was focused on to relocate or allocate the already existing services or new services.

Geographical and Population Background of the Study Area

Location, size, shape and boundary

Mandalay city is located on the eastern bank of the Ayeyarwady River. It can be said that it lies almost at the center of Myanmar. In the Dry Zone of Myanmar, it lies between north latitudes 21°52'17" and 22°01'41", east longitudes 96°02'9" and 96°08'32". The city is composed of (6) Townships, among them (5) Townships of Mandalay City are totally occupied by urban wards (Map1).

The total area of each Township are; Aungmyaythazan is 29 km$^2$, Chanayethazan is 13 km$^2$, Mahaaungmyay is 15 km$^2$, Chanmyathazi is 26 km$^2$, Pyigyidagun is 26 km$^2$, and Amarapura is 11 km$^2$. Mandalay City has a total area of about 120 km$^2$. Generally, the shape of the city is nearly rectangular. So it can be said that it has a compact shape except for the southeastern part. Mandalay city's boundary is composed of natural boundary and man-made boundary or administrative boundary.

![Map 1 Location Map of the Study Area](Source: OSM (Open Street Map), and MCDC)
Population Distribution and Density

In order to express the relationship between the number of population and the area of occupancy, the term population density is used. It shows regional variations of human distribution and refers to the number of people who living in the unit area of land. In Mandalay City, population differs from one place to another. As the entire City, population density in 2014 was 67640 per square km. Population density (per square km) of Mandalay City is calculated and mentioned, based on the population data of census (2014) obtained from the Mandalay Region Immigration and National Registration Department.

Table 1
Population Density of Mandalay City (2014)

<table>
<thead>
<tr>
<th>Sr No.</th>
<th>Township</th>
<th>Area (Sq-km)</th>
<th>Population (2014)</th>
<th>Population Density (per square-km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aungmyaythazan</td>
<td>28.59</td>
<td>265,779</td>
<td>9296</td>
</tr>
<tr>
<td>2</td>
<td>Chanayethazan</td>
<td>13.19</td>
<td>197,175</td>
<td>14949</td>
</tr>
<tr>
<td>3</td>
<td>Mahaaungmyay</td>
<td>14.83</td>
<td>241,113</td>
<td>16258</td>
</tr>
<tr>
<td>4</td>
<td>Chanmyathazi</td>
<td>26.1</td>
<td>283,781</td>
<td>10873</td>
</tr>
<tr>
<td>5</td>
<td>Pyigyidagun</td>
<td>26.56</td>
<td>237,698</td>
<td>8949</td>
</tr>
<tr>
<td>6</td>
<td>Amarapura (Urban)</td>
<td>11.05</td>
<td>80,824</td>
<td>7314</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>120.32</td>
<td>1,306,370</td>
<td>67640</td>
</tr>
</tbody>
</table>

Source: Immigration and National Registration Department

The total population of the city is shown in the table 1. According to the data, the total population of Mandalay City is 1,306,370 persons in 2014. Among six townships of Mandalay City, Chanmyathazi Township had the densest population with 283,781 persons of the City's whereas Amarapura Township had the least population with 80,824 persons of the total population of the City in the year 2014. In such year, the population of other townships was 265,779 persons in Aungmyaythazan Township, 197,175 persons in Chanayethazan Township, 241,113 persons in Mahaaungmyay Township, and 237,698 persons in Pyigyidagun Township.

Regarding the population distribution, most the people are concentrated near the core areas or the trading center of urban areas. The rate of population growth in Pyigyidagun Township is comparatively high, mainly because of the new urban wards allotted by the government so that there were a lot of immigrants from the other towns and rural area. So, the population density in each township is apparently uneven. The spatial distribution pattern of the population is necessary for observation of public services in Mandalay City. Due to its historical privilege and natural phenomena, Mandalay City is undoubtedly having many potentialities to develop each and every sector. As the study area was founded as a city since the 19th century, the number of the total population with their related density should be viewed as the services enough or not for their need. Therefore, the population distribution pattern and density for all townships in the city are considered as the base data for analysis.
Definition

Oxfords Advanced Learner's Dictionary described that the meaning of the "Public Services" was (1) a service such as transport or health care that a government or official organization provided for people in general in a particular society; (2) something that is done to help people rather than to make a profit; (3) the government and non-government departments. Water Supply and Sanitation mean that water supply; the water provided for a town, an area or a building; the act of or system for supplying water to a town, etc. a clean/contaminated water supply and Sanitation; the equipment and systems that keep places clean, especially by removing human waste: disease resulting from poor sanitation.

Discussion

In reviewing the above-mentioned fact of this sector, the activity of the sanitation department was constructing the public toilets. In addition, the functions of this department must have the cleaning garbage and wastes of the entire city and it is well for the runoff. In other words, the city must have nearly an equal amount of water for its input and output. The numbers of toilets for the public were less when compared to the areas of the public places. The amount of water for a person per month is very low for their daily use and even for their fresh drinking water. In Pyigyidagun Townships, they did not have enough water for the sanitation purpose a few years ago. It means the government did not supply water by meter. Therefore, this sector was one of the services to be studied for research in order to know how the government distributes the water and sanitation service throughout the city. Is the water supply sufficient for the people? How this department structured for the service and what are their functions and future plans for the newly extended wards located in the urban fringes at the outskirt areas and new urban areas (Amarapura township included as part of the city in 2011)?

The water supply and sanitation service of the MCDC is composed of four main parts as follows:

1. Department of water distribution
2. Department of purchasing and maintenance of materials
3. Department of sanitation
4. Department of electric and tube well

The department of water supply serves for the distribution of water by using the pumping engines. After that, they store the pumped water in the tanks or reservoirs and distributed them to the wards according to the townships within the city. In the department of electricity and tube-wells, their activities are digging the tube-wells, connecting the electricity, setting the pipelines from the station to the households and fixing the meters cooperated with the department of purchasing and maintenance of materials. The last one is the department of purchasing and maintenance which conducts the activities that have to buy the materials and equipment or machines by tender or contract system and to maintain the materials and equipment or machines for long term use.
Table 2
Number of Booster Pumping Stations (2016)

<table>
<thead>
<tr>
<th>Sr No.</th>
<th>Townships</th>
<th>Number of BPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aungmyaythazan</td>
<td>BPS No. 11, 12, 4, 8</td>
</tr>
<tr>
<td>2</td>
<td>Chanayethazan</td>
<td>BPS No. 1, 3</td>
</tr>
<tr>
<td>3</td>
<td>Mahaaungmyay</td>
<td>BPS No. 5, 13</td>
</tr>
<tr>
<td>4</td>
<td>Chanmyathazi</td>
<td>BPS No. 7, 6, 2, 9</td>
</tr>
<tr>
<td>5</td>
<td>Amarapura</td>
<td>BPS No. 10</td>
</tr>
</tbody>
</table>

Source: Water Supply Department (MCDC)

According to the office data, the total number of 13 Booster Pumping Stations (BPS) in 2016. It can be considered if there has distributed water to the all household for used per month, the extra amount of water must from the other sources like purified water (for drinking), rainwater, tube-well water, etc. For the sanitation, the number of common for public use was toilets amounting (27). These BP stations are located in (5) townships, but that of the Pyigyidagun township was under the construction.

Analysis by LQ (Location Quotient) Method

Distribution of water supply and sanitation service of the townships vary according to relative location and its importance. Although the facilities have in all townships, their number is few significant compared to the total number of Mandalay City.

Spatial Concentration

Distribution of the population is considered to identify the concentration of public services in the townships. By the location quotient method, the spatial concentration is calculated and to quantify the degree of the relative concentration of activity in the analysis of areal localization. Rahaman K. R. and Salauddin Md. (2009).

In calculating the location quotient, $x_i$ and $n_i$ denote a specific public facility and population size of the $i^{th}$ area, respectively. Similarly, $x$ is a number of similar facilities in the city and $n$ are the population size of the whole area, respectively.

The location quotient for the $i^{th}$ area is defined as follow;

$$LQ = \left( \frac{x_i}{n_i} \right) / \left( \frac{x}{n} \right)$$

Where,

- $x_i =$ number of facility $i$ in a given township
- $n_i =$ population of the concerned township
- $x =$ number of facility $i$ in Mandalay city
- $n =$ total population of Mandalay city

By interpreting calculated Location Quotients, the following criteria are considered:

$LQ < 1.0$

The LQ value that is less than 1 suggests that the concentration of particular facility in a (block) township is less than that of the city as a whole.
**LQ = 1.0**

The value of LQ is 1 or nearly 1 indicates self-sufficiency means a particular facility in a given block (township) is exactly sufficient to meet the local demand.

**LQ > 1.0**

If the value of the quotient for a particular facility in a particular block (township) exceeds 1 (one), concentration is indicated since the per capita availability of that facility in the block exceeds that of the city as a whole.

*Table 3*

**Number of the Facilities in the Different Townships (2016)**

<table>
<thead>
<tr>
<th>Sr No.</th>
<th>Townships</th>
<th>Pumping Stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aungmyaythazan</td>
<td>4 (13)*</td>
</tr>
<tr>
<td>2</td>
<td>Chanayethazan</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Mahaaungmyay</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Chanmyathazi</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>Pyigyidagun</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>Amarapura</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Respective Offices, Mandalay Region
* Number represents the total number of facilities in Mandalay City

The table shows the number of different facilities in each township and their total amount and these location quotients identify the concentration or de-concentration of public facilities in the different township of the Mandalay city.

*Table 4*

**Location Quotient for Different Facilities in Townships (2016)**

<table>
<thead>
<tr>
<th>Sr No.</th>
<th>Townships</th>
<th>Water Supply Stations</th>
<th>LQ Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aungmyaythazan</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Chanayethazan</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Mahaaungmyay</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Chanmyathazi</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Pyigyidagun</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Amarapura</td>
<td>1.2</td>
<td></td>
</tr>
</tbody>
</table>

Source: MCDC, Mandalay Region

From table 4, there can be seen that the LQ value of each township. Among them, all value in each sector of Aungmyaythazan, Chanzyethazan, Chanmyathazi and Amarapura townships are higher than 1 and it means the existing per capita availability of facility is quite sufficient but not adequate in functions. They are exactly sufficient in facilities to meet the local demand. In Mahaaungmyay, the LQ value water supply stations are close to 1 and it shows this sector is exactly sufficient for this township. The LQ value of the Pyigyidagun township is 0. Therefore, it can be said that the per capita availability of this service or facilities is quite need and give prior in future planning, another important reason is...
that the city is continue extending to this township. There is one exception that is the value of hospital and bus stations for Amarapura township is much higher than 1 which shows only relative sufficiency there is only 9 wards and the area is quite smaller than other township. That is why these two LQ value are higher than other townships and not adequate water supply service. The current service is not supplying the whole township yet, not included the rural areas.

**Spatial Disparity**

A cumulative frequency curve compares the distribution of a specific variable with the uniform distribution that represents equality. In the Lorenz Curve, the greater the deviations of the Lorenz curve from the straight line, the greater the inequality. In calculating this curve, the cumulative proportion of a particular facility is the Y axis and cumulative proportion of the population of the townships is X axis. The results for this service is presented in table and figure.

**Table 5**

Lorenz Curve: No. of Water Supply Stations \((Z_1)\) and Population \((Z_2)\) (2016)

<table>
<thead>
<tr>
<th>Sr No.</th>
<th>Townships</th>
<th>((Z_1))</th>
<th>((Z_2))</th>
<th>((Z_1)/(Z_2))</th>
<th>Rank</th>
<th>% ((Z_1))</th>
<th>% ((Z_2))</th>
<th>Cummu % of ((Z_1))</th>
<th>Cummu % of ((Z_2))</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aungmyaytherzan</td>
<td>4</td>
<td>265779</td>
<td>0.0000015</td>
<td>5</td>
<td>30.77</td>
<td>24.87</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>Chanayetherzan</td>
<td>2</td>
<td>197175</td>
<td>0.000010</td>
<td>2</td>
<td>15.38</td>
<td>18.45</td>
<td>31</td>
<td>41</td>
</tr>
<tr>
<td>3</td>
<td>Mahaaungmyay</td>
<td>2</td>
<td>241113</td>
<td>0.000008</td>
<td>1</td>
<td>15.38</td>
<td>22.56</td>
<td>15</td>
<td>23</td>
</tr>
<tr>
<td>4</td>
<td>Chanmyatherzan</td>
<td>4</td>
<td>283781</td>
<td>0.0000014</td>
<td>4</td>
<td>30.77</td>
<td>26.55</td>
<td>69</td>
<td>75</td>
</tr>
<tr>
<td>5</td>
<td>Amarapura</td>
<td>1</td>
<td>80824</td>
<td>0.0000012</td>
<td>3</td>
<td>7.69</td>
<td>7.56</td>
<td>38</td>
<td>49</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>13</td>
<td>1068672</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Respective Offices, Mandalay Region

In this analysis, the curve is only calculated for the number of the Booster Pumping Stations, not the included the stations of the sanitations and not counted for the Pyigyidadgun township. Moreover, there does not have any water supply station and water is supplied from the No. 10 stations. The deviation of the curve is too close with the diagonal line. It means that this sector can supply the need of the public and the distribution of the facility and population is evenly distributed. The demand and supply gets only in some townships and shows in table 5 and figure 1.
Results from the Quantitative Approach

In the water supply sector, some facts have been found out that the supply water from moat is not covered in all townships, although some wards have the moat water wells. But the public from some wards does not use this moat water. The water supply (by meter) has been accessing in all townships, whereas in some wards, such systems are under construction (in Pyigyidagun township, where the artesian wells are being used). The purified drinking water has to be drunk by the public in nearly all wards and the artesian water was followed as drinking water and the third was the supply water from a meter.

In the sanitation sector, the cleaning channel was not done properly but irregularly, that is why some chairpersons have to take with the help of volunteers. In some wards, the collecting waste and garbage have been done with the public (e.g. Mahaaungmyay East ward).

According to the responses, 20 wards, they used the most water, 60 wards answered that they used the meter water supply and 76 wards used the artesian water. For the drinking purpose, only 54 wards used one of these three sources, some ward used to combine with the purified water. The interview for the sanitation part, all wards have been supplied the waste collection system by the MCDC, but nearly all wards have been insufficient in channel cleaning, because of the shortage of in cleaning staffs and equipment. The chairpersons of 19 wards answer that they have to solve the problems related to the water supply problems.
Reasons for Water Supply and Sanitation Service

Regarding domestic water use, totally there were 1397 (93%) responses from 5 different sources, while the number of consumers who used water supplied by MCDC with meter device was 949, the highest in number. The reason was that they could not get the most water. 267 households, used moat water, while the 605 did not mention their reason.
Table 6
Reasons for Selecting the Drinking Source

<table>
<thead>
<tr>
<th>No.</th>
<th>Purposes for:</th>
<th>No. of Respondents</th>
<th>Total respondents</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>moat water (not drinkable)</td>
<td>88</td>
<td>1397</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>water supply by the meter (not drinkable)</td>
<td>238</td>
<td>1397</td>
<td>17</td>
</tr>
<tr>
<td>3</td>
<td>artesian well (not drinkable)</td>
<td>163</td>
<td>1397</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>tube well (not drinkable)</td>
<td>84</td>
<td>1397</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>purified water (high charges)</td>
<td>42</td>
<td>1397</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>other</td>
<td>583</td>
<td>1397</td>
<td>42</td>
</tr>
</tbody>
</table>

Source: Compiled from questionnaire responses

For the case of the drinking water, the total responses have 1431 (95%) and 1025 (72%) households mainly drunk the purified water from the factories. On the other hand, there were respondents who gave the reason is that they should not drink the water supplied by MCDC, but the 139 (10%) agreed that the water supplied by MCDC is suitable for drinking. However, the artesian well has been used by 144 (10%), the use of moat water has 59 (4%) and the use of tube well was 38 (3%) for drinking purposes.

In the sanitation sector, 605 responses chose that the ditch was occasionally cleaning at last once in a month by MCDC. Besides, related to collecting garbage, 450 households gave the answer that MCDC collected every day and 251 had the answer of once in two days.

Regarding evaluation on function of water supply and sanitation sector, relating to the drinking water service, 876 (58%) households have been counted for evaluation and among them, the highest number of 180 (21%) chosen the very good comment for sufficient amount of water for household consumption by meter device. But only 34 (4%) households were also the highest and they have at a very bad level for supply water by meter device which is not suitable for drinking (which is not pure/ because of having dust, algae, sometimes bacteria). In addition, for the evaluation of the sanitation service, among the total respondents of 1245 (83%), 136 (11%) pointed out a very good level for solving the problems related to wasting garbage. On the other hand, 134 (11%) selected the very bad level for the channels drainage system.

Conclusion

The supply water in the city by meter device had been set up since 30 years ago for the domestic use but it is not yet enough for all townships. The evaluation of the water supplied by the metering device was focused on and emphasized in this study. Moreover, as most of the study area had poor drainage system due to population growth and households, there have not sufficient waste tanks (small) to keep the garbage along the sides of the road. The evaluation of the cleaning of the drainage channels is emphasized in this analysis too. Six scales were also defined to evaluate the ability of water and sanitation services.
responses by the sample people situation of the drainage channels, solving the relative problems, staff insufficiency, etc. while could contribute to change or be better conditions of water supply and sanitation services. The description of the basic servicing in the City could explain the real situation of the considered public services which are under operation. The role of private cooperation has been involved at certain deeper levels than before. Partly, it can be helpful to solve some shortage or delay problems, but partly it may cause to be more burdens for the City dwellers. According to the analysis, it seems that the public services in each township were provided sufficiently and efficiently. But, are need to change in this sector but some face some difficulties. That is why there also need to some alternative functions and a corporation of the public in this sector in order to provide effectively to the basic level or the micro level requirements or needs had been found.

Recommendations

Some important information like cooperation and the important role of the public were not figured out. In the future, furthermore, researches will emphasize the deeper level of individual service would be expected by new scholars.

To be a smart city, the city inhabitants also play an important role. Their mindset and awareness level on the deterioration of the environment around the individual’s home is essential to evaluate the services’ supports. The systematic investigation for these cases have to be taken and many types of research on that topic would be expected in the future.

References


Chindwin River Basin: Addressing the Challenges of Water, Land and River through Multi-stakeholder Participatory Approach

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Abstract

The Chindwin River is the biggest tributary of the Ayeyarwady River with a length of 1207km and it flows from the mountainous terrains in the north and enters into Ayeyarwady River near Myingyan City. Chindwin River is important for the people who live in the Chindwin River basin because the river serves for various socio-economic sectors like transportation, agriculture, fisheries and general use of water. The Chindwin River has now many challenges related to pollution, river water shortage during dry season, sedimentation, flood due to heavy rain and river bank erosion.

Many factors like Population growth, forest degradation at the watershed area and economic activities including mining sector cause negative impacts on the Chindwin River and Water quality is deteriorating due to human disturbances. River water quality is being degraded and the people have to use the ground water for drinking and household use. Land use changes, including deforestation in the valleys, have led to severe erosion during the seasonally heavy monsoon rains, when the rivers run high. In some locations huge sections of the river banks have been washed away, taking down houses and forcing hundreds of families to relocate inland. Erosion has also affected riverside farming and fields, which are a crucial to the local food supply and subsistence livelihoods. Sedimentation of the river appears to have increased as well. During the dry season, river depths are dropping to levels much lower than that of previous time, making it difficult for boats to travel upstream. The low water levels affect the region’s economy which depends heavily on river transportation for the trade of goods such as rice, cooking oils, dry fish and fish paste with lower Myanmar. During the wet season, the Chindwin River faces challenges from extreme floods. Losses to lives and the economy from the most recent flood in Myanmar in 2015 were the highest ever in the Chindwin river basin.

Keywords: water quality, environmental degradation, Biological environment, social environment, conservation
Introduction

Chindwin River Basin actually covers the whole land area of Sagaing Region and some parts of Kachin State, Chin State and Mgway Region. Some parts of watershed area lies in India. This study mainly focused on the geographical background of Sagaing Region which entirely lies within the Chindwin Watershed. Other areas are less important in administrative function than Sagaing Region which covers the whole Chindwin River Watershed Area. (Map 1)

Map 1: Location and Coverage of the Chindwin River Basin
Chindwin River is divided into two parts. There are upper Chindwin River and Lower Chindwin River. Upper Chindwin River is 18.1% river valley, 65% forest cover, 34.5% Biodiversity conservation needed and 620 villages. Lower Chindwin River is 3.7% river valley, 27% forest cover, 9.5% Biodiversity conservation needed and 889 villages. Area of Upper Chindwin Basin is 73,478 square kilometer and Lower Chindwin is Basin 25,957 square kilometer. Major tributaries of the Chindwin River are Myittha, Yu and Uru rivers. (Table 1)

Table 1
Tributaries of the Chindwin River

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of river</th>
<th>Length (km)</th>
<th>Catchment area (km²)</th>
<th>Height peak (m)</th>
<th>Lowest point (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Chindwin</td>
<td>900</td>
<td>110350</td>
<td>3796</td>
<td>57</td>
</tr>
<tr>
<td>2.</td>
<td>Myittha</td>
<td>580</td>
<td>24225</td>
<td>2643</td>
<td>92</td>
</tr>
<tr>
<td>3.</td>
<td>Yu</td>
<td>6125</td>
<td>225</td>
<td>2260</td>
<td>119</td>
</tr>
<tr>
<td>4.</td>
<td>U-ru</td>
<td>345</td>
<td>11150</td>
<td>1650</td>
<td>123</td>
</tr>
</tbody>
</table>

Key challenges of Chindwin River are
1. Water quality degradation
2. Land use change and deforestation and
3. River morphology change.

Objectives and Methodology
Main objectives of the study are
1. To understand current situation of water quality in Chindwin river
2. To develop water quality management and monitoring strategy in Chindwin River
3. To improve water management with the aim to achieve sustainable development and improve river health

The study used primary data collection method such as questionnaire distribution, interviewing, discussion with stakeholders and consultation meetings. Household survey was mainly conducted in Homalin, Kalewa, Kani and Monywa along with water quality observation and testing.
Findings
The result of water usage and risks are as follows Table 2 and Figure 1.

Table 2
*Water use activities and risks identified in Chindwin*

<table>
<thead>
<tr>
<th>Category</th>
<th>Activity</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household</td>
<td>Drinking water</td>
<td>Infectious disease through digestion</td>
</tr>
<tr>
<td></td>
<td>Cooking and eating food</td>
<td>Long term toxic exposure from heavy metals, pesticides, etc in food</td>
</tr>
<tr>
<td></td>
<td>Washing, cleaning, bathing</td>
<td>Inhaling and skin exposure</td>
</tr>
<tr>
<td></td>
<td>Toilet and waste water in rivers</td>
<td>Risk that waste water/floods will pollute drinking water</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heavy metals and pesticides in food crops</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Long term toxic exposure from heavy metals, pesticides, etc in farm animals; health of animals and food source for people</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skin exposure and inhaling of toxic fumes on daily basis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pollution of rivers</td>
</tr>
<tr>
<td>Farming</td>
<td>Irrigation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Farm animals drinking</td>
<td></td>
</tr>
<tr>
<td>Mining</td>
<td>Mining for gold, copper jade</td>
<td></td>
</tr>
<tr>
<td>Deforestation</td>
<td>Logging</td>
<td>Destabilizing river banks; erosion and increase of sediment in the river</td>
</tr>
</tbody>
</table>
Domestic Use  Irrigation

Mining  Cattle Drinking

Fishing  Washing

Figure 1: Water use activities identified in Chindwin

Key question is why water quality study in Chindwin Basin? Water quality measurement is three testing methods. They are In situ measurement, Laboratory measurement and Portable Test kits with 31 parameters. There are 17 sampling point along the Chindwin River. (Map 2 and Table 2)
Portable tests show all drink water wells are clear of heavy metals. Some wells are contaminated with bacteria. Further laboratory testing is needed for Faecal Coliforms, Total Coliforms and Escherichia coli. In Uru and Chindwin rivers, high levels of mercury in the wet season are very important. Mining and deforestation cause erosion and high levels of sediment transport, especially in wet season, causing sandbanks to form making the river shallower for navigation.
Water samples from Nan Taw, Namsakar, Naung Po Aung, Uru downstream, Homalin Town, Mokelae and Shwe Pyi Aye represent the upper Chindwin River (Figure 2) and Laboratory results are as follow:

- Heavy metals including **Arsenic, Iron, Copper and** were detected in the dry and wet seasons while **Mercury** was detected in the dry season.
- Observed values of **Iron** were higher than the WHO acceptable standard of drinking water
- The observed values of **turbidity, Total Suspended Solid and Total Phosphorus** were also higher than the WHO acceptable standard of drinking water at all locations, particularly in the dry season.
- The **bacteria** were detected at all locations.

![Figure 2: Water quality sampling points in Upper Chindwin River](image)

Water samples from Kalewa upstream and Kalewa downstream represent the middle Chindwin River (Figure 3) and Laboratory results are as follow:

- Heavy metals including **Arsenic and Iron** were detected at both locations in the dry and wet seasons.
- Observed values of **Iron** were higher than the WHO acceptable standard of drinking water at both locations.
• The observed values of **turbidity, Total Suspended Solid and Total Phosphorus** were also higher than the WHO acceptable standard of drinking water at all locations, particularly in the dry season.

• The **bacteria** were detected at all locations.

![Water quality sampling points in Middle Chindwin River](image)

*Figure 3: Water quality sampling points in Middle Chindwin River*

Water samples from Kani upstream, Kani downstream, Monwya upstream, Ya Mar River Bridge, Ya Mar River downstream, Monywa Town, CHR down and Monywa downstream (Figure 4) represent the lower Chindwin River of Laboratory results are as follow:

• Heavy metals including **Arsenic, Copper, Iron and Mercury** were detected at all locations and **Lead** was detected at Kani downstream and Ya Mar creek and Monywa town.

• Observed values of **Iron** were higher than the WHO acceptable standard of drinking water at all location in the dry and wet seasons

• The observed values of **turbidity and Total Suspended Solid** were also higher than the WHO acceptable standard of drinking water at all locations, particularly in the dry season.

• **In Ya Mar creek**, observed values of **Electric Conductivity** in the dry season were higher than the WHO acceptable standard of drinking water.

• The **bacteria** were detected at all locations.
Possible impacts in Water Quality and Sediments in Uru and Chindwin Rivers are Engines for gold mining pour mine waste in Uru River, Hillside gold mining in the border of Uru River and Deforestation for agriculture contributes to bank erosion in Chindwin River. Landuse change in Chindwin River Basin is from forest to mining area and from forest to agricultural land. (Figure 5)
Figure 5: Landuse Change in Chindwin River

The stakeholder engagement and consultation meetings by different sectors received the concerning issues such as mining expansion and deforestation. (Figure 6 and 7)

Figure 6: Mining Activities in Homalin and Monywa
Figure 7: Deforestation in Chindwin River Basin from 2013 to 2016

Chindwin River channel is always change by change. It is “Dancing River”. The river keeps “dancing” (changing its course) along the years. (Map 3) It is impact on River bank erosion and deposition, Sedimentation, transportation, Navigation and Local livelihood.

Map 3: Change of Chindwin River Channel
Conclusion

For Households, groundwater for drinking is the safest option but testing the wells for bacteria with portable test kits is useful. For Farming, irrigation in wet season may have better water quality than in dry season (because of higher flow). For Mining and deforestation around the river banks, these activities cause the changes in water quality. To improve water quality and navigation, restoration of river banks and regulation of mining and deforestation is a high priority. Chindwin River needs to establish the Chindwin River Basin Organization because of improvement of water management and improve river health.
Support of Media in Sustainable Development in Northeast India

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Abstract

The United Nations Development Programme has laid down seventeen Sustainable Development Goals (SDGs) or the Global Goals which came into effect from January 2016. In the same lines UNESCO endorsed the need to involve media in the implementation of the SDGs. Sustainable Development is an all inclusive process and media plays the important role of disseminating the messages and making sure that all the citizens are well informed. This paper will concentrate on the message dissemination process in the Northeast India comprising eight states and how mass media can be efficiently used considering the kind of communication paradigm best suitable for the region. Different communication paradigms have been developed and applied over the last century in the context of development. An appropriate media paradigm is now called for to bring about sustainable development in the Northeast because this region is uniquely different from the rest of the country in terms of the ethnicity, language, and also to a lot of extent the clime. An attempt is made here to develop a communication model for sustainable development that best suits the region.

Keywords: Northeast India, sustainable development, communication for development.
Education, Technology and Learning Innovation
State of World-Class Standard School Administration under the Secondary Educational Office in Northeastern Thailand

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Abstract

The purposes of this research were 1) to investigate the state of world-class standard school administration under the Secondary Educational Service Area Office in northeastern Thailand and 2) to compare the viewpoints of chairmen of basic education board, school administrators, and teachers towards the world-class standard school administration under the Secondary Educational Service Area Office in northeastern Thailand. The samples of this research were 205 chairmen of basic education board, 205 school administrators, and 205 teachers selected by simple random sampling and determined the sample size using the table of Krejcie and Morgan (Krejcie & Morgan, 1970). The research instruments were 64 copies of 5 level-rating scale questionnaire owning Index of Item Objective Congruence (IOC) with the value of 0.67-1.00 and Cronbach’s Alpha Coefficient with the value of 0.98. The statistical analysis were percentage, mean, and standard deviation determined by one-way ANOVA. The research results revealed as follows:

1) The viewpoints of the chairmen of basic education board, school administrators and teachers about state of world-class standard school administration under the Secondary Educational Service Area Office in northeastern region were at a high level in terms of the overall and each aspects.

2) The comparison of the viewpoints of the chairmen of basic education board, school administrators and teachers about state of world-class standard school administration under the Secondary Educational Service Area Office showed no statistically significant difference.

Keywords: World-class standard school, administration, secondary school

Significance of the study

The dynamic challenges of the 21st century world have been influenced by external pressure including (1) changes in the global economic and social context due to the digital revolution, (2) changes to the fourth industrial revolution, (3) the implementation of the UN sustainable development goals 2030, (4) the impact of being an ASEAN community, (5) the need for skilled manpower in the 21st century, (6) problematic education systems due to the problem of quality of Thai people, (7) quality problem and standard educational managements as well as (8) the drawback of the education system (Office of the National Economic and Social Development Council, 2017). Due to such conditions, Thailand must reform education system to become the main driving mechanism of the country under the constitution of Thailand 2017, including the 20 year-national strategic framework 2017-2036. The direction of
the National Economic and Social Development Plan Twelfth edition 2017-2021 indicated the necessity to generate (1) human development in all dimensions and at all ages to be human capital with high potential including developing the appropriate skills and knowledge to create the foundation for quality people, (2) skill development to meet the needs of the labor market and the skills necessary to sustain life in the 21st century, (3) the increase in quality of education to excellence at all levels and enhancing learning by focusing on the development of basic education quality and school administration, and adjusting the teaching-learning system and the development of teacher quality throughout the system, and (4) the raise in quality of education to excellence in the field of specialty and development of bilateral systems or cooperative education to facilitate the preparation of skilled people for the labor market. Additionally, it also signified to create environmental factors that were conducive to lifelong learning, including a variety of learning materials and learning resources (Office of the National Economic and Social Development Council, Office of the Prime Minister, 2017). These procedures are fundamentally necessary for leading the country to stability, prosperity and sustainability in the future.

The Ministry of Education determines to improve the quality of educational standards by upgrading the leading schools to be world-class standard schools that provide development system for student, educational institution, learning resources, environment, curriculum and learning management. This procedure allows learners to have access to lifelong learning, good learning habits, skills, critical thinking, problem solving, creative ideas, virtue, the love of being Thai, and international talent (Upper Secondary Education Bureau, 2010). Hence, World-Class Standard School (W-CSS) is an innovation of educational management that the Office of the Basic Education Commission is considered as an urgent issue in upgrading the education management of Thailand to be of international quality. This principle aims to develop the characteristics of the learners according to the core curriculum of basic education. That is, to promote the students to (1) hold a characteristic of the citizens of the world encompassing the same potential as other countries, (2) become a new generation of Thai youths with academic excellence and bilingualism, advance in thought, (3) produce creative work, and (4) own a spirit of responsibility to the world society (Office of the Basic Education Commission, 2010).

Based on a comparative analysis of the core curriculum of basic education in Thailand and curriculum of other countries, it was found that, unlike other countries, the core curriculum of basic education in Thailand focused on teaching and learning materials but paid less attention to development in the case of student analytical ability. In addition, the core curriculum for basic education 2008 does not clearly reflect the learning experience that linked to the 21st century learning management in terms of language learning in the digital age, training in foreign language communication skills, and promoting students to invent and create high quality work. With such necessity, Office of the Basic Education Commission has the urge to aim for all world-class standard schools to participate in the project in order to develop the school curriculum by adding 4 international topics: 1) Theory Of Knowledge (TOK), 2) Extended Essay (EE), 3) Creativity Action Service (CAS) and 4) Global Education (GE). The protocol also includes focusing on foreign language learning as a second language, and intensive English language skills training to enhance the knowledge gained from the core education curriculum 2008. Besides aiming for the students to
upgrade their qualities of world citizens, W-CSS project also features the comparable world-class standard teaching and learning, the quality system management incorporating good morals, ethics and values. Teaching in the context of integration with internationalization also consents students to develop themselves to their full potential and eventually they can become important personnel of the nation in driving self-development to world-class standards resulting in sustainable country development (Office of the Basic Education Commission, 2010).

Consequently, the researcher has an interest in studying the state of world-class standard school administration under the Secondary Educational Service Area Office in northeastern Thailand to raise the quality of world-class standard schools to excellence and continue to improve the quality of Thai education.

Research Objectives
Two objectives were examined in this research:
1. To investigate the state of world-class standard school administration under the Secondary Educational Service Area Office in northeastern Thailand
2. To compare the viewpoint of chairmen of basic education board, school administrators, and teachers towards the world-class standard school administration under the Secondary Educational Service Area Office in northeastern Thailand

Research Methodology
The methodology of this survey research were as follows:
1. Population and samples
   1.1 The research population were 1302 chairmen of basic education board, school administrators, and teachers of world-class standard school under the Secondary Educational Service Area Office in northeastern Thailand.
   1.2 The research samples were 205 chairmen of basic education board, 205 school administrators, and 205 teachers selected by simple random sampling and determined the sample size using the table of Krejcie and Morgan (Krejcie & Morgan, 1970).
2. Variables
   2.1 Independent variables were the position of respondents, namely, chairman of basic education board, school administrator, and teacher.
   2.2 Dependent variables were the state of world-class standard school administration under the Secondary Education Area Office in northeastern Thailand.
3. Research instruments
The research instruments were 64 copies of 5 level-rating scale questionnaire comprising of two parts: 1) general information of respondents and 2) the questions regarding the state of world-class standard school administration under the Secondary Educational Service Area Office in northeastern Thailand. The 5 topics of part 2 questions consisted of (1) student quality, (2) academic administration (3) leadership (4) workforce focus and (5) knowledge management. The research rating scale questionnaires were delegated to 10 chairmen of basic education board, 10 school administrators, and 10 teachers who were not the research samples to determine Index of Item Objective Congruence (IOC) (0.67-1.00) and Cronbach’s Alpha Coefficient (0.98).
4. Data collection
The researcher posted 615 questionnaires by mail and received a total of 615 questionnaires (100%).

5. Data analysis
Quantitative research method was adopted for data collection using questionnaire. Statistical analysis used were percentage, mean, and standard deviation determined by one-way ANOVA.

Research Results
The research results were presented in tables regarding the research objectives as follows:

Table 1
Mean and standard deviation of the viewpoint of chairmen of basic education board, school administrators, and teachers towards the world-class standard school administration under the Secondary Educational Service Area Office in northeastern Thailand according to the overall perspective and each aspect

<table>
<thead>
<tr>
<th>State of world-class school administration</th>
<th>Level of practice</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Student quality</td>
<td>3.99</td>
<td>0.57</td>
</tr>
<tr>
<td>2. Academic administration</td>
<td>4.15</td>
<td>0.63</td>
</tr>
<tr>
<td>3. Leadership</td>
<td>4.57</td>
<td>0.81</td>
</tr>
<tr>
<td>4. Workforce focus</td>
<td>4.47</td>
<td>0.65</td>
</tr>
<tr>
<td>5. Knowledge management</td>
<td>4.52</td>
<td>0.88</td>
</tr>
<tr>
<td>Total mean</td>
<td>4.22</td>
<td>0.59</td>
</tr>
</tbody>
</table>

According to Table 1, it revealed that the overall viewpoints of chairmen of basic education board, school administrators, and teachers were at a high level (\bar{x}=4.22), and when considering each aspect, leadership held the highest mean (\bar{x}=4.57) followed by knowledge management (\bar{x}=4.52) while student quality owned the lowest mean (\bar{x}=3.99).
Table 2
The comparison of the viewpoint of chairmen of basic education board, school administrators, and teachers towards the world-class standard school administration under the Secondary Educational Service Area Office in northeastern Thailand according to the overall perspective and each aspect

<table>
<thead>
<tr>
<th>State of world-class school administration</th>
<th>chairman of basic education board</th>
<th>school administrator</th>
<th>teacher</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S.D.</td>
<td>S.D.</td>
<td>S.D.</td>
<td>S.D.</td>
</tr>
<tr>
<td>1. Student quality</td>
<td>4.01</td>
<td>0.58</td>
<td>3.99</td>
<td>0.56</td>
</tr>
<tr>
<td>2. Academic administration</td>
<td>4.17</td>
<td>0.57</td>
<td>4.15</td>
<td>0.65</td>
</tr>
<tr>
<td>3. Leadership</td>
<td>4.59</td>
<td>0.36</td>
<td>4.60</td>
<td>0.56</td>
</tr>
<tr>
<td>4. Workforce focus</td>
<td>4.51</td>
<td>0.88</td>
<td>4.45</td>
<td>0.49</td>
</tr>
<tr>
<td>5. Knowledge management</td>
<td>4.51</td>
<td>0.73</td>
<td>4.50</td>
<td>0.70</td>
</tr>
<tr>
<td>Total mean</td>
<td>4.24</td>
<td>0.57</td>
<td>4.23</td>
<td>0.58</td>
</tr>
</tbody>
</table>

According to Table 2, it uncovered that the comparison of the viewpoints of chairmen of basic education board, school administrators, and teachers possessed no statistically significant difference.

Discussion
The two following points based on the research objectives were discussed as follows:

1. The viewpoint of chairmen of basic education board, school administrators, and teachers towards the world-class standard school administration under the Secondary Educational Service Area Office in northeastern Thailand according to the overall perspective and each aspect were at a high level. Since the stakeholders acknowledge the importance of improving the quality of students and schools, they participate in the development of learners' quality to increase the quality of school education to world-class standards. It was consistent with the research results of Phatcharamani (2015) who declared that the state of world-class standard school administration under the Primary Educational Service Area Office was at a high level. Coherently, Yuemak (2015) affirmed that the state of new small size schools administration under the Phetchabun Primary Educational Service Area Office 2 was at a high level.

2. The overall comparison of the viewpoint of chairmen of basic education board, school administrators, and teachers towards the world-class standard school administration under the Secondary Educational Service Area Office in northeastern Thailand owed no statistically significant difference. Chairmen of basic education board, school administrators, and teachers cooperate to improve the quality of education in all aspects due to the awareness of the quality management and the same goal to increase the quality of school education to world-class standards. It was corresponds to the research results of Khodwong (2015) who asserted that the comparison of the quality management system of world-class standard schools under the Office of the Basic Education Commission possessed no statistically significant difference.
Recommendations

Some recommendations based on the research results are as follows:

1. Recommendation for application
   1.1 The Secondary Educational Service Area Office should provide budget to support student quality development.
   1.2 School administrators should pay attention and be concerned about the quality of students.

2. Recommendation for further research
   2.1 Factor affecting world-class standard school administration in northeastern Thailand should be conducted for further researches.
   2.2 Linear structural relationship model of factor affecting world-class standard school administration in northeastern Thailand should be performed for further researches.

References


The Model of Learning Management for Enhancing Creative Thinking for Primary School Students

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Abstract

The purposes of this study were to study conditions and context of learning management at the primary level of schools under the Office of Buriram Primary Educational Service Area 1-4 to develop learning management model for promoting creative thinking of primary school students, and to evaluate the learning management model. The study was conducted into 3 phases. Phase 1, study the conditions and contexts of learning management at the primary level of schools under the Office of Buriram Primary Educational Service Area 1-4. This phase, the researchers studied the documents, and analyzed the information by content analysis method. Phase 2: Synthesize and draft the model for promoting creative thinking by synthesizing the documents, summarizing, and synthesizing as outline of model for promoting creative thinking of primary school students, Phase 3: Evaluate the learning management model to see the appropriateness and possibility by the 3 educational experts.

The research found that the learning management model for promoting creative thinking of primary school students has 5 factors: 1) Concepts and Fundamental Theories, 2) Principles, 3) Purposes, 4) Teaching Stages: (4.1) Gathering the Students’ Interest, (4.2) Presenting the Problems, (4.3) Conducting Thinking Activities, (4.4) Presenting Creative Works, and (4.5) Concluding the Lessons, and 5) Evaluation. The evaluation result revealed that the learning management model is appropriate at the highest level (\( X = 4.51 \)).

Keywords: model of learning management, creative thinking, primary school students
The Study of Self-Directed Learning among Generation Z: Case Study Naresuan University Internataional College

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Abstract

Nowadays the characteristics of the new generation of students are not the same as previous generations, and also the ways they learn things have obviously changed due to the advancement of technology, especially for “Generation Z”, who has been surrounded with technology and digital devices all their lives. Modern education involves students in self-directed learning, which can also be conducted with the advancement of technology in order to continuously improve their skills to be successful in the competitive globalized labor market. The objective of this research was to find out the self-learning methods of Generation Zers that they would prefer to take in order to develop and prepare themselves to be successful in the aforementioned market. The population and samples of this research were 115 Generation Z students from different majors of Naresuan International College. The instrument used in this study was rating-scale. The statistical values were the frequency, percentage, mean, standard deviation and content analysis. The study revealed the interest of the Generation Zers in self-directed learning methods that they were interested in taking to develop their skills, namely and in order of interest: online learning, online videos, websites, attending training seminars, and having guest speakers.

Keywords: generation zer, self-learning, Naresuan university international college
Using Jeopardy Game to Enhance English for Communication Skill of Primary Students

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Abstract

This is a study of using Jeopardy game to enhance English for communication skill for primary students. The objectives of this study were 1.) to study the effects of using the Jeopardy Game to enhance English for communication skill of Thai EFL learners and 2.) to investigate the learners’ satisfaction after learning English for communication toward Jeopardy Game. This study is a mixed method research which involves the collection and analysis of quantitative and qualitative data. The participants of this study were 26 students from primary 4-6 level. The result of the data analysis indicates that there was an improvement to the students’ speaking performance level after they were exposed to a learning English speaking via Jeopardy Game. It is shown that the mean score achieved by the participants from the post- speaking test is higher ($\bar{x} = 13.96$, $SD = 1.50$) than the mean score achieved by participants on the pre-test ($\bar{x} = 10.05$, $SD = 2.53$). There is a statistically significant difference between the mean scores on the pre-and post-speaking test, as indicated by the repeated measures t-test with $t (25) = 8.80$, $p = .03$. It also shows that the students liked the game the most, at a highest level ($\bar{x} = 4.70$, $SD = 0.55$) the second most is the students needed more activities of using game in classroom at a highest level ($\bar{x} = 4.65$, $SD = 45$) and the third satisfaction is the encouragement to speak English at a high level ($\bar{x} = 4.45$, $SD = 0.42$). The other results indicate that using Jeopardy Game provides positive results that the game gave opportunities for them to speak English in meaningful conversation and they had low anxiety to speak English during the game.

Keywords: English communication skill, learning motivation, Jeopardy Game
A Development of the “What is it?” Game to Improve Critical Thinking Skills and Learning Motivation for Secondary-School Students

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Abstract

The purposes of this study were: 1) to develop the “What is it?” game to improve critical thinking skills and learning motivation of the secondary-school students, and 2) to examine the attitude of the secondary-school students towards critical thinking skills and learning motivation improvement instructed with the “What is it?” game. A group of 50 secondary-school students studying in 7th-9th grades at Huaisai Prachasan School, Phetchaburi Province, Thailand were purposively chosen to participate in this study. A questionnaire with the IOC of 0.90 was used for data collection. It was found that the “What is it?” game presented with PPT software consists of 8 questions with clues that require the students playing in teamwork system to think critically for correct answers under the set of rules and using the game itself motivates them to like learning. The students had a positive attitude in critical thinking skills and learning motivation improvement at a high level (\(\bar{x}=3.94 - 4.62\)).

Keywords: English learning game, critical thinking skills, learning motivation
The Impact of Using a PowerPoint Game to Teach Vocabulary to Thai EFL Young Learners

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Abstract

This paper presents the study of using a picture puzzle game created on PowerPoint application. The study aimed to; 1) examine the impact of using the Picture Puzzle PowerPoint game to improve vocabulary skills for fifth grade primary school students whose English competence is at A1 level in the Common European Framework of Reference for Languages (CEFR) and 2) investigate the attitudes of the learners towards the Picture Puzzle PowerPoint game. After the experiment of using the game, it was found that the game could be used as the media to enhance English vocabulary skills of the students significantly at 0.01 level (t = -9.39, α = 0.01). It also showed a positive impact on the motivation gained by the students in terms of stimulation that encouraged them to participate in the English learning activity. Furthermore, this type of game could be applied for instruction in any subject that starts with vocabulary learning.

Keywords: picture puzzles, Power Point game, English vocabulary, young learners
The Effect of Blended Learning upon Learning Achievement of English Language Teaching Program Students in the Faculty of Education, Phranakhon Si Ayutthaya Rajabhat University

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Abstract

The purposes of this research were 1) to construct blended learning lesson plans as a required effective criterion at 80/80, 2) to examine the effectiveness index of blended learning lesson plans, 3) to compare learning achievement before and after using the blended learning. The research samples were English Language Teaching Program students in the Faculty of Education, Phranakhon Si Ayutthaya Rajabhat University. The research instruments were the blended learning lesson plans and learning achievement tests. The statistics employed to analyze the data were percentage, mean, standard deviation, Effective, Effectiveness Index, and dependent t-test. The research result revealed that the average of effective criterion from the blended learning lesson plans was 81.86/81.47, the effective of process (E1) was 81.86, and the effective of outcome (E2) was 81.47. The effectiveness index of blended learning lesson plans resulted in the increasing in learning achievement to 45.42 percent before doing the pretest. The learning achievement after using the blended learning was higher than before using the method at 0.05 level of significance.

Keywords: blended learning, learning achievement, English language teaching

Introduction

Learning management in 21st century emphasizes on lifelong learning which students can seek knowledge in all situations anywhere and anytime in order to make learners to construct their own knowledge by themselves. This is the result from learning experience and learning activities that can encourage learners to learn for both formal and informal education (Dachakupt & Yindeesuk. 2014). Learning management in this century, therefore, requires a process to integrate learning management in all forms, including teaching methods, activities, assessment and evaluation. Another important aspect is the use of instructional media and technology that is progressing rapidly and assist the development of teaching and learning in various aspects, including communication, assignments, and presentation by an online format in distance education. Learners can learn about media and technology via mobile phones or tablets that are teaching methods popularly known as blended learning (Lapp, & Fisher, 2011; Bates, 2015; Khlaisang & Koraneekij, 2017).

Blended learning is a learning management that offers face-to-face in classroom and online learning. It includes learning activities that combine teachers and learners by using instructional media and technology via activities which is the
principle of designing blended learning (Smaldio, Lowther, & Russell, 2014). The principle of blended learning consists of learning in classroom and online learning. Teachers can organize various kinds of learning activities through instructional media and online technology together with face-to-face teaching which is suitable for the course. (Hew, & Cheung, 2014; Keengwe, & Agamba, 2015; Na-Songkhla, 2018). The proportion of blended learning has many forms, for examples 100 percent by online learning, or classroom learning blended with media and technology in classroom teaching activities. In addition, another form of blended learning is online learning 70-30 which is a process of 70 percent learning in classroom and 30 percent by online learning. The online activities are composed of online teaching materials, online counseling, or online conferences combining some activities. This is one of the most popular methods nowadays (Allan, 2007; Stein, & Graham, 2014; Thumthong, 2016).

The approach of blended learning has been employed in various kinds of subjects. The results of blended learning research showed higher learning achievement of students with statistical significance. It can be concluded that this method can develop knowledge and understanding of students. The researcher has taught students in English language course and discovered that the learning achievement of English Language Teaching Program of low level students was not good enough. Many students could not pass English test before they work because of the quality of English. According to the research in errors in writing skills, students had some problems in word usage, using of articles, using of prepositions, choosing the wrong vocabulary, etc. (Langprayoon, 2016). These problems affected the school students in learning with unqualified teachers that affect to the future. Therefore, the advantage of blended learning can develop learning achievement of learners, and it could solve the problems in teaching English. As the result, the researchers decided to conduct the effect of blended learning upon learning achievement of English Language Teaching Program students in the Faculty of Education, Phranakhon Si Ayutthaya Rajabhat University. The results of the study can be used as a guideline for the development of teaching and learning to increase learning achievement of the students and integrating the use of media and technology while teaching in learning management in the digital society in the 21st century (Paje, 2018).

Objectives of the Study
1. To construct blended learning lesson plans for effective learning based on criteria 80/80.
2. To study the effectiveness index of blended learning lesson plans.
3. To compare learning achievement of the students before and after using blended learning.

Research Methodology
This research is an experimental research to study the effect of blended learning upon learning achievement of English Language Teaching Program students in the Faculty of Education, Phranakhon Si Ayutthaya Rajabhat University as the following steps:
1. Population and Sampling

The population used in the research was 150 students in English Language Teaching Program in the Faculty of Education, Phranakhon Si Ayutthaya Rajabhat University. The sampling group was 30 English Language Teaching Program students in the Faculty of Education, Phranakhon Si Ayutthaya Rajabhat University. The sampling was selected by the purposive sample group and the students enrolled in English grammar for teacher course.

2. Scope of the study

2.1 The study of this research was 70 percent in classroom learning while 30 percent by online learning via video clips.

2.2 The courses used in this research are English grammar for teacher. The subjects used in the experiment 3 subjects are questions tag, if clause, and reported speech.

3. Variables

Independent variable is blended learning, and dependent variable is learning achievement.

4. Research Instrument

4.1 Blended learning lessons plan in English grammar for teachers including 3 topics: question tag, if clause, and reported speech

4.2 Learning achievement test in pretest and posttest consisted of 30 items: The test of the question tag 25 items, if clause 20 items, and reported speech 22 items. The formation of the test was 4-multiple-choice test of each item.

5. Validity of the instrument

5.1 Quality examination of blended learning lesson plans was conducted by using the following steps.

5.1.1 Three experts inspected and guaranteed the quality of blended learning lesson plans. The researchers, then, evaluated contents validity by using the Item-Objective Congruence (IOC) from the experts and selected items which evaluation results equal to .50 or more in the lesson plans, and finally improve accuracy and suitability according to experts’ advice.

5.1.2 Try the revised lesson plan to one-to-one testing with non-sample students and then went a small group experiment testing with 10 non-sample students.

5.2 Quality examination of learning achievement tests conducted by the following steps;

5.2.1 Three experts inspected learning achievement tests and then the researchers evaluated the results and conducted content validity by using the Item-Objective Congruence (IOC) from experts’ opinion. The researcher selected the items which has more than .50 or equal in learning achievement tests in order to improve accuracy and suitability according to experts’ advice.
5.2.2 Try a revised learning achievement tests for 20 non-sample students to analyze the difficulty index and the discrimination, then chose the tests that has difficulty values between 0.20-0.80.

5.2.3 The revised learning achievement tests were implemented with 20 non-sample students to evaluate the reliability which each value was more than 0.70 by using the KR-20 Kuder Richardson formula (Leekitchwatana, 2015). The reliability of the learning achievement tests was 0.85.

6. Data Collection
The researchers conducted the experiment and collected data in the second semester of the academic year 2017 as follows:

6.1 Students in the experimental group did a pretest before the experiment.

6.2 The researcher conducted experimental group by using blended learning based on the lesson plans. Students attended 70 percent of face-to-face in the classroom and 30 percent learned by online via video clips.

6.3 After finishing the course, the students in the experimental group did a posttest.

7. Data Analysis
7.1 The score from the learning achievement tests was 1 point for the correct answer while 0 point for the wrong answer.

7.2 The test scores of all experimental students were evaluated by percentage, average, and standard deviation.

7.3 The efficiency of blended learning lesson plans met the criterion of 80/80 (E₁/E₂) (Promwong & et al, 1977).

7.4 Evaluating the effectiveness index of a blended learning lesson plans used the effectiveness finding formula E.I. (Buosonte, 2013).

7.5 Independent T-test was employed to compare learning achievement in pretest and posttest outcome.

The Research Results
Effect of blended learning upon learning achievement of English Language Teaching Program students in the Faculty of Education, Phranakhon Si Ayutthaya Rajabhat University have the following research results.
Table 1
Showing the results of blended learning lesson plan efficiency

<table>
<thead>
<tr>
<th>Blended Learning</th>
<th>Test score blended learning (E₁)</th>
<th>Posttest blended learning (E₂)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full score</td>
<td>Average</td>
</tr>
<tr>
<td>Subject 1 question tag</td>
<td>25</td>
<td>20.10</td>
</tr>
<tr>
<td>Subject 2 if clause</td>
<td>20</td>
<td>16.37</td>
</tr>
<tr>
<td>Subject 3 reported speech</td>
<td>22</td>
<td>18.33</td>
</tr>
<tr>
<td>Average total</td>
<td>22.33</td>
<td>18.27</td>
</tr>
</tbody>
</table>

From Table 1 found that: blended learning lesson plans with an average efficiency of 81.86/81.47. With the process efficiency value equal to (E₁) 81.86 and the efficiency value of the result (E₂) is 81.47. Therefore, the use of performance criteria (E₁/E₂) of blended learning is 80/80. Shows that blended learning that is more efficient than the standard criteria.

Table 2
Showing results of finding effectiveness index blended learning lesson plans

<table>
<thead>
<tr>
<th>Number of students (n)</th>
<th>Full score (A)</th>
<th>Sum of points pretest</th>
<th>Sum of points posttest</th>
<th>Effectiveness Index (E.I.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30</td>
<td>30</td>
<td>594</td>
<td>733</td>
</tr>
</tbody>
</table>

From Table 2 found that: The effectiveness index of the blended learning lesson plans results in English Language Teaching Program students in the Faculty of Education, Phranakhon Si Ayutthaya Rajabhat University increasing from 45.42 percent before learning.

Table 3
Comparison of learning achievement pretest and posttest with blended learning.

<table>
<thead>
<tr>
<th>Experimental group</th>
<th>n</th>
<th>Full score</th>
<th>\bar{X}</th>
<th>S.D.</th>
<th>t</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>pretest</td>
<td>30</td>
<td>30</td>
<td>19.80</td>
<td>1.75</td>
<td>24.56</td>
<td>0.000</td>
</tr>
<tr>
<td>posttest</td>
<td>30</td>
<td>30</td>
<td>24.43</td>
<td>1.83</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From Table 3 found that: Pretest and posttest studies with blended learning of English Language Teaching Program students in the Faculty of Education, Phranakhon Si Ayutthaya Rajabhat University having posttest learning achievement higher than before learning at the statistical significance of .05
Discussion

The research results effect of blended learning upon learning achievement of English Language Teaching Program students in the Faculty of Education, Phranakhon Si Ayutthaya Rajabhat University found that in creating a blended learning lesson plans the average efficiency was 81.86/81.47. With the efficiency of the process of creating a blended learning lesson plan (E₁) at 81.86 and the efficiency value of the result (E₂) is 81.47. It is the efficiency value that is higher than the 80/80 threshold set. May be due to the process of developing a blended learning lesson plans and a test with detailed development steps and clear development process based on the principles of educational research with the process of checking the quality of research tools by experts. Determination of item difficulty and reliability of the tests with statistics and the results from the quality inspection to correct the instruments used in the research to get good quality (Leekitchwatana, 2015). Resulting in a blended learning lesson plans that exceeds the criteria. The process of developing this lesson plans is consistent with the research of Muangthai (2018) has developed lesson plans using 5 steps approach on “Subject-Verb Agreement” for 1st year English major students of the Faculty of Education, Nakhon Phanom University which has a process of developing lesson plans in the form of similar research methods. It is to find the efficiency of the lesson plans by determining the efficiency criteria at 75/75. There are experts to check assess lesson plans and with item difficulty and reliability finding of the test. The result of the development of the lesson plans is in line with the criteria set forth in this research.

Effectiveness index of blended learning lesson plans. When organizing teaching and learning activities in accordance with the blended learning lesson plan the students' learning achievement will increase by 45.42 percent. May be due to the process of developing a lesson plans through experts in integrated learning examining the appropriateness of teaching and learning activities. The media and technology used in teaching are appropriate and interesting to be able to attract the attention of students to become more enthusiastic in learning. In addition, blended learning is an additional learning by studying through media and technology that students can learn at anywhere and anytime (Khlaissang & Koraneekij, 2016). Therefore allowing students to easily review knowledge without having to wait to study only in the class.

The comparison of learning achievement with blended learning showed that students had higher learning achievement posttest at the statistical significance level of .05. It is the result of research that goes in the same direction as many research in English language teaching with blended learning. Both the research of Chansamrong & et al. (2014) that have studied about blended learning to assist Thai ESL students in learning grammar, which the research found students had higher learning achievement after studying at the statistical significance level. The research of Promsurin (2015) was studied about comparison of e-learning, blended learning, and traditional English Teaching Methods: A case study of Ban Hong Community Education College blended learning has higher academic achievement than all groups. Therefore, it may be concluded that blended learning will result in higher learning achievement than before learning in all research areas.
Recommendations

1. Applying this research result, those interested in using blended learning must understand about blended learning in the lesson plans. They must have an understanding of the teaching and learning activities in the classroom, combining online learning with the steps of teaching and learning activities. For the leader to be able to organize teaching and learning activities correctly.

2. The next research should include a study on the integration of content English skills in other areas or research in blended learning in other courses.

References

Muangthai, K. (2018). Results of Learning Activity Management Using 5 STEPs Approach on “Subject-Verb Agreement” for 1st Year English Major Students of the Faculty of Education, Nakhon Phanom University. *Journal of Humanities and Social Sciences Surin Rajabhat University*. 20 (Special Issue), pp. 63-75. [in Thai]


Comparative Study of Music Curriculum at Elementary Schools of Thailand and the Philippines

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Abstract

This research aims to study the comparative of Thai and Philippines elementary education curricula by configuration of each. This research is Descriptive Research analysis of Documentary Analysis. The data collected for this analysis can be grouped into seven aspects: 1) aims of the curricula 2) goals of the course levels 3) targets 4) contents 5) learning management and 6) measurement and the evaluation. The results are as follows: 1) the aims of the curricula: Both curricula aims to develop students by covering the demonstrates an understanding of basic concepts and processes in music and art through appreciation, analysis and performance for self-development, celebration of cultural identity and diversity, and expansion of world vision. 2) The goal of course levels : Thai curriculum is divided into 2 levels. Those are the third and the sixth grade ones. There are contents and guidelines of learning inserted in every group of learning contents but the Philippines curriculum is set the goal of course levels included in every year courses. 3) The targets: Both Thai and Philippines curricula set the targets for teachers provide guidelines to run learning activities for their students in order to reach the curriculum’s goals. 4) The contents: Both Thai curriculum and the Philippines curriculum there is a complete description of the content according to the elements of the music. As for the curriculum in the Philippines The content is clearly specified with examples of musical content and works that can be used as examples in the classroom. 5) The learning management: Both curricula set the same guidelines for learning activities but Thai curricula directs these activities more clearly and thoroughly. 6) The evaluation and measurement: Both of curricula offer similar evaluation documents, however there are different in content areas, method evaluation, source documents, and evaluation forms.

Keywords: comparative curricula, primary education curricula, Thai and Philippines
Development of a Model for Enhancing the Learning Skills of Students in Early Childhood Education Using a Community-Based: Case Study on Child Development Centers in Nakhon Nayok Province

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Abstract

This research aims to develop a model for enhancing the learning skill of Students in Early Childhood Education using community-based learning. For the developing of the model, a case study of child development centers in Nakhon Nayok province has been conducted. Later there has been conducted a broader study throughout the central region of Thailand has been conducted in order to assess the effectiveness of the model. The research methodology consists of two steps: 1) Developing the model using document synthesis and an in-depth interview with fifteen experts in early childhood education management using a structured interview. The suitability of the model was examined by 10 experts forming a focus group. Then the feasibility of applying the model in educational management has been examined using questionnaires. The population was 156 people, consisting of the heads of child development centers and academic officers under the jurisdiction of the local administrative organization, Nakhon Nayok Province. 2) The effectiveness of the model has been examined by using confirmatory factor analysis of a sample group of 560 people, which derived from multi-stage sampling, consisting of the heads of child development centers in the central region. The questionnaire with 50 questions had a reliability value of 0.98. The findings are as follows:

1. The model is suitable. It consists of 3 main components and 9 sub-components. The first main component is preparation, which includes 1) a community potential analysis, 2) a curriculum preparation/learning management plan, 3) teacher readiness preparation and 4) educating parents. The second main component is learning management, consisting of 1) physical and movement development, 2) emotional and mental aspects 3) social aspects and 4) intelligence. The third main component is learning assessment. The indicators for all components range in the average between 3.62 - 4.28, and hence how the suitability of the developed model.

2. The efficiency of the model was consistent with the empirical data based on the chi-square value 23.65, with 16 degrees of freedom and a probability value of .09. Every variable component is positive, with values ranging from 0.89 to 0.94 with statistical significance at the level of .01.

Keywords: enhancing learning skills, community-based learning, child development center
Development of Future Classroom: A Case Study of Buriram Rajabhat University Demonstration School

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Abstract

The purposes of this research were 1) to develop the teachers of Buriram Rajabhat University Demonstration School 2) to examine the results of teacher development in creativity-based learning management. The samples were 15 elementary school teachers. The research tools were workshop, knowledge exchange, and supervision by the mentor system, and the data was collected by interviews. The research results revealed that:

1. The overall knowledge and comprehension of teachers of Buriram Rajabhat University Demonstration School about creativity-based learning prior to the teacher development was at a high level (\(\bar{x}=3.93\)). Each aspect was considered and arranged in order from the highest to the lowest mean as follows: atmosphere and learning resources arrangement (\(\bar{x}=4.26\)), classroom management to promote students’ creative thinking (\(\bar{x}=4.08\)), and life skills building activities (\(\bar{x}=3.75\)).

2. The overall knowledge and comprehension of teachers of Buriram Rajabhat University Demonstration School about creativity-based learning after the teacher development was at a greater level (\(\bar{x}=4.21\)). Each aspect was considered and arranged in order from the highest to the lowest mean as follows: atmosphere and learning resources arrangement (\(\bar{x}=4.46\)), classroom management to promote students’ creative thinking (\(\bar{x}=4.12\)), and life skills building activities (\(\bar{x}=4.05\)). There was a recommendation that the class could learn through technology including learning on the computer, virtual web-based learning classroom, and digital collaboration.

Keywords: classroom management, creative thinking, creativity-based learning
Research and Development of Training Package to Enhance Curriculum and Learning Management Competencies of Teacher at Faculty of Education

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Abstract

The objectives of this research were 1) to study need of enhancement on curriculum and learning management competency, 2) to develop a training package for enhancing curriculum and learning management competency for lecturers in the Faculty of Education, Buriram Rajabhat University and study the results of using the training package.

The subjects of this research were 32 lecturers which were selected by purposive sampling. Training documents were about curriculum and Learning Management. The research instruments were 1) A survey of the need assessment of enhancement on curriculum and learning management competency for lecturers in the Faculty of Education, 2) Training package, 3) Achievement test, 4) A satisfaction questionnaire on a training package. Data were analyzed by percentage, mean, standard deviation, and hypothesis were tested by t-test.

The research results found that:

1. The need of enhancement on curriculum and learning management competency found that it was at a high level on average of 3.76.

2. The efficiency of the training package on the curriculum and the learning management competency was 89.18 / 80.00, which was the standard criterion at 80/80.

3. A test of achievement on a training package after the train was higher than before training (p < .05), and the effectiveness index of training package was 0.5019 (50.19%) together with satisfaction in lecturers on training package was an average of 4.62 that lecturers had to satisfy on training package.

Keywords: curriculum, learning management, training package
Validity Examination: A Case Study of Technological Pedagogical Content Knowledge (TPACK) of Pre-Service Teachers

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Abstract

Examine the Validity of Indicators Technological Pedagogical Content Knowledge of Students Practicing Teachers. This research was objective: to Examine the Validity of Indicators Technological Pedagogical Content Knowledge of Students Practicing Teachers, Faculty of Education, Buriram Rajabhat University in the academic year 2018. There were 920 students. The research instrument was a rating scale questionnaire. The test qualities were checked Discrimination by the Pearson Product at 0.392 to 0.610 and the reliability by Alpha coefficient (Cronbach) at .597, .898, .801, 733, .899, .914 and .915, total at 0.912. The collected data were analyzed by mean, standard deviation and factor analysis. The finding were as follow: Indicator 46, 7 Factors factor loading with the statistically significant set was at the level .01 and Goodfitness index between model and the empirical dataas: Concurrent validity of model.

Keywords: validity, technological pedagogical content knowledge, pre-service teachers
The Methods of English Vocabularies Teaching of Thai Lecturers at Mahachulalongkornrajavidyalaya University

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Abstract

The purposes of this study are 1) to study the problems the lecturers at the Department of Foreign Languages, Faculty of Humanities, Mahachulalongkornrajavidyalaya University have during their English vocabularies teaching to B.A. first year class students, 2) to study the methods of English vocabularies teaching of Thai lecturers at the Department of Foreign Languages, Faculty of Humanities, Mahachulalongkornrajavidyalaya University, and 3) to investigate the effective techniques for being the benefit of the lecturers who are teaching English at the Department of Foreign Languages, Faculty of Humanities, Mahachulalongkornrajavidyalaya University in order to improve the English vocabularies teaching skills to B.A. first year class students. The study is a mixed method consisting of both quantitative and qualitative. The tools used for collecting data are questionnaire and interview. Thai lecturers at the Department of Foreign Languages, Faculty of Humanities, Mahachulalongkornrajavidyalaya University are the target group of this study, and the data was analyzed by using percentage, means, averages and standard deviation (S.D). The result of this study was found that: The methods of teaching English Vocabularies used by the lecturers were consisted of 1) giving the example of sentences when teaching a new word or phrase, 2) assigning students to make their own sentences, 3) giving vocabularies quiz before starting the class, 4) teaching new daily English collocations to students before starting the lesson, 5) giving extra exercises to students after the class, 6) making sure if it is correct or not the student pronounced a new word. The difficulty of lecturers in teaching vocabularies is that 1) students pronounced correctly or not the vocabularies. 2) Some students are really naughty. 3) It is very difficult to focus on teaching vocabularies because of getting some bad feelings before starting the class. 4) Many students are lazy to learn phonetic symbols. The methods in developing English vocabularies commonly used by the lecturers are: 1) reading English newspaper to improve vocabularies, 2) reading English story to improve English vocabularies, 3) watching English movies with English subtitles, 4) making ‘ones’ own sentences when having a new word, 5) reviewing English vocabularies before going to bed as much as possible. The last important part of this study was the priceless ideas and invaluable suggestions to solve the problems of English vocabularies, and ways to improve the methods of English vocabularies teaching from some English lecturers and scholars who were accordingly interviewed in this study.

Keywords: methods, English vocabularies, Thai lecturers
Introduction

English is a universal language that is very important to communicate in the world. This is the era of the prosperity of scientific society and technology, both news and technology spread out widely from the original source through worldwide. English is important in today's world. Even though, the Ministry of Education and related people have shown the support, there are still problems at the operating level which is, there is not enough qualified teachers to teach English to learners nationwide. Even the overall of the students’ English proficiency is still unsatisfied. Especially speaking capabilities, such as; the knowledge in English grammar to help in speaking and understanding properly, the amount of vocabularies known is limited, even the motivation to learning is not high. In addition, some of the processing skills needed in speaking differ from those involved in reading and writing.

English is the most vital communicational tool for people around the world which has been taught in Thailand for many decades. It is really necessary for Thai students to learn English for their education. Talking about education, the first education reform in Thailand was initiated in 1868-1910 by King Chulalongkorn who is lifelong, highly respected by Thai people as one of the greatest kings in the history of Thailand. The reformation of education in Thailand was begun in 1871. At that time, most schools for commoners were established in Wat which means English learnt at the Temple.

Without being good at English vocabularies, EFL learners would not be good at four skills: speaking, listening, reading and writing, so vocabularies learning is an important and indispensable part of any language learning process. Of course, there are difficulties in vocabularies learning. Vocabulary is the most comprehensive and most difficult aspect of English for foreign learners to master thoroughly. They should concentrate first on learning the most frequently used and most needed for their daily use. So, EFL teachers should know which vocabulary should be taught to their students first.

Vocabulary is a heart of a language. It is the most important element of language. Vocabulary is the main part which supports learning English skills comprising writing, reading, speaking and listening, especially for non-native learners. Anyway, even knowing that English vocabulary is necessary, many Thai students still have problems with learning vocabulary; they forget the old words that they have studied.

English teachers have different styles of teaching English vocabularies, it is often easy to teach a number of words if they all related to a particular topic. For example, it is far easier by teaching words like, doctor, nurse, patient, ambulance, stretcher, etc., together in the context of ‘hospital’. And teachers can use the pictures

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to help them learning; it can help their students remember vocabulary easily and quickly.

Surprisingly, Thai people have been taught English since they were young; however, most of them fail to communicate with foreigners by using English. One main reason of this problem is that they lack English vocabularies. The success in learning English of students depends on their knowledge of vocabularies since the learning relates to all the four language skills: Listening, speaking, reading and writing.

Mahachulalongkornrajavidyalaya University or MCU is one of two public Buddhist universities, as well as the oldest Buddhist University in Thailand. The university was founded in 1887 by King Chulalongkorn with the purpose of establishing a major higher education institute for Buddhist monks, novices, and lay people with an emphasis on Buddhist studies as its main subject. In addition to the main campus located in Lamsai sub-district, Wang Noi district, Phra Nakon Si Ayutthaya Province, Mahachulalongkornrajavidyalaya University has 4 main Faculties, namely Faculty of Humanities, Faculty of Social Sciences, Faculty of Education and Faculty of Buddhism and also the Department of Foreign Languages is part of the Faculty of Humanities.

In this study, researcher focuses on B.A. first year class students at the Department of Foreign Languages, Faculty of Humanities, Mahachulalongkornrajavidyalaya University.

Objectives of the Study
1. To study the problems the lecturers at the Department of Foreign Languages, Faculty of Humanities, Mahachulalongkornrajavidyalaya University have during their English vocabularies teaching to B.A. first year class students
2. To study the methods of English vocabularies teaching of Thai lecturers at the Department of Foreign Languages, Faculty of Humanities, Mahachulalongkornrajavidyalaya University
3. To investigate the effective techniques for being the benefit of the lecturers who are teaching English at the Department of Foreign Languages, Faculty of Humanities, Mahachulalongkornrajavidyalaya University in order to improve the English vocabularies teaching skills to B.A. first year class students.

Research Methodology

In order to collect the data of this research study, researcher uses two methods called primary data and secondary data.

Primary Data
Primary data is directly collecting information from the target group of research that consists of 10 Thai lecturers who are teaching English at the Department of Foreign Languages, Faculty of Humanities, MCU, and 5 scholars by answering the questionnaire, observation, and face to face interview. In part of questionnaire, researcher made up the questions and let them give opinions about difficulties in developing vocabularies and most effective techniques of teaching vocabularies. For

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5 Wikipedia, the free encyclopedia, Mahachulalongkornrajavidyalaya University, [Online], Source: https://en.wikipedia.org/wiki/Mahachulalongkornrajavidyalaya_University [October 3, 2017]
interview, researcher would ask those who are professional in English such as English teachers and English scholars.

**Secondary Data**
Secondary data is to collect information from documentary survey such as thesis books, academic books, academic articles and journals. These things were used for supporting information and study. Documentary survey was also good guidelines to develop the research.

**Results of the Data Analysis**

1. **The lecturers’ most used methods of teaching English vocabularies**
The results of average mean show that the degree of agreement with question 1 (I giving the example sentences when teaching a new word or phrase) is at high level with 3.85, and with 4 questions, at moderate level with 2.38 up: Assigning students to make their own sentences when teaching a new word, teaching new daily English collocations to students before starting the lesson, making sure if it is correct or not students pronounced a new word, assigning extra exercises to students after the class, giving vocabularies quiz before starting the class.

2. **The lecturer’ difficulties in teaching vocabularies**
The results of average mean show that the degree of agreement with the difficulty in teaching vocabularies is at high level with 3.64 up: It is really difficult to help students pronounce vocabularies correctly, many students are lazy to learn phonetic symbols, and some students are really naughty.

3. **The lecturers’ methods of developing English vocabularies**
The results of average mean show that the degree of agreement with the ways the lecturers at the Department of Foreign Languages, Faculty of Humanities, MCU used to develop their English vocabularies is at high level with 3.50 up: I read English newspaper to improve my vocabularies, I read English story to improve my English vocabularies, I watch English movies with English subtitles, When I meet a new word, I make it as my own sentence, I review my English vocabularies before going to bed as much as possible almost every day.

**Conclusion**
The information of data was analyzed with the SPSS program and Excel program to show about percentages, frequency, average means and standard deviation.

The level of agreement with the lecturers’ attitudes to the vocabularies teaching of Thai lecturers at the Department of Foreign Languages, Faculty of Humanities, MCU is at high, moderate and low level: question 1 with 3.58, question 2 with 2.58, question 3 with 2.69, question 4 with 3.68 and question 5 with 1.88. The level of agreement with the lecturers’ most used methods of teaching English vocabularies is at high, moderate and low level: question 1 with 3.85, question 2 with 2.78, question 3 with 2.38, question 4 with 2.54, question 5 with 2.71, question 6 with 2.35. The level of agreement with the lecturers’ difficulties in teaching vocabularies is at high, and moderate level: question 1 with 3.64, question 2 with 3.85, question 3 with 3.67, question 4 with 3.70, question 5 with 2.56. The level of agreement with the
lecturers’ methods of developing English vocabularies is at high level: question 1 with 3.50, question 2 with 3.80, question 3 with 3.90, question 4 with 3.80, question 5 with 3.95.

In order to find more about the ways to teach and develop English vocabularies, researcher interviewed some distinguished English scholars, both Thai and foreign lecturers, and found that most of them gave similar answers to the ways of enhancing English vocabularies. They love reading as it is the best way to meet new words and also to review vocabularies they had already learnt. Reading to gain more vocabularies is to read story in English since there are many new vocabularies used in daily life. Furthermore, listening is also the good way to train FEL learners to get used to the pronunciation of English vocabularies.

Recommendations
After having conducted this research about the methods of English vocabularies teaching of Thai lecturers at the Department of Foreign Languages, Faculty of Humanities, MCU through questionnaires and interview, researcher gets many good ideas and methods of English vocabularies learning and teaching. Anyway, due to the limitation of time, it was unable to cover all the points and some aspects in related topic. Therefore, researcher would like to suggest the following needed topics for further research:

1. A Study of the Differences between Spoken and Written Vocabularies.
2. An Analytical Study of English Pronunciation of Thai Leaners
3. An Analytical Study of British and American English Vocabularies
4. A Study of Enhancing English Vocabularies from English Songs

References
Teachers’ Perceptions: Sources of Occupational Stress at Myanmar Universities

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Abstract

This research investigates the occupational stress of university faculty members (teachers) in Myanmar and the important determinants of sources of their stress factors. A sample of 135 teachers from the government universities was randomly taken. Different questionnaires were used to collect the data on levels and sources of occupational stress. Firstly, participants were asked to complete a classic stress assessment instrument known as Perceived Stress Scale (PSS) developed by Cohen & Mermelstein (1983) consisting of 10 questions to ask the participants' feelings and thoughts during the last month. Then, all participants had to complete a modified questionnaire consisting five sources of occupational stress factors originally proposed by Cooper and Marshall (1976). In accordance with the data, university teachers’ occupational stress is widespread across occupational hierarchies. It was found that the university teachers generally have occupational stress at low, moderate and high perceived levels. The scores on the self-assessment do not reflect any particular diagnosis or treatment just to help assess the level of stress. Also they are faced with different levels of teaching, scientific research and professional development pressures. Professional rankings make a difference in the level of faculty members’ occupational stress. The results confirm that professional development, academic research, and administrative affairs are significant influencing factors.

Keywords: occupational stress (level), university faculty members (teachers), sources of stress factors

Introduction

Teaching profession occupies important and prestigious place in society. Teacher is the main source for implementing all educational programmes of the organizations of education. Claxton (1989) indicated that teaching is an occupation which is always demanding and changing. Also stress has physical and emotional effects on teachers and can create positive or negative feelings. As a positive, stress can compel teachers to action; it can result in an exciting new perspective. As a negative influence, it can result in feelings of distrust, anger, and depression, which can also lead to health problems such as headaches, high blood pressure, heart disease and upset stomach. Nowadays, teachers are over loaded with regular teaching and extracurricular activities. A uniform work load for all the teachers may not be a satisfactory solution but differential work generates discontent among teachers.
Moreover, occupational satisfaction is a necessary condition for a healthy growth of teacher’s personality. Thus, teaching has become a highly stressful profession currently. A more detailed measure of personal stress can be determined by using a variety of instruments that have been designed to help measure individual stress levels. Among them, one of the popular assessment instruments is called the 'Perceived Stress Scale' (PSS).

**Perceived Stress Scale (PSS)**

The Perceived Stress Scale (PSS) by Cohen & Mermelstein (1983), a global measure of perceived stress, is a classic stress assessment instrument. It is interesting and important because our perception of what is happening in our daily life is the most important. The questions in this scale ask about our feelings and thoughts during the last month. Although some of the questions are similar, there are differences between them and the participants have to regard each one as a separate question. The best approach is to answer fairly quickly. That is, the participants should not try to count up the number of times they felt a particular way; rather indicate the alternative that seems like a reasonable estimate. For the following questions they have to choose from the following 5-point response scale: 0 – never, 1 – almost never, 2 – sometimes, 3 - fairly often and 4 - very often.

(i) In the last month, how often have you been upset because of something that happened unexpectedly?
(ii) In the last month, how often have you felt that you were unable to control the important things in your life?
(iii) In the last month, how often have you felt nervous and stressed?
(iv) In the last month, how often have you felt confident about your ability to handle your personal problems?
(v) In the last month, how often have you felt that things were going your way?
(vi) In the last month, how often have you found that you could not cope with all the things that you had to do?
(vii) In the last month, how often have you been able to control irritations in your life?
(viii) In the last month, how often have you felt that you were on top of things?
(ix) In the last month, how often have you been angered because of things that happened were outside of your control?
(x) In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

Depending on their perception, total scores could put in the stress categories: low, moderate and high perceived stress category respectively. The occupational stress emerged out from many sources. The description of which is given as follows.

**Sources of Occupational Stress Factors**

Mc Grath (1970) defines stress as a perceived substantial imbalance between demand and response capability under conditions where failure to meet demand has important perceived consequences. There are various sources of stress factors which can lead to pressure. These factors or sources can be categorized by different scholars. According to Cooper and Marshall (1976), there are 5 major causes of occupational stress which are inherent profession items, roles of individual in the organization,
career development, working relationships and organizational structure and organizational climate.

Occupational stress is a topic of growing interest in the world at present. In general, it is caused by a mismatch between perceived effort and perceived reward, or a sense of low control in a job with high demands. Low social support at work and job insecurity can also increase occupational stress. It is the psychological and physical state that results when the resources of the individual are not sufficient to cope with the demands and pressure of the situation. Stress can undermine the achievement of goals both for individual and for organizations also. At present, teaching is no longer merely hard work; it has become a highly stressful profession. Currently, the university faculty members face challenges relating to the diverse needs of students and performance requirements. This often leads to stress or pressure. The functions of the university faculty members include numerous responsibilities, such as teaching, mentoring students, conducting academic research, doing presentations for class lectures and carrying out various types of extracurricular activities and social work. These responsibilities are placing an increasingly heavy burden on the faculty members. Furthermore, faculty members must also perform nonacademic functions that include family life, social life, and community commitments. Given their numerous roles and responsibilities, and the high demands placed on them, many university faculty members experience significant levels of stress, and this leads to decreased job performance, decreased job satisfaction, increased anxiety and increased depression. Many factors affect the stress levels of university teachers. Work overload can lead to high pressure which causes physical and emotional exhaustion. As teaching is regarded as a highly stressful profession, the aim of this study is to investigate the stress level of university faculty members and the important determinants of faculty members’ stress. As such, the following research questions were formulated:

1. What is the occupational stress level of university faculty members (teachers)?
2. What are the factors influencing the occupational stress of university faculty members?

Research Objectives
The objectives of this research are:
1. to explore the levels of stress that university faculty members face
2. to investigate the differences in the levels of five occupation related stress factors among professional rankings of university faculty members.

Research Methodology
The participants of this study were 135 (43 males and 92 females) faculty members from the government universities in Myanmar. A random sample was chosen for the study and participation was completely voluntary. The age of the faculty members ranged from 26 to 60 years. The ascending faculty members’ ranking is assistant lecturer, lecturer, associate professor, and professor. The distribution of participant characteristics is summarized in Table 1.
In this research, demographic factors include gender and age, professional rankings and length of teaching (years) which can affect the stress level of faculty members.

The data were collected from March 2018 to December 2018. Participants were randomly chosen from 4 major faculties: arts, science, economics and law. They were stated the purpose of the questionnaires and assured them that their answers would remain confidential. The difference between the two questionnaires concerned the rating scales. Participants were asked to complete the first questionnaire consisting of 10 questions called Perceived Stress Scale (PSS) by Cohen & Mermelstein (1983). Individual scores on the PSS can range from 0 to 40 with higher scores indicating higher perceived stress. Scores ranging from 0-13 are considered low stress. Scores ranging from 14-26 are considered moderate stress. Scores ranging from 27-40 are considered high perceived stress. Depending on their perception, total score could be put into the perceived stress scale (PSS) of low, moderate and high perceived stress category. The questions in this scale ask about the participants’ feelings and thoughts during the last month. After that, all participants had to complete a second adapted questionnaire (five sources of occupational stress) consisting of 5 items (academic research, professional development, teaching support, administrative affairs, and health issues) with answers ranked on a 4-point scale: 1= no stress, 2= mild stress, 3= moderate stress, 4= severe stress originally proposed by Cooper and Marshall (1976). Then, responses from 135 (43 males and 92 females) participants at universities were analyzed.

**Results**

The concept of new public management system has changed the relationship between universities and the government. Hence, the operation of university organizations is more consistent. Therefore, this study identifies the levels of occupational stress of university teachers and finds out the differences in the levels of five occupational related stress factors among professional rankings of university teachers. The scores on the following self-assessment do not reflect any particular diagnosis or course of treatment. They are meant as a tool to help assess level of stress.

The data from 135 teachers’ responses to the questionnaires indicate that the individual scores on the perceived stress scale or stress levels and sources of occupation related factors that a person is forced to deviate from normal functioning are as follows:
Table 2
The Occupational Stress Levels of University Faculty Members (teachers)

The score range for the university teachers’ stress scale was from 0 to 40.

<table>
<thead>
<tr>
<th>Professional Rankings</th>
<th>Low Stress (Scores ranging from 0-13)</th>
<th>Moderate Stress (Scores ranging from 14-26)</th>
<th>High Stress (Scores ranging from 27-40)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assistant Lecturer</td>
<td>52%</td>
<td>30%</td>
<td>18%</td>
</tr>
<tr>
<td>Lecturer</td>
<td>36%</td>
<td>53%</td>
<td>11%</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>35%</td>
<td>32%</td>
<td>33%</td>
</tr>
<tr>
<td>Professor</td>
<td>33%</td>
<td>41%</td>
<td>26%</td>
</tr>
<tr>
<td>Avg</td>
<td>39%</td>
<td>34%</td>
<td>27%</td>
</tr>
</tbody>
</table>

As shown in table 2, the score range for the low stress category was 39% and the score range for moderate stress was 34%. The score range for high perceived stress category was 27%. According to the data, university faculty members’ occupational stress is widespread across their numerous levels or responsibilities. Furthermore, professional rankings, age, and length of teaching make a difference in the level of faculty members’ occupational stress. As we can conclude from table 2 is that the associate professors’ average score ranging from (27-40) was 33%, which was higher than that of professors (26%). All scores fell within the range of 0-40, indicating that university faculty members’ occupational stress is widespread across occupational hierarchies, and 73% of the faculty members are experiencing optimum level of stress. Today, in the changing educational context, teachers are experiencing expanded duties in a variety in educational settings. With the continuous increase of these responsibilities of the teachers, 27% becomes over-burdened and to work under stress. Thus, a teacher working under stressful conditions may not handle the classroom situation skillfully. This shows negative effect on the way of teaching in the educational settings.

To draw on the results of a survey, a questionnaire (which was originally developed by Cooper and Marshall, 1976) was modified with 5 items (academic research, professional development, teaching support, administrative affairs, and health issues) together with answers ranked on a 4-point scale: 1= no stress, 2= mild stress, 3= moderate stress, 4= severe stress. The results of the occupational stress factors that a person forced to deviate from normal functioning (main stressors) are described in Table 3.
Table 3

Five Sources of Occupation Related Stress Factors that a person is forced to deviate from Normal Functioning (Source: Cooper and Marshall, 1976)

<table>
<thead>
<tr>
<th>Sr No.</th>
<th>Sources of Occupation Related Stress Factors</th>
<th>1= no stress</th>
<th>2 = mild stress</th>
<th>3 = moderate stress</th>
<th>4 = severe stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Academic Research</td>
<td>0%</td>
<td>20%</td>
<td>37%</td>
<td>43%</td>
</tr>
<tr>
<td>2.</td>
<td>Professional Development</td>
<td>0%</td>
<td>21%</td>
<td>32%</td>
<td>47%</td>
</tr>
<tr>
<td>3.</td>
<td>Teaching Support</td>
<td>0%</td>
<td>36%</td>
<td>41%</td>
<td>23%</td>
</tr>
<tr>
<td>4.</td>
<td>Administrative Affairs</td>
<td>2%</td>
<td>40%</td>
<td>29%</td>
<td>31%</td>
</tr>
<tr>
<td>5.</td>
<td>Health Issues</td>
<td>61%</td>
<td>22%</td>
<td>14%</td>
<td>3%</td>
</tr>
<tr>
<td>Avg</td>
<td></td>
<td>12.6%</td>
<td>21.4%</td>
<td>26.6%</td>
<td>35.4%</td>
</tr>
</tbody>
</table>

According to the results of the research, Sources of occupation related stress factors are identified: professional development (47%), academic research (43%), administrative affairs (31%), teaching support (23%) and health issues (3%). According to data, university faculty members’ occupational stress is widespread across five factors. Thus, university teachers are faced with different factors of teaching, academic research and personal development pressures.

Discussion

The change to the university management and evaluation system is an external driving force behind the increase in occupational stress for university teachers. The pursuit of high teaching quality and the increased demands of academic output have dramatically changed the academic environment for teachers which have led to high occupational stress. In the context of Myanmar, the institutions or universities focus on improving teaching quality and increasing academic output, which inevitably increases professional pressure on the teachers. In addition, a few faculty members (teachers) are suffering from a high level of occupational stress due to the challenges of teaching and conducting academic research. In universities, professional ranking determines salary, academic output, and research performances. In particular, associate professors experience greater occupational stress than professors. Therefore, seeking promotion under the professional development has also become a source of faculty members’ occupational stress. Further, since the proportion of junior faculty members employed as professors is the largest, this indirectly explains why associate professors have the highest occupational stress. Faculty members feel more stress in their academic work and with balancing work and family, especially when the competition for academic promotions is extremely intense. Therefore, the university faculty members’ occupational stress is the outcome of structural constraints of university and personal characteristics. On the one hand, professional ranking makes a difference in the level of faculty members’ occupational stress. The faculty members should recognize the positive impact of occupational stress while striving to eliminate stressors. The results of this study indicate that the evaluation mechanism based on quantitative performance indicators has greatly increased the occupational pressure on...
the university faculty members. Regarding the sources of stress, the results show that sources of occupation related factors: professional development, with cumulative contributions of 47% with severe stress and academic research 43% respectively. While the other factors for participants were administrative affairs and teaching support, the cumulative contributions were 31% and 23% respectively. The results can help us confirm that scientific research, professional development, and administrative affairs are the significant influencing factors of faculty members’ occupational stress. To get a better understanding of the results, the following figures present the average percentages of stress levels and factors of university faculty members (teachers).

Figure 1 presents the average percentages of each level of occupational stress of university teachers.

Figure 1: Average Percentages of University Teachers on each of the Occupational Stress Levels

It is shown in figure 1 that a few portion of the university teachers i.e. only 27% have high level of stress and similarly a quite good number of these university teachers i.e. 34% have moderate level of stress as well as close to this, the remaining 39% of these university teachers have low level of stress. It means only a few of the university teachers having high level of stress are facing some problems in the present day due to one or the other reasons may have some social or personal problems, may be with their professional development and may have so many other reasons etc. Out of 135 teachers, 27% of them are working under high perceived stress in the university so that they are no longer enthusiastic with their occupation. As it can be concluded from figure 1 that university faculty members’ occupational stress is widespread across occupational hierarchies, and most of the faculty members are experiencing moderate and low stress. The results show that the situation is under control. It can be enhanced only if teachers are really empowered and taken into consideration by the stakeholders or authorities. Good functioning of the institution or university will lead towards good governance in stress free environment and the teachers will certainly love their occupation.
Figure 2: The Occupational Stress Levels of University Faculty Members

The occupational stress levels of university teachers were tried to find out through the theory proposed by Cooper and Marshall (1976) and the obtained results are presented in the Figure 2. The results show that the highest total score for low stress is assistant lecturer; another highest total score for moderate stress is lecturer and highest total for perceived stress is associate professor respectively. According to the professional rankings, the stress levels are widespread across occupational hierarchies. The following figure 3 indicates that the responses towards five sources of occupation related stress factors that a person is forced to deviate from normal functioning.
Figure 3: Responses towards Five Sources of Occupation Related Stress Factors that a person is forced to deviate from Normal Functioning

Regarding theory, there are five interesting factors that influence faculty members’ stress. Professional development was the top concern, with 47% citing this as a problem, followed by academic research (43%), administrative affairs (31%), teaching support (23%) and health issues (3%). As the results of the data analysis indicate, university faculty members are in a stressful position because they have numerous responsibilities, such as conducting academic research, teaching, mentoring students, preparing research papers and carrying out various types of social work. These responsibilities are placing an increasingly heavy burden among the university teachers. The data indicate that the university faculty members were more or less under different levels of pressure. Myanmar universities have been adopting the performance evaluation mechanism to enhance the output of university faculty members (teachers). Thus, university teachers may be trapped by demands for a high level of teaching, academic research output, and professional development. There are no clear boundaries between their workload and personal time. As a result, many university faculty members experience significant levels of stress, and this leads to decreased job performance, decreased job satisfaction, increased anxiety and increased depression.
Recommendations

According to the findings of the study, it is evident that the occupational stress had been found at all levels among the university teachers. This study was aimed at understanding the stress that university faculty members face. Since the study had limitations, the results are suggestive rather than definitive. First, since the participants were from selected universities, this made it difficult to generalize the results. Therefore, for future research, there should be expanded sample size and the sample will come from different types of universities (for example, medical universities and technical universities, etc). Second, this study was only considered five sources of faculty members’ stress factors. There are other factors that determine the level of faculty members’ stress. Moreover, the overloaded academic research and teaching work have led to university faculty members’ stress or pressure. There are no clear boundaries between their work hours and personal time. Extensive work hours can also affect the faculty members’ work efficiency. Thus, other factors should be put forward in future research. Moreover, to prevent occupational stress, the following steps should be initiated at the level of university and administration:

1. University authorities should provide specific training for stress and time management and should provide leisure facilities to the faculty members (teachers).
2. Equipment or facilities should be supported by the heads of the department or departments or university authorities for the benefit of the staff.
3. In order to prevent the teacher of adverse consequences, the stakeholders, university authorities and administrators should find ways to lessen their stress levels such as providing pleasant working environments, less work load and job securities, etc.
4. Also university authorities or administrators should be advised to address the root of faculty members’ stress because they are in the best position to reduce faculty members’ stress, for example, by reducing nonacademic workload or extracurricular activities and creating a more pleasant work environment. As university authorities or administrators, they should be aware of the fact that higher faculty members’ stress can lead to academic performance inefficiency.

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The Awareness of Changing Role of Teachers in the 21st Century: Myanmar Context

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Abstract

The 21st century is rapidly changing one in every dimension of human (economically, socially, and technologically). In this fast changing world, the education plays a major role in empowering students to engage with these challenges. Teachers of 21st century have to create students of 21st century with soft skills. The 21st century teachers need teaching skills, content mastery as well as integrating teaching with technology. The quality of teachers determines the quality of education and links with nation’s development. Thus this study investigates the teachers’ level of awareness of 21st century occupational roles in Myanmar Universities, their perspectives on the types of teachers’ roles in the 21st century and their adaptation to these roles in fulfilling the 21st century students’ skills. The population of study comprised of 24 Myanmar Universities which gave a total number of 128 participants. Questionnaire was the instrument used for data collection. Data collected were analyzed using frequency, percentage, chart and factor analysis. Findings revealed that teachers’ level of awareness of 21st century occupational roles is just moderate and not very encouraging and the 21st century environment has affected some selected areas. The study also found that they adopt particular roles to meet students’ learning and innovation skills, information, media and technology skills, and then life and career skills. There are also remarkable changes in various areas which have direct influence on the roles of the teacher in the classroom. In sum, university teachers in Myanmar reformulate their roles and adapt them to fulfill students’ skills in the 21st century.

Keywords: awareness, 21st century, occupational roles, Myanmar

Introduction

In the fast changing world, the 21st century, the education system has changed radically with the integration of the technology in every sector. With the emerging technologies, the teaching-learning is transforming from teacher-centered, lecture based to student-centered learning environment. As part of the changes the role of universities and education will also be different both in the educational system and in the society. Together with them the role of teachers will also change. The revised Blooms Taxonomy wants teachers to be creators of knowledge and thinking professionals (earlier the continuum of thinking skill would start from knowledge and ends at evaluation; but as per the changing times, the revised version starts from
remembering and ends at creating). To innovate traditional teaching and learning, teachers managing most of the students’ activities in the classroom should teach 21st century skills preparing them for successful learning, life, and work. In this case, teacher is the key figure in any changes that are needed (Lieberman & Pointer Mace, 2008). Like Wang (2013), Benade (2014) also paid attention to a great demand for the transformation of teacher roles from the traditional knowledge transmitter to the newest of roles by the virtue of great challenges faced in 21st century education where traditional ways of learning should change to innovative ways of learning. With the globalization process, the learning needs of students have changed and so has the occupational roles of teachers in the classrooms changed. Types of occupational role variables identified by Yusuf and Yusuf (2009) are as follows.

(i) Technology Expert
Yusuf and Yusuf (2009) stated that teachers in the 21st century should be technology experts as the 21st century environment is a digital environment which exploits technology to support learning. ICTs are a combination of the potentials of computers, telecommunication and electronic media using digital technology. It encompasses the computer hardware and software, the network and several other devices such as audio, Video, photograph, camera and so on, that convert information and so on into common digital form (Yusuf, 2005). With ICT facilities in the classroom, teachers must become experts at their usage as well as instruct students on computer usage, internet search, browsing, sending e-mails and receiving, using the computer to prepare-lessons and others. Teachers want to help transform their students into effective critical thinkers and life-long learners. Akudolu (2002) further explained that ICT is not just about applications and systems but also needed skill for life in the society.

(ii) Project Manager
In the 21st century, the teaching-learning is transforming from teacher-centered, lecture based to student-centered learning environment. Thomas Markham (2011) described project-based learning (PBL) thus; “PBL integrates knowing and doing. Students learn knowledge and elements of the core curriculum, but also apply what they know to solve authentic problems and produce results that matter. PBL students take advantage of digital tools to produce high quality, collaborative products. PBL refocuses education on the student, not the curriculum- a shift mandated by the global world, which rewards intangible assets such as drive, passion, creativity, empathy, and resiliency. These cannot be taught out of a textbook, but must be activated through experience. Thus Yusuf noted that in this changing environment, the role of a teacher has also changed as a project manager.

(iii) Assessor
Part of the professional role of the teachers is to make use of assessment data in schools and universities to make decisions on teaching instruction and students’ learning. Okoro (2007) describes education as the process individuals undergo through the acquisition of knowledge, skills, abilities and attitudes that are necessary for effective living in the society. In the globalization process, students’ performances are assessed using a wide range of assessment strategies. The use of E-assessment is the help for both the teachers and the students to meet the need of 21st century, a technology-driven age.
(iv) Entrepreneur

The 21st century is characterized by definitive themes such as global awareness, multiple literacies - financial, economic, business and entrepreneurship. In the class, business ideas and opportunities should be developed fostering entrepreneurial mindset. Experiences that encourage problem solving skills are integrated in the 21st century learning environment. Generating the business ideas based on the projects that the students carried out in the classroom could help them encourage use of talents.

(v) Collaborator

Collaboration skills refer to students being able to work together to solve problems or answer questions, to work effectively and respectfully in teams to accomplish a common goal and to assume shared responsibility for completing a task. Teachers occupy a very strategic role in the achievement of 21st century educational objectives. Teachers as collaborators encourage effective group interaction developing co-operation and team-spirit.

(vi) Facilitator

Teachers today find themselves in an education system in which they are no longer the sole “fountain of information” but the facilitators and pointers towards information. The 21st century learning environment is such that supports learning and teaching by exploiting the use of digital technology as well as information and technology. Teachers’ guidance in filtering on-line information helps the students create environment that supports expression of ideas. Teacher not as a lecturer but as a facilitator lead the students towards self-directed learning and student-centered learning.

(vi) Life Long Learner

Globalization and the growth of the fast-changing knowledge economy mean that teachers require upgrading their skills throughout their lives to cope with modern life, especially in their work. Nowadays, there is an increasingly important skills in ever-changing universe: ability to learn and adapt to the needed new skills. OCED (2007) Teachers themselves as life-long learners teach the students the value of learning, encourage their curiosity, cultivate them the sense of global awareness.

Due to the changing roles of the teachers in the 21st century teaching-learning environment, there are also some affected areas. Areas of the teachers’ role affected by the 21st century environment identified by Yusuf and Yusuf (2009) are Instructional strategies, Learning resources, Classroom management, Content coverage, Stakeholder relationship, Professional development, Commitment, Workload, Technical competency, Networking with peers and Motivation.

The 21st century classroom is a unique one with peculiar demands which necessitated that teachers play roles which were not part of their roles previously. This study therefore aims at investigating the types of occupational roles which teachers play in the 21st century, the level of awareness of university teachers on what the 21st century occupational roles should be and the areas of their roles affected by the 21st century environment. In this research, global characteristics of 21st century teacher as well as with reference to Myanmar have been discussed.
Research Objectives

The aim of this study is to ascertain the level of university teachers’ awareness of the 21st century occupational roles in Myanmar. Specifically, the study sought;

1. To explore the level of teachers’ awareness of 21st century occupational roles in Myanmar Universities.
2. To investigate the areas in which the 21st century environment affects the teachers in Myanmar Universities.

Research Methodology

The study was a descriptive survey design guided by two research questions. The instrument for the study was the questionnaire with a modified Likert four-scaled pattern of strongly agree, agree, disagree and strongly disagree. The population of the study comprised of 24 Myanmar Universities: 4 from Mandalay Division, 7 from Yangon Division, 5 from Sagaing Division, 1 from Magway and 2 from Shan State, 3 from Kachin State, 1 from Kayin and 1 from Kayah State with the total of 128 university teachers as participants. In the first semester of 2018 and second semester of 2019 academic years, 128 teachers were asked to fill in a questionnaire about their teaching practices and professional needs in the selected regions. One hundred and twenty eight questionnaires were returned and the results are presented here.

The questionnaire included two groups of questions which aimed to reveal teachers’ thoughts on the 21st century occupational roles at Myanmar Universities.

Research Question One: What are the types of occupational roles which teachers play in the 21st century environment of Myanmar universities?

Table 1
Rank order of the responses of the participants towards the types of occupational roles of teachers in the 21st century environment of Myanmar universities

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Types of occupational roles of teachers</th>
<th>Responses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Life-long learner</td>
<td>68%</td>
</tr>
<tr>
<td>2</td>
<td>Facilitator</td>
<td>64%</td>
</tr>
<tr>
<td>3</td>
<td>Assessor</td>
<td>57%</td>
</tr>
<tr>
<td>4</td>
<td>Technology expert</td>
<td>49%</td>
</tr>
<tr>
<td>5</td>
<td>Project manager</td>
<td>31%</td>
</tr>
<tr>
<td>6</td>
<td>Collaborator</td>
<td>28%</td>
</tr>
<tr>
<td>7</td>
<td>Entrepreneur</td>
<td>15%</td>
</tr>
</tbody>
</table>

From the results obtained, the teachers’ level of awareness of 21st century occupational roles as agreed by university teachers for the roles of facilitator, life-long learner, technology expert, assessor and an entrepreneur were moderate while that of project manager, collaborator and entrepreneur were quite low.

They were also asked about the areas in which the 21st century environment affects the teachers in Myanmar Universities.

Research Question Two: What are the areas affected by the 21st century environment in Myanmar universities?
Table 2
Rank order of the areas affected by the 21st century environment in Myanmar universities

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Areas affected by the 21st century environment</th>
<th>Responses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Motivation</td>
<td>90%</td>
</tr>
<tr>
<td>2.</td>
<td>Networking with peers</td>
<td>81%</td>
</tr>
<tr>
<td>3.</td>
<td>Stakeholder relationship</td>
<td>68%</td>
</tr>
<tr>
<td>4.</td>
<td>Commitment</td>
<td>67%</td>
</tr>
<tr>
<td>5.</td>
<td>Classroom management</td>
<td>66%</td>
</tr>
<tr>
<td>6.</td>
<td>Professional development</td>
<td>63%</td>
</tr>
<tr>
<td>7.</td>
<td>Technical competence</td>
<td>61%</td>
</tr>
<tr>
<td>8.</td>
<td>Content coverage</td>
<td>60%</td>
</tr>
<tr>
<td>9.</td>
<td>Learning resources</td>
<td>40%</td>
</tr>
<tr>
<td>10.</td>
<td>Workload</td>
<td>35%</td>
</tr>
<tr>
<td>11.</td>
<td>Instructional strategies</td>
<td>28%</td>
</tr>
</tbody>
</table>

Results from Table 2 show that motivation ranked first with 90%, closely followed by networking with peers 81%. The areas of Stakeholder relationship, Commitment and Classroom management were in the positions of third, fourth and fifth. Then Professional development, Technical competence and Content coverage ranked sixth, seventh and eighth to the percentage of 60 and 60 above. On the other hand, Learning resources, Workload and Instructional strategies to the percentage of 40, 35 and 28 were not paid as much attention as the previous 8 areas.

Results

Educational systems around the world are looking for best practices to prepare students in universities today to cope with the life and work requirements of the 21st century. The life and work styles of the 21st century demand a certain skills set from students. Thus teachers are expected to empower the students with such skills. These are the causes which change the roles of the teachers in the 21st century classroom. All the data that shows the level of awareness of the changing roles of teachers in the 21st century teaching-learning in Myanmar universities were analyzed and the results are presented in the following.
According to the questionnaire results, teachers in Myanmar universities still think that life-long learner is the most important occupational role for them. More precisely, out of all the received answers, 68% of the teachers think that their roles should be as life-long learners for the first rank order of the types of occupational roles of teachers in the 21st century environment of Myanmar universities. It is also interesting that 64% of the answerers think they need to act as facilitator. About 57% of the answers say that the role of assessor could be useful, and 49% would like to improve their technology skills. About one third of the answerers think that project managers are necessary for their development as teachers. Another interesting feature of the answers was that 28% of the teachers would need collaboration training and 15% for entrepreneurship training. The questionnaire results reveal that university teachers think that life-long learner, facilitator and assessor are by far the most important occupational roles, while collaborator and entrepreneur are not so relevant.

As the occupational roles of the teachers vary according to the 21st century environment, there are also some affected areas that Myanmar university teachers become aware of.
Due to the demands of the 21st century, there are remarkable changes in various areas which have direct influence on the roles of the teacher in the classroom. According to the data, areas like motivation, networking with peers and stakeholder relationship, commitment, classroom management, professional development and technical competency ranked highly amongst others. However it has been found that areas like learning resources, workload and instructional strategies in Myanmar universities remain very low (40%, 35% and 28%).

Discussion

Education in the 21st century is profoundly affected by changes in society: globalization, technology, labor market dynamics, immigration etc. Today more than ever, education plays an integral part in preparing learners to become global and conscious citizens. Life and work in the 21st century demand specific skills from students in order to be successful. The demand to train students into being productive members of the society where they find themselves locally and globally is a very pressing one. Consequently, the 21st century classroom is a unique one with peculiar demands which necessitated that teachers play roles which were not part of their roles previously. From the findings of this study, it was revealed that the types of occupational roles of the teachers should be facilitator, life-long learner, technology expert, assessor, project manager, collaborator and entrepreneur. It was also revealed in figure 1 that the awareness of the roles such as life-long learner, facilitator and assessor are still at the top rank of the teachers’ perception as usual. But two of the critical roles, the roles of project manager and collaborator, needed in the 21st century classroom are lacking, as shown by their relatively low percentages (31% and 28%). Information and communication technology usage in class instruction generally has been found to be the key instrument that drives 21st century learning. However it has been found that the computer is not part of classroom technology in more than ninety percent of Myanmar universities. These findings in this study show that although the universities are in the 21st century, the age of globalization, and recognizing the fact that ICT is the vehicle that drives 21st century learning, universities teachers are still struggling to incorporate ICT into teaching and learning activities in the classrooms. Although the participants noted that the use of the internet has kept the teachers versatile and as well enhanced their professional development, the teacher's level of awareness of the roles of a technology expert (49%) was found to be low. This is a surprising discovery because it is expected that the level of teacher awareness of the 21st century occupational roles should be high, with the heavy presence of various types of technological gadgets, ranging from cell-phones of different complexities, ready availability of loads of information almost accessible to anyone on demand through the internet, the ability to connect instantly with people across the world and so many other features of the 21st century workplace. It can be concluded that ICT penetration and usage in Myanmar universities remain less than the need of the 21st century demand. It has been also noted that the Myanmar university educators, may not exactly be among the most entrepreneurial. With the results of this study as it was revealed that only 15% of the teachers play the role of an entrepreneur. This is not in agreement with the findings of this study. The reason is that teachers are expected to empower the students’ knowledge or understanding of entrepreneurial mindset based on their class projects encouraging use of their talents.
Thus university teachers should have the awareness of their occupational role of entrepreneur at least at the moderate level. To sum up, the study revealed that the level of awareness of the types of occupational roles which the teachers should be playing in the 21st century is just moderate on the average. The results of this study also showed that the 21st century learning environment, due to its peculiar characteristics, affected the identified areas such as motivation, stakeholder relationship, networking with peers, commitment, classroom management, professional development, technical competency, workload, content coverage and instructional strategies which have direct influence on the roles of the teachers. Despite the fact that motivation is the most important factor ranked at the first place, many participants admitted that sometimes they are lack of motivation in the teaching-learning environment. Another point is that from the result of the level of awareness of the changing roles of the teachers in the 21st century, though the roles of project manager and collaborator ranked at the bottom of the list, the areas such as networking with peers and stakeholders relationship which have direct influence on those ranked in the positions of second and third with the percentage of 81 and 68. From this finding, it can be said that most of the Myanmar University teachers have the awareness of the importance of 21st century affected areas such as networking with peers and stakeholders relationship due to the changing roles of their occupation, however the need to be aware of the changing roles such as projector manager, collaborator and entrepreneur is still required and practiced in classrooms to meet the 21st century demand.

Conclusion

The ever-increasing needs and demands of the 21st century environment compel the educational institutions to transform in the way learning takes place. The traditional modes of teaching and learning seem to be losing relevance in not been able to adequately cater for the needs of today’s learners and in being responsive enough to address the challenges of global competitiveness. In the globalization process, universities are required to prepare students to play future social roles, and particularly function effectively in a democratic society and in the workplaces. This is because the needs of the 21st century are different from needs of the 19th and 20th century. The 21st century environment is laden with a lot of demands on the processes of teaching and learning. Teacher classroom roles have therefore changed in order to adequately address the needs of the learner, in preparing them to become self-reliant and globally competitive individuals able to survive and fit into the 21st century workplace. The awareness level of changing role of university teachers in the 21st century is not yet very encouraging in spite of the various areas of their occupational roles that have been affected by the 21st century environment.
References


Language Learning Strategies Used by English Specialization Undergraduate Students in Higher Education Institutions of Myanmar

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Abstract

This research reports on the current English language learning strategies used by English specialization students enrolled at universities in Myanmar. The subjects of the study were 91 male and 201 female students still studying for their B.A. degree. The study also investigates the strategy use among these students according to gender. Strategy Inventory for Language Learning (SILL) was conducted on 292 university students at selected universities in Myanmar during the academic year 2018-2019. The results of this study showed that English specialization students used learning strategies with high to medium frequency, and they used Metacognitive strategies the most often (78%) and compensation strategies the least (64%). In general, the results showed that these students were high to medium users of strategies and metacognitive strategies marked the highest usage which indicated that such strategies could be related to cultural and educational background differences. Based on these findings, the researchers recommend that more training should be given in using Cognitive, Memory and Compensation strategies by embedding them into regular classroom activities. Since language is socially mediated and context dependent, it would be expected that learners’ use of language learning strategies may vary with the environment.

Keywords: language learning strategies, strategy inventory for language learning (SILL), metacognitive strategies

Introduction

Over the last few decades, a gradual but significant shift of attention has taken place within the field of education, resulting in less emphasis on teachers and teaching to greater emphasis on learner and learning. At the same time, a shift of attention has taken place in second language acquisition research from the products of language learning to the processes through which learning takes place (Oxford, 1990). Many education studies have investigated learner characteristics and in an effort to lead learners towards autonomous and independent language learners, research in second language acquisition has largely focused on learner centered approaches to second language teaching. As a result of this change in emphasis, language learning strategies have emerged not only as integral components of various theoretical models of language proficiency (Ellis, 1985). Within the field of education during the last two
decades, a gradual but significant shift has taken place, resulting in less stress on
teachers and teaching and greater emphasis on learners and learning (Nunan, 1988).
One consequence of this shift was an increasing awareness and interest in resources
for learning styles and language learning strategies in foreign and second language
teaching and learning. Researchers such as Oxford (1990a); Cohen (1987); and
O'Mallay and Chamot (1990) have stressed that effective learners use a variety of
different strategies and techniques in order to solve problems that they face while
acquiring or producing the language. The focus of research in the area of EFL has
been that of the identification of how learners process new information and what
kinds of strategies they employ to understand, learn or remember the information.

In most of the research on language learning strategies, the primary concern
has been on identifying what good language learners do to learn a second or foreign
language. Like general learning strategies, English language learning strategies
include those techniques that learners use to remember what they have learnt their
storage and retrieval of new information (Rubin, 1987). LLSs also include receptive
strategies which deal with receiving the message and productive strategies which
relate to communication (Brown, 1994). LLSs have been classified into several
different ways. O'Malley et al (1985a) categorized strategies into metacognitive,
cognitive and socio-affective. They found that most importance was given to the
metacognitive strategies (i.e., those that have planning, directing or monitoring).
Oxford (1990a) indicated that LLSs, are steps taken by the learners in order to
improve language training and develop language competence. Moreover, she divided
the strategies into direct and indirect involving information, memory behaviors,
vocabulary knowledge, grammar rules, thought and mental processes. In addition,
O'Malley et al. (1985), Oxford, (1990a), Cohen et al. (1996), and many others studied
strategies used by language learners during the process of foreign language learning.
From the research to date, it is evident that all language learners use language learning
strategies of some kind; however, the frequency and variety of use vary between
different learners and depend on a number of variables (Chamot & Kupper, 1989). In
many EFL strategy frequency studies involving gender, the results have usually
favored females as more frequent users of strategies (Oxford, 1993). Among the other
factors that affect strategy use and have been researched are cultural background
(Oxford & Burry- Stock, 1995), learning styles (Sheorey, 1998), learners' self-
efficacy beliefs (Yang, Nae-Dong 1999), and LS stage of learning (Oxford, 1990b).
Since language learning strategies are considered as a good sign of how good learners
are in solving the problems they face in the learning process.

In order to measure strategy use, Oxford's Strategy Inventory for Language
Learning (SILL) was used (Oxford, 1990a). This research then aims at identifying the
English language learning strategies that are most frequently used by University
English specialization students. It is also hoped that this study will contribute to the
varied literature on the significant differences of learners' strategy use due to gender
and proficiency. The results of the study will contribute to this field by giving
information on the strategies that Myanmar learners use and how they use them to
understand information. There are, of course, important pedagogical implications for
such findings. For example, the identification of a relationship between strategy
preference and cultural background may have important implications for the
development of teaching strategies and for training learners in strategy use in particular cultural contexts (Chamot & Kupper, 1989).

**Research Objectives**

1. To investigate the Language Learning Strategies (LLSs) that are used by English specialization students at Universities in Myanmar.
2. To explore a significant difference in strategy use due to gender

**Research Methodology**

This research aims at identifying the English language learning strategies that are most frequently used by University English specialization students. The study investigated the language learning strategies used among university students using questionnaire focusing on two objectives; the language learning strategies used by the students and the students’ most preferred strategies by gender in language learning.

**Samples**

The population of students specializing in English at the time of the study was 292 students divided into 91 males and 201 females. Strategy Inventory for Language Learning (SILL) was conducted on 292 university students at selected universities in Myanmar during the academic year 2018-2019. All students completed a questionnaire adapted from Oxford’s (1990) Strategy Inventory for Language Learning (SILL). All the subjects had studied English formally as part of their Bachelor Degree's requirements in English Language and Literature. The subjects were distributed according to the independent variables as in Table 1.

**Table 1**

*Subject distribution according to independent variables (N=292)*

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
<th>1st year</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
<th>1st Hons</th>
<th>3rd Hons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>91</td>
<td>201</td>
<td>6</td>
<td>104</td>
<td>83</td>
<td>92</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

**Research Instrument**

In order to measure strategy use, Strategy Inventory for Language Learning (SILL) Version 7.0 (ESL/EFL) © R. Oxford. 1989 was used in this study. The SILL was devised by Rebecca Oxford (1990a) as an instrument for assessing the frequency of use of language learning strategies by students. There are two versions: one for native speakers of English (80 items) and another for learners of English as a second or foreign language (50 items). The SILL is one of the most useful manuals of learner strategy assessment tool currently available. The SILL uses a 5 Likert-scale for which the learners are asked to indicate their response (1, 2, 3, 4, 5) to a strategy description such as "I try to find patterns in English." The researcher didn't do any modifications on the items of the SILL. The version of the SILL used in this study is a 50-item instrument that is grouped into two main groups, direct strategies and indirect strategies, which further subdivides into 6 groups. Oxford's (1990a) taxonomy of language strategies is shown in the following:
Direct strategies are classified into:
(i) Memory strategies (9 items) are used for entering new information into memory storage and for retrieving it when need for communication. (e.g., grouping, representing sounds in memory, structured reviewing, using physical response).
(ii) Cognitive strategies (14 items) are used for linking new information with existing schemata and for analyzing and classifying it. Cognitive strategies are responsible for deep processing, forming and revising internal mental models and receiving and producing messages in the target language (e.g., repeating, getting the idea quickly, analyzing and taking notes).
(iii) Compensation strategies (6 items) include such strategies as guessing and using gestures. Such strategies are needed to fill any gaps in the knowledge of the language. (e.g., switching to the mother tongue, using other clues, getting help and using a synonym).

On the other hand, indirect strategies are divided into Metacognitive, Affective and Social:
(i) Metacognitive strategies (9 items) are techniques used for organizing, planning, focusing and evaluating one's own learning. (e.g., linking new information with already known one, seeking practice opportunities, and self-monitoring).
(ii) Affective strategies (6 items) are used for handling feelings, attitudes and motivations. (e.g., lowering anxiety by use of music, encouraging oneself and discussing feelings with others).
(iii) Social strategies (6 items) are used for facilitating interaction by asking questions, and cooperating with others in the learning process, (e.g. Asking for classification, cooperating with others and developing cultural understanding).

The final version of the questionnaire included 50 items to which the subjects responded on a 5-point Likert scale (1= I never do this; 2= I seldom do this; 3= I sometimes do this; 4= I usually do this; 5= I always do this). The items were translated into Myanmar by the researchers themselves and checked by a translation instructor taking into consideration that the items retained their essential meaning and that the translation was easily understood.

Data Collection
This study examines the application of language learning strategies by English specialization students. To do so, memory, cognitive, compensation, metacognitive, affective and social language learning strategies were investigated. To collect data, the Strategy Inventory for Language Learning (SILL; Oxford, 1990) was administered. The questionnaires distributed by the researcher were given out during students’ regular English classes. The researcher got back the questionnaires and their responses were analyzed. The subjects were informed that their participation was entirely voluntary. The subjects did not give their names; only their gender, average and level of learning were required.
Results

This research explores the use of the current English language learning strategies by English specialization students enrolled at universities in Myanmar. To do so, memory, cognitive, compensation, metacognitive, affective and social language learning strategies were investigated through the questionnaire. Figure 1 presents rank ordering of the strategies according to their frequency of usage. According to the learners’ responses on the questionnaire, the findings of the study indicate that students use a wider range of learning strategies. They often used metacognitive strategies.

![Diagram showing rank ordering of language learning strategies]

**Figure 1: Language Learning Strategies Used by English Specialization Students at Universities in Myanmar**

Figure 1 presents the items that constitute each strategy in addition to frequency of the use of every single strategy in descending order. The results indicate that the use of language learning strategies was all in favor of Metacognitive strategies. The figure shows that most of the strategies with the highest percentage are Metacognitive Strategy items. For example: items number 31 (I notice my SL mistakes and use that information to help me do better), 32 (I pay attention when someone is speaking English), 33 (I try to find out how to be a better learner of English) and 38 (I think about my progress in learning English). It also shows that Metacognitive strategies have the highest percentage (78%) which indicates a high use of Metacognitive strategies followed by Social, Affective, Memory and Cognitive, while Compensation strategies ranked the lowest percentage (64%). We also notice that one of the strategies groups, Metacognitive falls in the highest frequency, while the other strategy groups fall in the medium.

1. **Metacognitive Strategies (78%)**

As discussed earlier metacognitive strategies, which are higher order executive skills in language learning (O’Malley & Chamot, 1990), involve self-awareness to plan or direct, monitor, evaluate or correct what has been done in learning English. These strategies are seen to be higher level processes because of their controlling role in cognition, and it was this higher level or meta-, characteristic that led many to extend the label metacognitive to these processes (Lawson, 1984). According to the data, these strategies, also referred to as self-management strategies, are utilized by 78% of undergraduate learners to oversee and manage their learning. The metacognitive strategies in Oxford’s work include strategies for evaluating one’s progress, planning for language tasks, consciously searching for practice
opportunities, paying attention, and monitoring errors. By using metacognitive strategies, learners are aware of and control their efforts to use particular skills and strategies. The learners use their capacity to monitor and direct the success of the task at hand, such as recognizing that comprehension has failed, using fix-up strategies, and checking an obtained answer against estimation. Metacognitive strategies in this study involve mental processes related to planning and directing what to do in acquiring another language, monitoring, evaluating and correcting what has been done. According to the results with the highest percentages, Myanmar speaking English specialization students use these metacognitive strategies most often to monitor their errors, plan a language task, seek for practice opportunities and evaluate their learning progress.

2. Social Strategies (70%)

The second category is the social category. To explain the concept of this category, it is useful to refer to social psychology. The participants reported that 70% of them are particularly concerned with the nature and form of social interaction and how people come to influence one another’s behaviour. The results showed that learners in this study tried to lead to increased interaction with the target language, asking questions and cooperating with others.

3. Affective Strategies (69%)

As can be seen in figure 1, a statistically significant difference can be observed in the use of all types of strategies. Affective strategy type was observed to be favoured by the participants (69%). Most of the participants use affective strategies in language learning to cope with their emotional requirements, motivation and attitude to learning and to encourage themselves.

4. Memory Strategies (66%)

Memory strategies involve the mental processes for storing new information in the memory and for retrieving them when needed. These strategies entail four sets: creating mental linkages, applying images and sounds, reviewing well and employing action. In this study, 66% of the participants stated that they use memory strategies very often in creating mental linkages, applying images and employing action.

5. Cognitive Strategies (65%)

The category can be sub-classified into surface and deep categories. The two subcategories are different from each other in the sense that the deep level subcategory involves higher-rank mental processes while the surface level subcategory involves lower-rank mental processes. In this study 65% of the participants used cognitive Strategies as the basis of strategy grouping and were supported by inter-rater reliability. According to the data, the learners in Myanmar used these strategies in practicing and creating structure for input and output to make sense of learning.

6. Compensation Strategies (64%)

Compensation strategies are strategies that enable students to make up for missing knowledge in the process of comprehending or producing the target language. 64% of the participants used compensation strategies. Although compensation strategies are ranked the lowest, the results showed that over half of the learners in this study can use these strategies. However, the students need to use more compensation strategies, such as item number 26 (I make up new words if I do not know the right ones in the SL), 27(I read SL without looking up every new word) and
28 (I try to guess what the other person will say next in the SL). These compensation strategies help learners to supply the knowledge gaps that they may have either in speaking or writing, overcoming language difficulties.

In this study, the empirical data suggests that the contribution of the metacognitive strategies subsumes the contribution of the deep level cognitive strategies. Individually, the use of metacognitive strategies best predicted the gain in achievement. From the data of the analyses, it may be concluded that Language Learning Strategies and Learning Outcomes of the function of the metacognitive strategies is a powerful “tool” in learning English and directs the execution of learning processes. These findings seem to support the notion that metacognitive processes refer to the control or executive processes that direct cognitive processes and lead to efficient use of cognitive strategies (Forrest-Pressley and Waller, 1984). That metacognitive strategies best predict the language achievement also supports the notion provided by Brown and Baker (1986). This study, which involved university students, shows that metacognitive strategies were superior to the other two groups of strategies in explaining increase in language performance. The significantly positive effect of metacognitive strategies on the students’ language outcomes was probably affected by their maturity. That the extent to which metacognitive strategies play role in learning a foreign language is related to the learner’s maturity may be explained by the “monitor” hypothesis of Krashen. This explains that two conditions need to be met in order to use monitoring and self-correcting strategies (Krashen 1985), which are classified under the metacognitive category in this study. The performer must be consciously concerned about correctness. This condition seems to be met in this study since it involved relatively mature students of university level, who learned (not acquired) English consciously in educational settings. Learning English in a formal setting (as the students did during this experiment) makes language learners tend to learn the language from its rules, and correctness, in terms of rules, becomes important to them. These findings support the conclusion that the use of a monitoring strategy has more effect when language learners are mature.

Another explanation related to the effective use of metacognitive strategies in adult learning is provided by Dulay et al (1982), who note that the capacity for linguistic monitoring may be related to the onset of other developmental changes that occur at about puberty. Oxford (1990b) also agrees that learners who are more aware and more advanced seem to use better strategies. The capacity for grasping the conscious representation of abstract linguistic rules appears to emerge at about puberty and may well be a result of the adolescent’s new ability to think abstractly in general.

The data in this study clearly shows that the contribution of metacognitive strategies is more predictive of language achievement than are the strategies grouped under deep and surface level cognitive strategies. In short, metacognitive strategies appear to be effective in facilitating language development of adult learners, as shown by the participants in this study.
According to the data, it has been found that female learners used more language learning strategies than male learners although the difference was not significant. Memory strategies are the most frequently used, followed by social strategies and cognitive strategies by female learners and metacognitive strategies, affective strategies and compensation strategies by male learners. Metacognitive strategies were the least frequently used by female learners and social strategies by the male learners in the study. Based on the findings it can be interpreted that the learners in the study are moderate users of all the six categories of strategies although there are some most preferred strategies by gender in language learning.

Discussion
A close examination of the results of this study reveals that university students' learning strategy use as measured by the SILL, ranges from high to medium, with Metacognitive strategies used more frequently (78%). Metacognitive strategies involve exercising "executive control" over one's language learning through planning, monitoring, and evaluating. They are techniques that are used for organizing, planning, focusing and evaluating one's learning. In general, these strategies help learners to gain control over their emotions and motivations related to language learning through self-monitoring.

Compensation strategies, which ranked the lowest, are strategies that enable students to make up for missing knowledge in the process of comprehending or producing the target language. However, the students were reluctant to use Compensation strategies, e.g. they did not use gestures when they had difficulty producing the language, and they didn't make up new words when they did not know the right ones. The researcher believes that the use of some individual strategies could be attributed to culture and educational system in Myanmar where students have very limited opportunities to use functional practice strategies especially in large classes.

With regards to the effects of gender and proficiency on strategy use, the results of this study appear inconsistent with those of other studies. This study indicated no significant differences for the two variables gender and proficiency. It has been found that there was a strong relationship between gender, motivation and the strategies that these students employed, and that females are more motivated students who reported high use of strategies.
The most important implication of this study is the need to provide students with further opportunities to use LLSs more frequently since the overall strategy use by the subjects under study falls in the medium range. The less frequent strategies in this study (Cognitive, Memory and Compensation) can form the core of a program of classroom strategy instruction. The teacher's role in strategy training is an important one. The teacher should learn about the students, their interest, motivations, and learning styles. The teacher can learn what language learning strategies his/her students appear to be using by observing their behavior in class: Do they cooperate with their peers or seem to have much contact outside of class with proficient foreign language users? Do they ask for clarification, verification or correction? Besides observing their behavior in class, the teacher can have adequate knowledge about the students, their goals, motivations, language learning strategies, and their understanding of the course to be taught. It is a fact that each learner within the same classroom may have different learning styles and varied awareness of the use of strategies. The language teacher should provide a wide range of learning strategies in order to fulfill different learning styles that meet the needs and expectations of his students who possessing different learning styles, motivations, strategy preferences, etc.

The language teacher should also study his own teaching method and overall classroom style. Analyzing his lesson plans, the language teacher can determine whether his lesson plans give learners chance to use a variety of learning styles and strategies or not. The teacher can see whether his teaching allows learners to approach the task at hand in different ways or not. The language teacher can also be aware of whether his strategy training is implicit, explicit, or both. It should be emphasized that questioning himself about what he plans to do before each lesson and evaluating his lesson plan after the lesson in terms of strategy training, the teacher can become better prepared to focus on language learning strategies and strategy training during the process of his teaching.

As suggested by Oxford (1989), the gender difference may have been associated with women’s greater social orientation, stronger verbal skills, and greater conformity to norms, both linguistic and academic. Evidence from this study also supports the conclusion of second language acquisition studies that female learners reported a greater use of social/affective strategies than male learners. One explanation for this finding might relate to the theories of psychology which mention that sensitivity, empathy, nurturance and emotion are strong female traits, whereas aggression, dominance, assertiveness and emotional in expressiveness are male traits (Maccoby & Jacklin, 1974). Therefore, these psychological traits of males and females may influence LLS use.

**Recommendations**

This study aimed at examining the language learning strategies of a group of Myanmar English specialization students studying at Universities. The results showed that these students were high to medium users of strategies. Furthermore, Metacognitive strategies marked the highest usage which indicated that such strategies could be related to cultural and educational background differences. The tests showed no significant difference for gender and proficiency on overall strategy use. It is also obvious that language learning strategies facilitate the learning of the
Language learners in general use language learning strategies in the learning process. Since the factors like age, gender, personality, motivation, self-concept, life-experience, learning style, etc. affect the way in which language learners learn the target language, it is not reasonable to assume that all language learners use the same good language learning strategies or should be trained in using and developing the same strategies to become successful learners. Both learners and teachers need to become aware of the learning styles and strategies through strategy instruction. Attempts to teach students to use learning strategies (called strategy training or learner training) have produced good results (Rubin & Thompson, 1994). Thus, the main objective of such attempts is to allow students to become more aware of their preferred learning strategies and to help them become more responsible for meeting their own objectives. Such objectives can be only achieved when students are trained in strategy use so that they become more independent and effective. However, before teaching students how to use strategies effectively, teachers should be trained in strategy instruction and assessment. They should also be trained how to implement strategy instruction inside their classrooms. The strategies-based Instruction (SBI) approach adopted by Cohen, Weaver, & Li (1996) emphasized the role of SBI in the foreign language classroom. In addition, Cohen and Li advise teachers to systematically introduce and reinforce learning strategies that help students use the target language more effectively and thus improve their performance. Oxford (1990a) suggests that strategy training can be achieved after familiarizing the students with the LLSs and providing them with opportunities for practicing these strategies through integrating them into the classroom instructional plan and embedding them into regular class activities. Thus there is a need for more comprehensive research on a wide range of variables affecting LLSs employed by learners such as cultural background, beliefs, learning style, motivation, attitude, etc. Moreover, research on the frequency of use of the social and affective strategies and choice of given strategies is recommended since it is helpful for both learners and teachers. In conclusion, it is important in assessing learners’ strategies, therefore, there is a need for conducting research that will pave the way for building the theory that seems necessary for more language learning strategies work to be relevant to current foreign language teaching practice. Finally, it is hoped that this study will give English teachers valuable information on how their students process information, plan and select the most suitable strategies to understand or solve a problem. As a result teachers will be able to help their students become better language learners by training them in using the appropriate strategies.
References


Assessment-Related Perceptions and Practices of Myanmar EFL Teachers

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Abstract

A critical understanding and implementation of assessment is an essential aspect of any language program. There has been growing interest in examining teachers’ mastery and application of assessment literacy which addresses the knowledge and skills teachers need in order to use assessment effectively to evaluate and improve student learning. The present study was carried out with the aim of examining assessment-related perceptions and practices of Myanmar EFL teachers. (91) EFL instructors enjoying various educational status and levels of experience from different English departments in Myanmar participated in this study. Semi-structured interviews were conducted with all the participants on an individual basis. All the interviews were recorded by voice recorder and saved in audio files in MP3 format. Then, they were transcribed and analyzed through content analysis to discern recurring themes. Analysis of the responses revealed that teachers were familiar with the basic concepts and terminologies in assessment. Another noteworthy finding is that teaching experience appears to make no significant difference in the way teachers perceive assessment. Moreover, although the participants in this study were assessment literate, this literacy was not reflected in their practices. The findings have implications for language testing profession and also provide suggestions for further research.

Keywords: assessment, language assessment literacy, teachers’ perception of assessment, teachers’ assessment practices

Introduction

Reynolds et al., (2006) argue that while many teachers love teaching, many are not very interested in assessing students. As a result, teachers tend to have a negative view of assessment. More often than not, this negative view stems from personal experiences. Terms such as assessment, testing and evaluation usually have a negative connotation as they are associated with anxiety, stress, pressure or failure. Moreover, tests play a powerful role in the lives of language learners (Shohamy, 2001). They provide information about both student achievement and growth, but tests are also used to provide rewards or sanctions for teachers and students. For instance, tests are used to determine who passes or fails a course, to control discipline, to threaten students, among other things (López, 2008a). This is in part why so many people have a negative view of assessment. Something that could help minimize this negative perception is to understand the differences found in assessment, testing and evaluation. Assessment is “a term often used interchangeably with testing; but also
used more broadly to encompass the gathering of language data” (Davies *et al*., 1999). In other words, an assessment is any systematic procedure to collect information about students. This information is then interpreted and used to make decisions and judgements about the teaching-learning process. Testing, on the other hand, is simply one way to assess, so it can be described as a procedure to collect and interpret information using standardized procedures. Finally, evaluation can be described as a “systematic gathering of information in order to make a decision” (Davies, 1997). All these terms combined describe the classroom assessment process. Teachers gather information about what students know and can do; they interpret this information and make decisions about what to do next. Sometimes they quantify this data to assign grades and then make judgements based on them (e.g. pass / fail). What we, the researchers, have learned from our experiences is that some teachers usually collect information at the end of the process and therefore the assessment cannot be used to enhance learning. Furthermore, what some teachers lack the most is the ability to use and interpret this information to guide the decision-making process. Another aspect that needs to be mentioned here is that the assessment component is recognized as an essential part of the curriculum, but it is the area in which many teachers express a lack of confidence and claim the least knowledge (Nunan, 1988). Moreover, teachers commonly conceive assessment as an isolated activity (separate from teaching); equate assessment to simply giving a grade or score, and view assessment as a summative process rather than an ongoing process (Pérez, Guerra, & Ladrón, 2004). In our experience we have found that in some language classrooms, assessment is not a continuous process and it tends to be more summative than formative, in the sense that the only feedback students get is their grades (López, 2008b). When we observe foreign language classrooms, more often than not we notice that assessment is generally not used appropriately. Likewise, we find that language testing is not given the importance it should have. An example of this is that some teacher education and teacher-training programs in Myanmar offer a few extensive training in language assessment. As a result of this lack, tests and testing systems are often subject to abuse because test scores and test interpretations are put to a host of different uses (Hamp-Lyons, 1997). Thus, tests are frequently used unethically for purposes other than those they were intended for originally and do not facilitate the language learning process. Previous studies about language testing in Myanmar have highlighted the need for more research as regards the use of assessment practices in the Myanmar context. During the 2009 Language Testing Research Colloquium (LTRC), the President of the International Language Testing Association (ILTA) made a public call for more work (research, publications, conferences, workshops) on language assessment in Africa and Latin America. We believe this applies specifically to Myanmar. Therefore, we feel we need to begin a research about the role of language testing in the classroom and in the language learning process. This is why it is critical to examine the perceptions that English language teachers have about the purpose of assessment, the use and interpretation of assessments and the impact that these have on the educational system and individuals. Research about teachers’ perceptions of assessment is important because teachers’ conceptions of teaching, learning, and curricula have a strong impact on how teachers teach and what students learn or achieve (Brown & Hudson, 1998).
Ethical awareness in Language testing

The ethical concerns that are discussed in language testing are essential. Decisions made about a person on the basis of a test score can have serious and far-reaching consequences. Ethics in language testing is very important. Spolsky (1977) supported the approach to language testing that requires full justification of all statements based on tests. He pointed out that language testers must be as concerned with the prevention of bad testing as with developing new tests, and that they must be sensitive to the possible educational, social and political consequences of testing. Language teachers should also be concerned with issues of ethics (Davies, 1997). Ethical issues deal with how tests are used and how tests results are interpreted. Language tests generally used ethically questionable and unstated political purposes that are often quite distinct from their stated purposes (Shohamy, 2001). For example, tests are sometimes used as gatekeepers or instruments to exercise power and control (Spolsky, 1997). In the last two decades or so there has been a rise in ethical awareness in language testing. This has resulted in an increased interest in considering all the participants in the testing process. McNamara (1998) explains that the purpose of ethical language testing is to examine the role of language testers, the power they hold, the principles and structures in the use of that power, and the limits of that power.

Purposes of Study

The main goal of this research is to create awareness among the language teaching community in Myanmar about the importance of adequately and effectively using assessments in the classroom to promote language learning. In particular, we want to focus on these two research questions:

1. What perceptions do Myanmar English language teachers have about classroom assessment?
2. How are Myanmar English teachers currently using language assessment in the classroom?

Classroom Assessment

Classroom assessment refers to a wide variety of strategies employed by teachers to get feedback from students about how they are experiencing the learning process (McMillan, 2003). Classroom assessments are also known as teacher-made assessments or alternative assessments (Hughes, 2003). As the name implies, teacher-made assessments are assessments made by a teacher or group of teachers for a specific set of instructional outcomes for a particular group of students. Alternative assessments, on the other hand, are broadly defined as any assessment method that is an alternative to traditional paper-and-pencil tests and requires students to demonstrate the skills and knowledge that cannot be assessed using a multiple-choice or true-false test (McNamara, 1997). Classroom assessment seeks to reveal students’ critical-thinking and evaluation skills by asking them to complete open-ended tasks that often take more than one class period to complete. Some examples include portfolios, experiments, interviews, oral presentations, demonstrations, projects or exhibitions. Alternative assessments were proposed as a response to large-scale assessment instruments with the idea that they would enable educators to attend to differences in learners, address learning over a period of time, and include
communicative performances in a variety of ways. Some of the most commonly used alternative assessment instruments or procedures are writing samples, journals, portfolios, classroom projects, and interviews (Brown & Hudson, 1998). Wiggins (1992) advocated for building higher order thinking skills in both instruction and assessment to measure students’ ability to solve real problems. Chamot & O’Malley (1994) developed an approach that combines assessing thinking skills with language learning skills and content learning, so students would learn how to learn in an academic environment through English. Similarly, Short (1993) discusses the need for better assessment models for instruction where content and language instruction are integrated. She describes examples of the implementation of a number of alternative assessment or approaches such as checklists, portfolios, interviews and performance tasks.

Advantages and disadvantages of traditional and alternative assessments

Alternative assessments

Among some of the advantages we find in these of alternative assessments are that they are more integrative than traditional tests, are more easily integrated into the classroom, provide easily understood information, are more responsive to each individual learner, promote learning and enhance access and equity in education (McNamara, 1997).

Hamayan (1995) also points out that alternative assessments usually are low-stakes in terms of the consequences and supposedly have beneficial washback effects. Alderson & Wall (1993) define washback as the effects that tests have on teaching and learning. And unlike scores on large-scale assessments, alternative assessments are useful with English language learners because they can provide a multidimensional perspective of student progress and growth over time (O’Malley & Valdez Pierce, 1996). Alternative assessments also help make assessment an important component of the teaching-learning process.

Among some of the disadvantages we find in the use of alternative forms of assessments are that they are not easy to administer and score, are time consuming, and lack consistency in scoring. So, their use does not guarantee that these assessment procedures are necessarily valid and reliable. By valid we mean that the interpretations we make based on test scores are appropriate and by reliable we mean that tests are scored consistently (Bachman & Palmer, 1996). Brown & Hudson (1998) present a critical overview of alternative assessment approaches. They point out that most of the research on alternative assessments are simply descriptive and persuasive in nature and are based on research on empirical studies examining the advantages and disadvantages of the alternative approaches to assessment.

They claim that many studies, which advocate for the use of alternative assessments, present their value and validity without providing any evidence to support their claims. Their main point is that these alternative assessment instruments need to also be reliable and valid. Therefore, there is also a need for more research examining how these alternative assessment instruments are used and interpreted. More research is also needed to examine how alternative assessment procedures can be used more consistently and how we can use them to enhance teaching and learning.
Traditional Assessment

Among some advantages of traditional assessment that were found in the use of traditional assessments are that they can be easy to administer and score, reduces time consuming and effort to create appropriate tests as sample tests or test banks from some textbooks. The traditional assessments’ scoring is further eased than alternative assessment as there is a perceived degree of objectivity in traditional assessments.

Some disadvantages of traditional assessment that are found in these of traditional assessments are that they are separate from instruction, assess only the student’s low level cognitive skills and fix and limit time. Traditional testing methods involve students working alone and are characterized by individual competition: competition for grades, against personal standards, and even for attention. This leads to a solitary experience and squelches the self-affirming possibility of shared interaction (Helmericks, 1993). This type of competition may encourage a few top students to succeed, but for the majority of students, a competitive environment is detrimental to their learning.

Uses and Consequences of Tests

According to Shohamy (2001), tests are very powerful instruments. Tests are powerful because they have the power to inform and the power to influence. They have the power to inform because they provide feedback and they also have the power to influence because they often force teachers and students to do things they would not otherwise do. But tests are even more powerful when they are used as the only indicator for determining the future of English language learners (Spolsky, 1997). Tests also serve a number of functions in society (Wall, 2000).

For instance, Shohamy (1998) explains that tests are used, among other things, to define membership; to classify people; for developing curricula and textbooks, to determine criteria for success and failure; for power and control; and to influence teaching and learning. Now there is a widespread use of language assessment as an instrument in government policy (Davies, 1997; Shohamy, 2001). Messick (1989) argues that politicians need to consult with educators about initiatives. This means that policy makers need to collect information about university’s needs and realities directly from teachers before they impose new educational policies. Unfortunately, tests and testing systems are subject to abuse because test scores and test interpretations are put to a host of different uses (Hamp-Lyons, 1997). For this reason, Shohamy (2001) has developed a notion of critical language testing (CLT) which “implies the need to develop critical strategies to examine the uses and consequences of tests, to monitor their power, minimize their detrimental force, reveal the misuses, and empower the test takers”. Shohamy (2001) uses the term ‘test takers’ to refer to any stakeholder group that is directly affected by the outcome of a test (e.g., universities, teachers, students, parents).

Critical language assessment

Critical language assessment looks at the social, cultural and political context of assessment and challenges of the fairness of language assessment (Pennycook, 2001). Therefore, it is very important to examine how teachers use and interpret language tests in their classrooms and the consequences that they have. We believe that the lack of adequate training in language testing is one of the reasons some English language teachers are not able to monitor the consequences (intended or
unintended) of their tests. Thus, it becomes particularly important in understanding how classroom assessments are going to be used (or misused) and interpreted (or misinterpreted).

**Semi-structured interview**

Semi-structured interviews allow researchers to develop in-depth accounts of experiences and perceptions with individuals. A semi-structured interview is a qualitative method of inquiry that combines a pre-determined set of open questions (questions that prompt discussion) with the opportunity for the interviewers to explore particular themes or responses further.

**Methodology**

**Participants**

Ninety-one English teachers participated in this study. This present research used two sampling techniques to select the participants. First, this study used purposeful sampling to select key participants. According to Patton (1990), “the purpose of sampling is to select information-rich cases whose study will illuminate the questions under study”. This research established the following criteria to select key participants: 1) teachers currently teaching English in a Myanmar universities and 2) teachers who were willing to participate in the study. By completing an online qualitative survey, a list of teachers who would be willing to participate in this study was made. When some key potential participants had been identified, they were contacted via e-mail to identify other key potential participants that they felt would be willing to participate in this research study. All the participants currently teach English at different levels (undergraduate and postgraduate). Teachers’ experience ranges from 3 to over 30 years. All of the participants have had previous training in language assessment during their Diploma in English Language Teaching Course and Master's Course. Moreover, five of them had formal training in international programs. The other 15 teachers had received training through certificate programs such as through workshops and seminars. More information about teachers is presented in Table 1 below.

**Table 1**

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Highest Degree Earned</th>
<th>Master's degree in EFL or related field</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5% PhD degree in EFL or related field</td>
<td>95%</td>
</tr>
</tbody>
</table>

Throughout the data collection process, a qualitative online survey was conducted to gather information from teachers in Myanmar. Through the survey this study wanted to obtain the participants’ perspectives, experiences and concerns in this case about language assessment. This survey consisted of two parts. The first part was designed to elicit background information (e.g. educational background, teaching experience) about the participants and information about the teachers’ training (pre-service and in-service) in language testing. The second part was designed to elicit
information about how they felt about assessment, how they used assessments, how they scored the assessments and how they provided feedback to their students. All of this information allowed this study to answer the two research questions that stated earlier. This present research downloaded curricula from English specialization undergraduate programs and postgraduate programs aimed at training English language teachers in Myanmar. Higher education institutions were selected all over the country. These documents provided information about the number of language assessment courses offered in higher education institutions.

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Teaching experience (Years)</th>
<th>Information about the teachers’ training</th>
<th>Pre-service training in language testing</th>
<th>Both Pre-service and In-service training in language testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3-15</td>
<td>46%</td>
<td>78.03%</td>
<td>21.97%</td>
</tr>
<tr>
<td>2</td>
<td>16-30+</td>
<td>54%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Data Analysis**

The responses to the questionnaire were analyzed and this study examined similarities and differences between perceptions from teachers with in-service training in language assessment and teachers without in-service training. Through the data, tendencies were able to find in language assessment practices. Conversely, the university programs were analyzed using enumeration. That is, each program was simply read and courses related to language assessment were identified and the number of courses and number of institutions were counted.

**Teachers’ Perceptions about Language Assessment**

In this study, it can be found that there was a significant difference between the perspective of teachers who have had in-service formal training in language assessment and those who have not. Trained teachers tend to view assessment more as an integral part of instruction and as a powerful tool to guide the learning process. For instance, one of the teachers with in-service formal training in language assessment stated that he uses assessments “to keep track of the process, to measure achievement and to provide feedback”. Likewise, another participant stated that she uses “assessment for learning”. These statements suggest that some teachers have a positive view of assessment. In this perception, assessment is used to gather information about what the students know and can do. Then this information is interpreted to make decisions about teaching and learning. But the most important aspect is that this information is shared with the students so that they can all take steps to improve language learning. Among the most important positive views it can be found about language assessment are the following:
Table 3
Teachers’ perceptions about positive views on language assessment

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Positive views</th>
<th>Responses of the teachers with pre-service and in-service formal training in language assessment</th>
<th>Responses of the teachers with only pre-service training in language assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Agree</td>
<td>Disagree</td>
</tr>
<tr>
<td>1</td>
<td>Assessment as a tool to align learning and instruction</td>
<td>76%</td>
<td>24%</td>
</tr>
<tr>
<td>2</td>
<td>Assessment as a tool to monitor learning</td>
<td>72%</td>
<td>28%</td>
</tr>
<tr>
<td>3</td>
<td>Assessment as a tool to aid in communicating with students</td>
<td>53%</td>
<td>47%</td>
</tr>
<tr>
<td>4</td>
<td>Assessment as a tool to empower students</td>
<td>67%</td>
<td>33%</td>
</tr>
</tbody>
</table>

As above table, it can be shown that the teachers with pre-service and in-service formal training in language assessment respond to assessment as a tool to align learning and instruction (76%). 72% of teachers agreed assessment as a tool to monitor learning and 53% assumed assessment as a tool to aid in communicating with students. 67% of respondents accepted assessment as a tool to empower students to get their goals. On contrary, 49% of teachers who just only have pre-service training in language assessment considered assessment as a tool to connect between teaching and learning. 63% of participants agreed the statement that assessment as a tool to track learning how it develops. And then, 50% of teachers indicated assessment as a tool to assist in communicating with learners. 42% of respondents expressed assessment as a tool to empower students.

This study showed that 63% of teachers perceived assessment as a tool to redirect the teachers’ classroom practice and to evaluate their methodology. Likewise, 66% of respondents accepted assessment as a tool to see the process of students, their strengths and weaknesses. However, 52% of teachers agreed assessments as a tool to test students to know if they are improving or not in class and be able to give them better feedback. Moreover, 55% of participants assumed assessment as a tool to encourage learners to study material covered in the course.

It can also be found that teachers with only pre-service training in language assessment tend to have a more negative view of language assessments. In this view, assessment is simply used a means to give a grade or to make judgements about the students, but not as a strategy to enhance learning. For example, some of the teachers, who have not had in-service formal training in language assessment, stated that assessments are used “to get grades that I have to submit to the university”. On a similar note, another teacher expressed that assessments are “tools to determine passing or failing”. From these statements, we can infer that assessments are simply equated with grades. This implies that grades are the only feedback students get. Also, many teachers do not see the added value of assessment and only assess because they are required to do so. Among the most noticeable negative views the study found about language assessment are the following:
Table 4
Teachers’ perceptions about negative views on language assessment

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Negative views</th>
<th>Responses of the teachers with pre-service and in-service formal training in language assessment</th>
<th>Responses of the teachers with only pre-service training in language assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Agree</td>
<td>Disagree</td>
</tr>
<tr>
<td>1</td>
<td>Assessment as a summative process – “to generate a quantitative grade”</td>
<td>48%</td>
<td>52%</td>
</tr>
<tr>
<td>2</td>
<td>Assessment as a mandate – “to get grades that students have to submit to the university”</td>
<td>53%</td>
<td>47%</td>
</tr>
<tr>
<td>3</td>
<td>Assessment as an instrument of power and control – “to force students to study what the teachers teach in class”</td>
<td>31%</td>
<td>69%</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>44%</td>
<td>56%</td>
</tr>
</tbody>
</table>

After analyzing the responses of teachers with pre-service and in-service formal training in language assessment, 48% show agreement on assessment as a summative process. And then, 53% of teachers indicate agreement on assessment as a mandate. Then, 31% of responses classify assessment as an instrument of power and control. Contrariwise, the results of teachers without in-service training agreed 68% with item (1). 71% of participants indicated agreement on item (2). And then, 54% of responses accepted assessment as a tool. Assessment as an instrument of power and control.

According to the data, the findings indicate that 58% of respondents accepted assessment as a summative process to generate a quantitative grade. 62% of participants agreed with assessment as a mandate to get grades that students have to submit to the university. Likewise, 43% of respondents perceived assessment as an instrument of power and control to force students to study what the teachers teach in class.

The teachers believe that the negative view of assessment that some teachers hold stems from a lack of adequate training in language assessment. On the contrary, some of the teachers who had a more positive view of assessment had taken at least a course in assessment, had received language teaching training at work, or had attended a workshop on language testing. Moreover, from our analysis of the university programs, this study found that all universities with MA English programs offered courses on language assessment or assessment in general. Upskilling programme for Newly Appointed Tutors of English language (UPFATE programme) offered training on language assessment generally. Although it is possible that these
courses have a segment on language assessment, we feel more training is needed. This is a very promising finding in the sense that they are preparing prospective teachers to design, use and interpret assessments, and could contribute to creating a more positive view of assessment as well as starting a culture of using assessments to improve instruction. But in general, these results highlight the need for more training in language assessment in Myanmar education programs for teachers.

All the master’s programs related to English teaching are offering at least a course in language assessment. This is also promising because all the students taking these courses will have an opportunity to apply this knowledge in their teaching and, hopefully, help their students and fellow colleagues develop a more positive view of assessment. Language assessment courses are a professional development space for in-service teachers’ critical reflection upon their beliefs and practices regarding testing, assessment and evaluation.

**Using Language Assessments**

This study was also interested in gathering information about how English teachers in Myanmar use language assessments in the classroom.

**Table 5**

*Responses of participants towards the use of traditional assessment and alternative assessment*

<table>
<thead>
<tr>
<th>Sr No</th>
<th>The use of traditional assessment and alternative assessment</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Teachers usually assess at the end of a unit or semester or course.</td>
<td>Yes: 86%, Not sure: 0%, No: 14%</td>
</tr>
<tr>
<td>2</td>
<td>Teachers use traditional tests (e.g. paper and pencil, multiple-choice, fill in the blank types of tests).</td>
<td>Yes: 82%, Not sure: 0%, No: 18%</td>
</tr>
<tr>
<td>3</td>
<td>Teachers use authentic classroom assessments such as essays, presentations, interviews and others.</td>
<td>Yes: 35%, Not sure: 0%, No: 65%</td>
</tr>
<tr>
<td>4</td>
<td>Teachers score tests by assigning numbers or letters.</td>
<td>Yes: 66%, Not sure: 13%, No: 21%</td>
</tr>
<tr>
<td>5</td>
<td>Feedback is provided at the end of the teaching-learning process.</td>
<td>Yes: 31%, Not sure: 24%, No: 45%</td>
</tr>
<tr>
<td>6</td>
<td>Teachers use objective scoring in the form of scoring keys.</td>
<td>Yes: 34%, Not sure: 0%, No: 66%</td>
</tr>
<tr>
<td>7</td>
<td>Teachers use subjective scoring methods such as scoring rubrics.</td>
<td>Yes: 74%, Not sure: 0%, No: 26%</td>
</tr>
<tr>
<td>8</td>
<td>It is important for teachers to learn to provide better feedback to students.</td>
<td>Yes: 92%, Not sure: 1%, No: 7%</td>
</tr>
<tr>
<td>9</td>
<td>In order for classroom assessment to be effective, teachers need to provide immediate, relevant and ongoing feedback in their assessments.</td>
<td>Yes: 94%, Not sure: 3%, No: 3%</td>
</tr>
<tr>
<td>10</td>
<td>Feedback needs to be descriptive and it should focus on students’ strengths and limitations and inform them about possible ways to reinforce or enhance learning.</td>
<td>Yes: 84%, Not sure: 5%, No: 11%</td>
</tr>
</tbody>
</table>
Alternative forms of assessments are easy to administer and score, are time consuming, and lack consistency in scoring.

<table>
<thead>
<tr>
<th></th>
<th>36%</th>
<th>23%</th>
<th>41%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>65%</td>
<td>6%</td>
<td>29%</td>
</tr>
</tbody>
</table>

From the qualitative survey the data found that 86% of the teachers usually assess at the end of a unit or course. Most of the teachers (82%) reported that they tend to use traditional tests (e.g. paper and pencil, multiple-choice, fill in the blank types of tests). They also tend to use final exams and quizzes. Only a few teachers (35%) reported using authentic classroom assessments such as essays, presentations, interviews and others. In terms of scoring, 66% of the teachers explained that they scored tests by assigning numbers or letters. Only a few teachers (31%) responded that the feedback is provided at the end of the teaching-learning process. Thirty-four percent of the teachers reported using mostly objective scoring in the form of scoring keys. Many teachers (74%) reported using subjective scoring methods such as scoring rubrics. In general, assessment seems to be more summative than formative. Almost all the teachers (92%) consider that it is important for teachers to learn to provide better feedback to students. In order for classroom assessment to be effective, 94% of the teachers reported that they need to provide immediate, relevant and ongoing feedback in their assessments. Many teachers (84%) consider that the feedback needs to be descriptive and it should focus on students’ strengths and limitations and inform them about possible ways to reinforce or enhance learning. From the responses we got on the survey, we feel that teachers also need to empower the students. Students should be the central focus of any assessment process, more so in classroom assessment. So teachers need to make sure that students take ownership of their learning. But students also need to accept this responsibility and take control of this process. The best way to empower students is to share all the information about assessments with them, including what, how and when they are going to be assessed, how the assessment is going to be used and interpreted, and what decisions are going to be made based on the test. Also, we need to educate students on using self-assessment and peer-assessment as a way to monitor their learning process.

Language teachers should set themselves high standards when they assess their students and take every step to ensure that these standards are upheld. By standards we refer to “a code of professional practice or set of professional guidelines which could cover all stages of test development, from initial construction, through trialing and on to operational use” (Davidson, Turner & Huhta, 1997).
Table 6

Responses of the participants towards ethical awareness in language testing

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Ethical principles for testing</th>
<th>Responses</th>
<th>Agree</th>
<th>Disagree</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Corson (1997) argues that ethical principles for testing should be concerned with three important issues: That everyone is treated equally; that everyone is respected; and that everyone benefits from the test.</td>
<td>91%</td>
<td>5%</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>According to the Code of Ethics of the International Language Testing Association (ILTA, 2000) “language testers shall regularly consider the potential effects, both short and long-term, on all stakeholders of their projects, reserving the right to withhold their professional services on the grounds of conscience”.</td>
<td>66%</td>
<td>20%</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Language testers should, to some extent, be at least accountable for ensuring that the information they gather is used for ethical purposes. (Lopez, 2009)</td>
<td>93%</td>
<td>7%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Shohamy (1997) claims that tests should be used to provide information on proficiency levels and not to exercise control and manipulate stakeholders.</td>
<td>34%</td>
<td>52%</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Test makers need to examine the ways assessment instruments are used and the consequences that are brought about with such uses. (Davies, 1997)</td>
<td>91%</td>
<td>5%</td>
<td>4%</td>
<td></td>
</tr>
</tbody>
</table>

Average 75% 18% 7%

Almost all the participants agree the ethical principles for testing concerned with three important issues: That everyone is treated equally; that everyone is respected; and that everyone benefits from the test proposed by Corson (1997). As a reaction to all these ethical concerns, 66% of the participants also agree the last principle of Code of Ethics of the International Language Testing Association (ILTA, 2000) which states that “language testers shall regularly consider the potential effects, both short and long-term, on all stakeholders of their projects, reserving the right to withhold their professional services on the grounds of conscience”. But Davies (1997) argues that language testing professionals “have a hard task to influence other stakeholders, particularly the contracting stakeholders since the only real influences on them are their own prejudices and personal experiences”. 93% of the participants consider that language testers should, to some extent, be at least accountable for ensuring that the information they gather is used for ethical purposes. For instance, when people use language tests to exercise control rather than to provide information about the language learning process, they are being unethical. Moreover, 34% of the participants agree Shohamy's (1997) claim that tests should be used to provide information on proficiency levels and not to exercise control and manipulate...
stakeholders. It is crucial that we should examine ethical issues in the assessment of English language learners in Myanmar. 91% of the participants need to examine the ways assessment instruments are used and the consequences that are brought about with such uses.

Results
Teacher’s Perceptions about Language Assessment

The results showed that there is a significant difference among the participants who received pre-service and in-service training in language assessment and those who haven’t got enough in-service training.

![Figure 1: Teachers’ perceptions about positive views on language assessment](image)

The results showed that teachers with pre-service and in-service formal training in language assessment had a more positive view in assessment. Trained teachers tend to view assessment more as an integral part of instruction and as a powerful tool to guide the learning process. In this study, the participants believe that proper education and training of teachers help to select appropriate assessment procedures for their test.
It can also be found that teachers with only pre-service training in language assessment tend to have a more negative view of language assessments. The findings explored that most of teachers haven’t got adequate knowledge in assessment related process. And then, the participants’ perceived language assessment was not sufficient and they didn’t feel themselves prepared effectively for assessment-related practices. In this view, assessment is simply used a means to give a grade or to make judgements about the students, but not as a strategy to enhance learning.

Using Language Assessments

The second research question of the study examined about how Myanmar EFL language teachers use language assessment in their classroom. The results belonging to each item are presented in figure (3) below.

When this research investigates teachers’ practicing language assessment in the classroom, the results reveal that 86% of teachers usually make assessment on
their learner’s skills and literacy at the end of course or semester. And the participant teachers (82%) would like to use traditional tests when they test learners’ qualification. Generally, EFL teachers from Myanmar universities imply traditional assessments than alternative assessments in language testing. Although teachers consider that authentic ways in language assessment can provide their teaching methodology and reassess testing materials.

Figure 4: Responses of participants towards ethical awareness in language testing

The findings of the research showed the agreement of ethical awareness in language testing and assessment. 93% of teachers consider that language testers should, to some extent, be at least accountable for ensuring that the information they gather is used for ethical purposes. For example, when language tests focus on control rather than providing information about long-lasting learning process, they are being unethical. Only 34% of respondents agree Shohamy (1997). It means that most of the EFL teachers in Myanmar use summative form rather than formative form in assessment. According to the study, one course in language testing and assessment in pre-service education and intensive in-service training resulted in lack of basic training of learners in language assessment. The results showed that the pre-service teachers had limited assessment knowledge and although they were familiar with the basic terms related to classroom assessment, when it comes to the practice, they have difficulty in reflecting their assessment knowledge into their classroom practice. Likewise, teachers have limited assessment literacy and ethical awareness in testing, and they need training in many areas of testing and assessment.

Findings and Discussion

In this study, the findings presented information about teachers’ perspectives on language assessment. It can be found that there seems to be a connection between language assessment training and perceptions about language assessment. The participants believe that proper education and training of teachers will help change teachers’ perceptions about language assessment. If teachers have a positive view of assessment, they will be able to select or design appropriate assessment procedures
for their context and students that will allow the assessments to provide useful information.

Recent study also presented information about how teachers use language assessment in the classroom. The findings of study showed that there is a tendency to use traditional assessment instead of alternative assessment. Moreover, the teachers found that the majority of the feedback provided is in the form of a grade and is usually done at the end of the process. So from the finding in this study, it can be argued that classroom assessment in English teaching in Myanmar tends to be more summative than formative. The findings of this study imply that teachers need to be familiar with different types of language assessments and the type of information they provide (Hughes, 2003). Another concern is for teachers to use assessment procedures that are both valid and reliable. By valid, testers mean assessment procedures that provide accurate information about what is being measured. So a test is valid if the inferences test makers make based on test scores are appropriate (Messick, 1989). And by reliable, assessors mean assessment procedures that produce consistent scores regardless of the situation or the context in which the assessment procedure is conducted (Bachman & Palmer, 1996). Since teachers assess students for many different purposes, they need to examine whether or not the assessment instruments and procedures that are commonly used are valid and used appropriately. Davies (1997) claims that in order for a test to be fair, it needs to involve all stakeholders in the assessment process. It is crucial for test makers to interact with other groups of stakeholders so they can better understand the assessment culture and context in which a test functions. Teachers also need to conduct studies analyzing the real purposes of tests and compare them to the actual purposes they are used for. Moreover, teachers need to examine how these assessment practices affect the lives of students and their families (López, 2008a). There is also a need for more studies examining the impact tests have on language learning and on language learners. Teachers believe that the outcomes of research studies, such as the one they present here, may stimulate administrators, pre-service and in-service teachers, and the educational community as a whole, to update their professional development and improve their assessment practices to enhance the quality of language education and students’ motivation for learning. For now, it is important to remember that assessment is not simply measuring or assigning grades. Testers feel that it is more motivating and less threatening for language teachers to begin talking about assessment for learning rather than assessment of learning.

The participants also think more research is needed on how tests are developed and how all the stakeholders are involved in this process, especially when this research takes into consideration the uniqueness of the Myanmar context. Finally, teachers want to raise the issue of professionalization of the field of language assessment in Myanmar. This implies that both teachers and prospective teachers need more training in language assessment. The participants feel that the responsibility to train language teachers in how to develop, use, score and interpret language assessments lies in higher education institutions that have education programs for teachers in the institutions where have language programs and in the language teachers themselves. It is imperative that all prospective teachers take at least a course in language testing before they start teaching, and should strive to better themselves
through in-service training, conferences, workshops and so forth to create a language assessment culture for improvement in language education.

Conclusion

According to Stansfield (1993), language testers need to define ethics as a standard of appropriate professional practice and as a set of moral obligations. Similarly, Davies (1997) calls for a professional morality among language testers (i.e. English language teachers) to protect both the individuals from misuse and abuse of tests and to protect the profession’s members. In a way, ethical language testing puts the burden of responsibility onto the tester (Hamp-Lyons, 1997). In this research, the results of a study are presented that examines teachers’ perceptions about language assessment and the way they use language assessments in their classroom. The findings suggest that there is a significant difference in the perceptions that teachers have depending on the level of training they have in language assessment. The findings of the study also explored information about how teachers use language assessment in the classroom and participants' ethical awareness in language testing. Thus, the results highlight the importance of providing adequate training in language assessment for all prospective language teachers in Myanmar.

Recommendations

Assessment literacy is one of the most responsibilities of a teacher as the teacher's ability of applying assessment is closely related to the ability of teaching in classroom. Moreover, it helps teacher to perceive, analyze and use data on student's performance to improve teaching. It can also provide data for curriculum development and the awareness of students' mastery level of foreign language.

As this study showed that there seems to be a connection between language assessment training and perceptions about language assessment, teachers should be given more training concerned with assessment.

Giving more training on assessment will help change teachers' perceptions about language assessments. So, in the future, training such as how teachers use language assessment in the classroom should be given to all the teachers so that they will employ alternative assessment instead of traditional assessment in the classroom.

All teachers should be trained on variety of language assessment training so that they will be familiar with different types of language assessment and the type of information they provide.

In brief, teachers and prospective teachers need more training in language assessment and more researches on language assessment should be welcomed.
References


Driving Force for Successful Quality Tertiary Education Delivery in this Modern Age through ICT: Myanmar Context

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Abstract

The use of technology has become an important part of the learning process in and out of the class. Technology has been used to both help and improve learning. Technology enables teachers to adapt classroom activities, thus enhancing the learning process. Technology continues to grow in importance as a tool to help teachers facilitate learning for their learners. This study focuses on the benefits and barriers of the use of ICT in learning process. It discussed different attitudes which support the learners to increase their learning skills through using technologies. In this research, the researchers defined the term technology and technology integration, explained the use of technology in the classroom, and explored certain recommendations for the better use of these technologies, which assist learners in improving their learning skills. Countries in Asia have perceived information and communication technology (ICT) as an enabler for transforming their education systems, and have invested in several ICT in education initiatives and projects in collaboration with development partners, private sector, and international or regional organizations to enhance access to quality teaching and learning and promote lifelong learning opportunities. Information and communication technology (ICT) can play an important role in economic growth of any developing country like Myanmar by creating and enabling new job opportunities and further digitalization in social setup. In order to sustain and grow, universities need to embrace new technologies and develop cost-effective and innovative solutions. Accordingly, the ICT sector must acquire knowledge and skills in new and emerging technologies. However, for most ICT, it could be challenging to bear the cost and complexity of acquiring and adapting emerging technologies. It is important to recognize the benefits and barriers faced by ICT use of universities in Myanmar. This study investigates the benefits and barriers in the achievement of effective technology deployment. The driving force for a successful quality tertiary education delivery in this modern age of technological development is the Information and Communication Technology (ICT). The researchers diligently examined some of the benefits and challenges in deploying ICT in the Myanmar tertiary educational system. More specifically, improvements in the important areas have been also found and solutions were suggested to implement them through regular regional conferences and workshops.
Introduction
In this century, a huge prospect for economic development has become in Myanmar and hence is fast becoming an attractive nation for investment. The progressive economic reform, a result of Myanmar government efforts is to make its economy the best in Asia in order to attract more investors and move to the front line. However, this cannot be achieved without Myanmar youths and all citizens becoming great entrepreneurs in order to partake in this evolving economic potential. Universities are platform for career development worldwide. Moreover, ICT can bring a significant benefit in supporting learning. Learning with technology becomes the attractive and active way for the students. As mentioned by Bransford, Brown, and Cocking (cited in Hufaker, 2003, p.357) an active learning allows the students to decide when they require a particular information and whether they have already understood that information or not. The world is presently moving forward on a fast pace, which makes any form of learning impossible without information and communication technologies (ICT) so as to compete effectively with other graduates in the larger world. And ICTs create globalization that affects the business environment and revolutionizes the structure and performance of the organizations around the globe (Moomal & Maslin, 2015). ICT includes all forms of technologies for communication and information transmission globally (Hamelin, 1997). Hence, information and communication technology is a collective platform of digital and electronic technologies, for ease of communication and electronic interaction between humans and information systems (Wang, 2007). For the purpose of this research, information and communication technology is the digital and electronic link of technologies for effective and efficient interaction and learning; within and outside the Universities. ICT is vital to all human activities more so as the world has gone digital and is at the point where nothing is more valuable than ICT owing to its efficiency and enormous benefits. The essence of digitalization is the ability to access information with ease in various forms by the use of electronic gadgets and computerized devices like desktops, palmtops, smart phones, tablets, mini pads, laptops etc. (Tech terms, 2010).

This situation of ICT is quite alarming and availability of latest technology is a critical issue in developing countries. There are not only issues relating to the availability of latest information communication technology but also many barriers persist in the implementation of ICT in Myanmar society. Moreover, many developing countries are facing barriers in implementation of ICT infrastructure. Salam, Zeng, & Pathan (2018) have mentioned that barriers in ICT integration are intrinsic and extrinsic, whereas intrinsic barriers are easy to overcome if extrinsic barriers have been controlled successfully. They have also pointed out that developed countries are successful in attaining the goals of providing quality education with the successful implementation of ICT in the education sector and learning (Salam, Zeng, & Pathan, 2018). Huffaker (2003) has further pointed out the following benefits and barriers in developing countries.

Keywords: benefits and barriers, use of ICT, learning process
Benefits and barriers of the use of ICT

The implementation of e-learning can provide considerable benefits as well as cause some difficulties. Huffaker (2003) identifies some of its benefits. Those benefits are; being actively engaged in learning, supports social learning, gives an opportunity for the teachers to give continuous feedback, transfer of learning, and scalability and modularization.

In spite of some of its benefits, e-learning has some potential difficulties. Some of those difficulties are technological barrier, teachers’ barriers and university support barriers.

Important areas which need improvements for professional development on ICT to support teaching

ICT-enabled courses can manage and monitor students to develop their soft skills, such as creativity, discipline, decision-making, and cognitive flexibility, among others, that will matter greatly for future jobs in the era of automation and artificial intelligence. Both teachers and students need more opportunities for quality teaching and learning. ICT’s impact is greater in remote and rural areas. Rightly recognizing ICT as an enabler for addressing education challenges, Myanmar has invested in various policies and plans to utilize ICT for education. For developing Myanmar to realize the potential of ICT to take education to the next level, a holistic approach — involving a balanced support for hardware, connectivity, contents, and people — will make a difference. More specifically, important areas which need to improve are coordination, technical support for teachers, differentiated and just-in-time programs for professional development, pedagogical support for teachers and systematic monitoring and evaluation of ICT use in universities.

Research Objectives

1. To investigate the benefits and barriers in the achievement of effective technology deployment
2. To examine some of the benefits and challenges in deploying ICT in the Myanmar tertiary educational system.

Research Methodology

This research followed a mixed methods design where qualitative approaches, including semi-structured interview with 51 teachers and questionnaire survey with 137 students, dominated the overall research process. Some developing countries also encounter some difficulties in integrating ICT into universities. Myanmar also finds some difficulties in implementing ICT. Even though it knows that ICT can bring a considerable potential benefits, but frequently greater barriers block these benefits. Thus, before gaining the benefits, it has to pass through great difficulties. Myanmar, as a developing country, also experiences the same thing. Firstly, ICT can increase the students’ academic grade point. This is because the students can work collaboratively, they can help each other. They are more motivated to learn and find that learning is interesting. Secondly, learning is not limited by time and space since the students can access the material anytime. Thirdly, the students can learn more independently. This is a great benefit since culturally the eastern students are accustomed to depend their leaning on their teachers.
Benefits and barriers of the use of ICT

The benefits of ICT are:

a) Being actively engaged in learning: The learners are aware of their own learning. This means they know what knowledge they need and how they will get that knowledge.

b) Supports social learning: ICT provides opportunities for the learners to work collaboratively without being limited by environment/demography aspect. The learners can build learning community.

c) Gives an opportunity for the teachers to give continuous feedback: In teaching-learning process through ICT will not be slowed down to wait the slower learners understand the knowledge. Teachers will be able to guide learning process-based on each learner’s learning speed.

d) Transfer of learning: ICT opens up opportunity for the students to communicate and learn from others without having face-to-face interaction.

e) Scalability and Modularization: Learning through ICT is very flexible. It can accommodate from small number to huge number of participants without drastically affects its cost.

Table 1
Participants’ responses for the benefits of ICT in Myanmar (Source: Huffaker, 2003)

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>The benefits of ICT</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Being actively engaged in learning</td>
<td>25%</td>
</tr>
<tr>
<td>2</td>
<td>Supports social learning</td>
<td>20%</td>
</tr>
<tr>
<td>3</td>
<td>Gives an opportunity for the teachers to give continuous feedback</td>
<td>16%</td>
</tr>
<tr>
<td>4</td>
<td>Transfer of learning</td>
<td>18%</td>
</tr>
<tr>
<td>5</td>
<td>Having Scalability and Modularization</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

As shown in Table 1, 25% of learners responded significantly in being actively engaged in learning. 21% of participants accepted e-learning is flexible and 20% of learners said that ICT provided opportunities for them. But the rest 18% agreed that ICT can transfer learning and the least response is ICT gives an opportunity for the teachers to give continuous feedback- it is 16% only. The participants actively respond the benefits of ICT and most of them accept that ICT can bring potential benefits. However there are also some difficulties. They are:

a) Technological barrier: Lack of computer facilities; there is no proper maintenance for the existing computers; the signal of the internet is not consistent; there is no central database.

b) Teachers barriers: The teachers are not provided with personal computers; lack of computer training for the teachers; the teachers’ poor computer skills; the teachers’ overload work; negative assumption on ICT.
University support barriers: The University does not have enough funding to provide enthusiastic support to the teachers to use technology in class; the manual administrative work increases the work load of the teachers.

Table 2
Technological barriers in some Myanmar universities (Source: Huffaker, 2003)

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Technological barriers</th>
<th>Agree</th>
<th>Not sure</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>There is a lack of computer facilities at university.</td>
<td>81%</td>
<td>1%</td>
<td>18%</td>
</tr>
<tr>
<td>2</td>
<td>There is no proper maintenance for the existing computers.</td>
<td>68%</td>
<td>5%</td>
<td>27%</td>
</tr>
<tr>
<td>3</td>
<td>The signal of the internet is not consistent.</td>
<td>73%</td>
<td>3%</td>
<td>24%</td>
</tr>
<tr>
<td>4</td>
<td>There is no central database.</td>
<td>32%</td>
<td>58%</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td><strong>Average</strong></td>
<td><strong>63.50%</strong></td>
<td><strong>16.75%</strong></td>
<td><strong>19.75%</strong></td>
</tr>
</tbody>
</table>

Although there are benefits in using ICT, some developing countries including Myanmar are encountering the technological barriers. In table 2, it can be seen easily that the most significant response, lack of computer facilities is 81% at universities. And inconsistency of the signal of the internet is the second most distinct barrier and 73% of participants agreed that. However, 32% only agreed that no central database is a barrier, 58% of participants are not sure about that barrier and only 10% disagreed that. In average, 63.50% of participants agreed the technological barrier is one of the barriers.

Table 3
Teacher barriers in some Myanmar universities (Source: Huffaker, 2003)

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Teacher barriers</th>
<th>Agree</th>
<th>Not sure</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The teachers are not provided with personal computers.</td>
<td>86%</td>
<td>1%</td>
<td>13%</td>
</tr>
<tr>
<td>2</td>
<td>There is a lack of computer training for the teachers.</td>
<td>58%</td>
<td>15%</td>
<td>27%</td>
</tr>
<tr>
<td>3</td>
<td>The teachers are poor in computer skills.</td>
<td>40%</td>
<td>23%</td>
<td>37%</td>
</tr>
<tr>
<td>4</td>
<td>The teachers have overload work.</td>
<td>48%</td>
<td>3%</td>
<td>49%</td>
</tr>
<tr>
<td>5</td>
<td>Negative assumption on ICT</td>
<td>35%</td>
<td>20%</td>
<td>45%</td>
</tr>
<tr>
<td></td>
<td><strong>Average</strong></td>
<td><strong>53.40%</strong></td>
<td><strong>12.40%</strong></td>
<td><strong>34.20%</strong></td>
</tr>
</tbody>
</table>

In table 3, 86% of participants agreed that the teachers are not provided with personal computers. Because of lack of computer training for the teachers, 58% of participants responded that it is a teacher barrier. Although 48% of teachers accepted as a barrier that the teachers have overload work, 49% disagreed that as a barrier and it is the most significant response in disagreeing. Only 35% agreed in negative assumption on ICT and 45% disagreed that. So it can be obviously assumed that teacher barrier does not concern with the participants’ negative assumption. On
average, 53.40% of participants agreed that they are encountering these teacher barriers.

Table 4
Participants’ responses on university support barriers (Source: Huffaker, 2003)

<table>
<thead>
<tr>
<th>Sr No</th>
<th>University support barriers</th>
<th>Agree</th>
<th>Not sure</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The University principal does not provide enthusiastic support to the teachers to use technology in class.</td>
<td>52%</td>
<td>8%</td>
<td>40%</td>
</tr>
<tr>
<td>2</td>
<td>The manual administrative work increases the work load of the teachers.</td>
<td>61%</td>
<td>20%</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td><strong>Average</strong></td>
<td><strong>56.50%</strong></td>
<td><strong>14%</strong></td>
<td><strong>29.50%</strong></td>
</tr>
</tbody>
</table>

In table 4, university support barriers, 61% agreed that the manual administrative work increases the work load of the teacher, and 52% of participants accepted the fact that the university principal does not provide enthusiastic support to the teachers to use technology in class as a barrier. So average 56.50% of participants accepted they encounter the university support barriers in the use of ICT.

Important areas which need improvements for professional development on ICT to support teaching

For the potential of ICT to be leveraged in education, the capacity of teachers to use ICT for teaching and learning is pivotal; teacher professional development ensures that such capacity is built and sustained. Teacher professional development may also be mediated by ICT providing teachers in rural and remote areas with access to capacity building opportunities. ICT in education initiatives provide hardware and digital resources, and professional development programs. More specifically, improvements in the following areas are important:

(i) **Coordination**: There are multiple stakeholders involved for ICT in education, many of them in silos. Effective use of ICT in education requires intra and inter-ministry coordination. Developing national ICT in education master plans can provide a framework for better coordination. All stakeholders (planning, finance, teacher professional development and curriculum development in the ministry of education as well as ICT ministry and development partners) need to work together under strong leadership with a clear vision, as observed in countries with a robust ICT in education plan such as the People’s Republic of China, Malaysia and the Republic of Korea.

(ii) **Technical support for teachers**: Teachers sometimes stop using ICT due to lack of technical support. ICT support staff at universities is crucial to not only install but maintain both hardware and software. They can provide an enabling environment for teachers to focus on teaching by minimizing their technical tasks. This may be done in partnership with technical and vocational institutions. To expand ICT use in education, teachers need support too.

(iii) **Differentiated and just-in-time programs for professional development**: Teacher training for ICT in education is often outdated and ad hoc. Professional development programs should be based on the learning needs of each
teacher identified through a sound assessment process. Just-in-time professional development can allow teachers to receive training when needed. It provides a more meaningful experience for teachers as they learn by doing when using ICT in their universities.

(iv) Pedagogical support for teachers: Teachers are overloaded with multiple tasks and often see ICT in education as extra work rather than a new opportunity. To remedy this, short-term strategies are needed to develop their capacity for implementing ICT-enabled lessons. Personalized support from an off-site helpdesk can be provided via SMS and mobile communication applications.

(v) Systematic monitoring and evaluation of ICT use in universities: The use of ICT in universities should be evaluated to determine whether methods and tools are having the expected impact. This also allows for critical adjustments of ICT infrastructure, hardware, and digital resources for education.

Table 5
Participants’ responses on important areas needed to be improved in ICT education

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Important areas needed to be improved in ICT education</th>
<th>Agree</th>
<th>Not sure</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Coordination</td>
<td>42%</td>
<td>2%</td>
<td>56%</td>
</tr>
<tr>
<td>2</td>
<td>Technical support for teachers</td>
<td>67%</td>
<td>4%</td>
<td>29%</td>
</tr>
<tr>
<td>3</td>
<td>Differentiated and just-in-time programs for professional development</td>
<td>69%</td>
<td>11%</td>
<td>20%</td>
</tr>
<tr>
<td>4</td>
<td>Pedagogical support for teachers</td>
<td>72%</td>
<td>1%</td>
<td>27%</td>
</tr>
<tr>
<td>5</td>
<td>Systematic monitoring and evaluation of ICT use in universities</td>
<td>73%</td>
<td>10%</td>
<td>17%</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>64.6%</td>
<td>5.6%</td>
<td>29.8%</td>
</tr>
</tbody>
</table>

In table 5, 73% of participants responded that the use of ICT in universities should be evaluated and monitored systematically. And the second most important one, pedagogical support for teachers is 72%. 69% of participants agreed that differentiated and just-in-time programs for professional development is an important area needed to be improved in ICT education. And 67% of participants accepted that technical support for teachers is also an important area in ICT education. Therefore, average 64.6% agreed that there are important areas needed to be improved in ICT education.

Results

The successful use of ICT in education requires competent human resources at every level, from policy makers, curriculum and content designers, district supervisors, teacher educators, university leaders, and teachers. Professional development of these education personnel then is a key dimension of ICT in education. Professional development is “the sum total of formal and informal learning experiences throughout one’s career from pre-service teacher education to retirement”. Teachers and education leaders are pivotal in transforming teaching and learning practices and engaging students in ICT-enabled learning environments, while
education leaders need strong managerial skills to motivate staff and students and to mobilize local support required for ICT-enabled teaching and learning programs to succeed. Strong leadership in the education sector is essential for the successful implementation and long term sustainability of ICT in education.

Figure 1: Participants perception on important areas needed to be improved in ICT education

According to figure 1, although effective use of ICT in education requires intra and inter-ministry coordination, only 42% of participants agreed it. Most of participants agreed that systematic monitoring and evaluation of ICT use in universities and pedagogical are important areas to be improved in ICT education. Participants responded actively in these two areas 73% and 72% each. It can be found out that participants positively accepted that they need in-time training for their professional development and they also need technical support too.

Important areas which need improvements for professional development on ICT in education

According to the data, ICT in education approaches are not always coherent at national level. Utilization is low because most universities have limited ICT tools and infrastructure, and teacher competency levels are basic. Besides professional development on ICT in education teaching and learning strategies for the medium and long term, teachers need technical, content and pedagogical support in the short to medium term to optimize the potential of ICT for education. For developing Asia to realize the potential of ICT to take education to the next level, a holistic approach — involving a balanced support for hardware, connectivity, contents, and people — will make a difference. More specifically, improvements in the following areas are important:

- **Coordination:** According to the responses of the 42% of participants, ICT in education development in Myanmar is at the emerging stage where there is an awareness of the potential of ICT in addressing education equity, quality, and efficiency at national and university levels. According to them, efforts have to be
better coordinated, and the scope and sequence of the initiatives must be prioritized when addressing equity, quality, and efficiency issues of education with ICT.

**(ii) Technical support for teachers:** To expand ICT use in education, teachers need support too. According to 67% of the participants, with more professional development opportunities, teachers are more likely to build their capacity to enhance the learning engagement and outcomes of their students.

**(iii) Differentiated and just-in-time programs for professional development:** According to the responses of 69% of the participants, just-in-time professional development can allow teachers to receive training when needed. It provides a more meaningful experience for teachers as they learn by doing when using ICT in their universities. ICT also has a direct impact on building the capacity of teachers to enhance the quality of teaching and learning.

**(iv) Pedagogical support for teachers:** To remedy the overloading with multiple tasks, according to the 72% of the participants, short-term strategies are needed to develop their capacity for implementing ICT-enabled lessons. ICT provides opportunities for teachers to monitor and manage their own learning and, hence, develop their lifelong learning competencies. This will enhance the external efficiency of the education sector by preparing them to live and work in the increasingly complex world. Personalized ICT-enabled platforms with social networking features also empower teachers to take control of their own learning. However, they need support to scaffold their reflections and to plan for their own learning; otherwise, they may lose task orientation and become disengaged.

**(v) Systematic monitoring and evaluation of ICT use in universities**

**Conclusion:** In addition to the investments on infrastructure, hardware, and connectivity, a growing number of government leaders and policymakers in recent years have realized that technological readiness is more than the access to ICT but the ability to adopt ICT in a transformative fashion. Myanmar higher education has been investing in the application of ICTs to transform their education systems to develop the 21st century competencies of students and to align with emerging developments and promote new possibilities. However, 73% of the participants agree that systematic monitoring and evaluation of ICT use in universities are still needed.

**Discussion**

As countries introduce ICT into their education sector, they go through different stages of ICT in education. With limited ICT tools and infrastructure in most schools, teachers are expected to master the basic ICT tools and available ICT-enabled resources and applications for their teaching, learning, and administrative tasks. ICT-enabled teaching practices are generally teacher-centered. At the applying stage, with the support of the national ICT policies and a variety of ICT in education initiatives and strategies, there is better access to ICT infrastructure and resources and teachers become more confident in the use of specific ICT tools to enhance the quality of their teaching. However, the enhancement in the quality of teaching is focused on teachers using the ICT tools rather than students using the ICT tools. Moreover, ICT is still often seen as a separate curriculum area for students to learn about ICT-related competencies. At the infusing stage, teachers use ICT to enhance their own professional learning and the learning quality of their students. Teachers and students have good access to ICT infrastructure and resources. Teachers are competent in the
use of ICT for enhancing the quality of student learning through more learner-centered environment and activities. Teachers are more likely to collaborate with other teachers to co-develop and share ICT-enabled teaching and learning resources and practices. However, ICT is still perceived as a tool to support the existing curriculum rather than a tool to transform the curriculum. When it comes to the transformation stage, ICT is used by teachers for most of their personal and professional tasks and activities. At this stage, teachers use different types of ICT tools to enhance teacher–student and student–student interactions to create a learner-centered learning environment to engage students and enhance their learning outcomes. The national curriculum is designed and university ICT in education plans are developed to take up the opportunities of ICT for enhancing education equity, quality, and efficiency. By drawing upon the holistic approach to ICT in education and the model of stages of ICT in education, the system perspective provides a framework to make sense of the state of ICT in education in Myanmar.

**Recommendations**

Although the university teachers and students in developed countries are being well provided with adequate office gadgets, they are being expected to do things themselves. However, in developing countries including Myanmar, not only teachers but also students are not being provided technical supports and not being trained to be able to use the basic office gadgets. To get the benefits, it is necessary to pass the barriers. According to Salam (2015), the two barriers in ICT integration are intrinsic and extrinsic whereas intrinsic barriers are easy to overcome if extrinsic barriers have been controlled successfully. Based on the results- firstly, teachers should try to change their intrinsic barriers such as poor computer skills, negative assumptions on ICT. Secondly, university leaders and the state governments should provide enthusiastic technical support to use ICT in the classrooms. Because ICT can help deliver education and learning opportunities to students living through emergencies-monitoring the impact of conflicts on students’ ability to access classrooms, mapping the location and condition of schools, tracking the distribution of learning opportunities. Finally, the teacher leaders, the university leaders, administrative sessions and other non-government organizations in Myanmar should co-operate with each other in order to implement regular regional conferences and workshops for the professional development of education personnel as long term sustainability of ICT in Myanmar tertiary education system.
References


Myanmar Context: Exploring Basic Education High School Teachers' Perceptions on Workplace Stress

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Abstract

Teaching is a kind of profession which is exciting and challenging. Therefore, it is stressful. Teacher stress becomes problematic, and potentially harmful, when the challenges teachers face outstrip their perceived ability to cope, or when they perceive that important needs are not being met. This study aim to know the causes of workplace stress that affects the basic education high school teachers in Myanmar, to analyze impact of stress on individual’s efficiency and effectiveness and to workout techniques used by the high school teachers to manage work stress. The data were collected 130 high school teacher in urban and rural around Sagaing region through questionnaire and interview. The collected data were presented in the percentage of their responses. The result show that the main causes of stress and the impact. It recommended that there should have authorities should establish proper action in reducing the stressors in every school, provide proper support so that their teachers won't feel it has a stress and improve the satisfaction of teachers with regard to their profession. Authorities should check teacher workloads if there is a need to cut some or add more to avoid stressors and improve the quality assurance.

Keywords: basic education, high school teachers, workplace stress

Introduction

No one can avoid the situations of different stresses. Different people have different stress on different situations. People are under a lot of pressure and stress when they are lack of friends, flat, unemployed or even employed. In real life situation, important tasks and things can easily go down when people are under stress. Rapid industrialization, increasing urbanization and growth in population have contributed to raise people in stress level during the last few decades. Though it was not considered as an important health problem all over the world those days, stressed conditions have gained much attention because of its violent effects on health and social life in different situations. Some people fail to withstand the stresses and strains of public life and as it is main factor in the development of long-term sickness.

Stress can lead people emotional and physical pressure. Workplace stress can be occurred due to lack of match between job demands and capabilities or resources and needs of employee. Stress is inevitable for people as it is a part of life. There is no
one who does not feel serious situations under a lot of stress. Stresses occur due to increase in workload and competitions in daily life situations. According to Walter Cannon (1929), stress is a situation that you can make a choice either you have to tackle or you have to escape from the hard situations. Stress may come from different places and different situations. Stress is generally recognized as an unpleasant emotional state. According to Kyriacou (1978), stress is the result of serious pressure that cannot be controlled by the coping strategies of a person. Kyriacou also defined teachers’ stress as “the experience by a teacher of unpleasant emotions, such as tension, frustration, anxiety, anger, and depression, resulting from aspects of work of a teacher. Recent research has shown that teachers, servicemen, social workers and linguists are the most affected by rising stress in their respected work environment. Olson et al. (1989) defined stress as “a state of tension that arises from an actual or perceived demand that calls for an adjustment or adaptive behavior.” Distress or a feeling of great worry and unhappiness can lead to hypertension, diabetes mellitus, stroke and ulcers among other illness.

Occupational stress especially in teaching is one of the prominent types of stress. Teachers’ stress is caused by environmental factors and individual characteristics. Major environmental factors are poor working conditions, lack of resources, heavy workload, and some students’ bad behavior. Individual characteristics include gender, age, personality, and the ability to cope. (Guglielmi & Tatrow, 1998). These factors lead to 30 percent of all novice teachers leaving the profession within five years, and if they were given an opportunity, they would not choose the profession of teaching again (Mrozek, n.d.). This is not good for education through the world.

Teaching and education are interconnected. What’s more, education cannot change the world but it can change the people who can change the world. Myanmar’s former deputy minister, Dr. Myo Myint (2017) has said, “education is the best investment for a nation’s future and investing in teachers can be said to be the best investment for educational sector”. Actually, it is true that teaching is really exciting, challenging, and stressful. Therefore, this research explores the nature of stress in teachers, and tries to make a suggestion for its common causes and effects especially on basic education high school teachers’ perceptions on workplace stress.

**Teachers Stress: Definition**

Teaching can be regarded as the most stressful job in many country. Kyriacou (2000) defined teachers stress as “the experience by a teacher of unpleasant negative emotions such as anger, frustration, anxiety, depression and nervousness, resulting from some aspect of their work”. Kyriacou and Schutcliffe defined teachers stress as, “a response syndrome of negative effects (such as anger or depression) usually accompanied by potentially pathogenic physiological changes (such as increased heart rate) resulting from aspects of the teaching job and mediated by the perception that demands made upon teacher constitute a threat to his/her self esteem or well being and by coping mechanisms activated to reduce the perceived threat.” Vandenberghe (1999) states that, teachers stress is the “general term to describe negative emotions of teachers that are reflected in aversive demands to their work”. Forlin defines stress in a similar way, as “an interactive process which occurs between teachers and their teaching environment which leads to excessive demands being placed on them and
resulting in physiological and psychological distress. So, teachers stress can be considered as a state of unpleasant emotions resulting from some aspect of their work. Though the stress can have positive influence, most of times it is negative. Distress is the term used to describe the negative or destructive aspects of stress. Distress is essentially, “a negative psychological response to a stressor, as indicated by the presence of negative psychological states.”

**Objectives of the Study**

1. To know the causes of workplace stress that affects the basic education high school teachers in Myanmar.
2. To analyze impact of stress on individual’s efficiency and effectiveness.
3. To workout techniques used by the high school teachers to manage work stress.

**Background of the Study**

Any institution functions best when a culture of trust exists among its members. Van der Linde (2000), applying the principles of Total Quality Management to education, describes the ideal school as a secure environment where innovation is encouraged and all functions are integrated to achieve continuous improvement of the quality of education, and adds that good management techniques are the best prevention for stress in learners and teachers. Conversely, if a school is a low-trust working environment, characterized by conflict, divisive working arrangements, and lack of security, certain controlling elites may be able to manipulate it for their own short-term benefit, but it is ultimately counterproductive in terms of the overall quality of education (Troman, 2000). In addition, the resulting lack of job security, as described by Fox et al. (1999), Kirk (2001), Arudou (2002) and others, hinders the growth of a sense of mutual loyalty and responsibility between different working groups.

**Methodology**

The purpose of this study was to explore the experiences of basic education high school teachers’ work environment in relation to their experiences of occupational stress and their coping strategies towards the stress. The data were collected with 130 basic education high school teachers aged from 27 to 55 years old, in urban and rural around Sagaing Region in 2018, through questionnaire and interview. The collected data were presented in the percentage of their responses. The concept-driven thematic analysis was used for coding process and forming themes that explained the sources of stress, the effects of occupational stress as well as the coping methods that the teachers used to cope with stressful conditions in workplace.
Analysis and Interpretation

Table 1
The demographic profile of the respondents on the basis of gender group (n=130)

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>34%</td>
<td></td>
<td>66%</td>
</tr>
</tbody>
</table>

Table 2
The demographic profile of the respondents on the basis of experience (n=130)

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Years of Experience</th>
<th>No. of Respondents</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1-10 years</td>
<td>55</td>
<td>42%</td>
</tr>
<tr>
<td>2</td>
<td>11-20 years</td>
<td>51</td>
<td>39%</td>
</tr>
<tr>
<td>3</td>
<td>More than 20 years</td>
<td>24</td>
<td>19%</td>
</tr>
<tr>
<td>4</td>
<td>Total</td>
<td>130</td>
<td>100%</td>
</tr>
</tbody>
</table>

Stress factors about the teaching and handling students

Figure 1: The agreement level on causes of workplace stress factors (n=130)

The figure shows that stress factors about the teaching and handling students. 92% of the high school teachers assume job insecurity, 82% of respondents assume worst students behavior and their negative attitude towards study, 92% of respondents assume ineffective leadership at department level / management politics, 72% of respondents said lack of motivation, 59% of respondents believe negative attitude of colleagues, 40% of respondents think additional duty, 78% of respondents feel involvement in non-teaching duty, 52% of lack of research and personal growth opportunities and 78% of respondents believe that work-home conflicts are the key factors for stress.
Figure 2: Teachers' perception on physical and mental impact of stress (n=130)

Physical and mental impacts of stress of the participants include poor time management; inability to concentrate; job dissatisfaction; irritation and aggression; introversion and withdrawal from supportive relationships and if left untreated, withdrawal from the profession. Emotional consequences include feelings of anger, anxiety, dissatisfaction and resentment; depression; inability to relax and unwind; feelings of inadequacy and low self-esteem; and ultimately burnout. The majority of respondents believe that stress create negative impact on teachers community. 89% of respondents assume that stress create anger, 69% of respondents think create aggressive feelings and behavior, 65% of respondents feel stress create anxiety, 52% of respondents feel it decreased interest in appearance, 61% of respondents assume it decreased concern with punctuality, 63% of respondents think it lying or making excuses to cover up poor work, 81% of respondents think it lying or making excuses to cover up poor work, 81% of respondents assume stress create negative about career, 82% of respondents feel that stress create problems in communication, 79% of respondents assume that it reduce work efficiency and 31% of respondents said that it increase social withdrawal and isolation.
The figure shows the stress managing techniques. 29% of the teachers accept *positive attitude* can be used to manage stress and while 16% of the teachers assume rest. 8% of the teachers undertake *physical exercise*, 12% read *motivational books*, 29% of the teachers believe in *positive attitude*, 22% believe in *interaction with positive colleagues*, only 9% of the high school teachers believe in actions rather than fruits, and 6% of teachers play with children.

**Findings**

This research discovered the teachers perceived numerous sources or stressors in their work place evoked their feelings and experiences of stress which included changes, workload and time pressure, relation with students, relation with parents, resources, remuneration, administrative supports, collegial supports as well as work-life balance. Furthermore, the two teachers had perceived differently on the most impactful sources of occupational stress. The teachers had reported the effects of occupational stress on their overall wellbeing included physical, psychological and behavioral aspects. This study also discovered the two main coping strategies applied by teachers which included coping strategies of *positive attitude* and *interaction with positive colleagues* strategies to deal with their stress in work. This research emphasized the importance of administrative and collegial support, the effective communication, the adequate resources and professional development, and the need to identify the heavy workload, time pressure and changes that associated to the occupational stress that the teachers are feeling. Besides that, the importance of programs related to stress management and coping strategies are considered essential for teachers to learn to deal with their stress efficiently. The findings had provided new insights into the problems with occupational stress among high school teachers. The implications of present study for teachers, education system as well as further research on teacher’s occupational stress are discussed.

The main factors of stress like *Job Insecurity*, *Worst students behavior and their negative attitude*, *Ineffective leadership at school level*, *Lack of motivation*,
Negative attitude of colleagues, Additional duty, Involvement in non-teaching duty, Lack of personal growth opportunities, and Work-home conflicts has been observed. The key stress management techniques like 'believe in actions rather than fruits', 'physical exercise', 'reading motivational books', 'positive attitude, interaction with positive colleagues', 'playing with children' and 'rest' has been observed. The ‘Positive attitude’ has been used to manage stress by the participants and it was ranked first while Playing with children can be used as stress managing techniques and it was ranked last.

Conclusion

Almost all the studies about job stress apparently concluded that stress is able to spread extreme negative impacts on work life. Some studies have revealed the fact that teachers who are most interested in increasing students’ performance reported higher stress. The staff has higher stress value they need supportive from the management perspective and the colleagues. Every institution has stress management problem, institutions should provide proper supportive act so that employee wont feels it has a stress. Employee and management need good understanding for better employee and employer relationship. Stress in work place will have to be managed well, through the most effective strategies, by administrators; then, by faculty members as a community; and finally, by individual teachers. Among many ways to reduce teacher stress, ‘Positive attitude’ is the most crucial factor to build a better working environment.

Recommendations

According to the research data, it is recommended that authorities should establish proper action in reducing the stressors in every school, provide proper support so that their teachers won't feel it has a stress and improve the satisfaction of teachers with regard to their profession. Authorities should check teacher workloads if there is a need to cut some or add more to avoid stressors and improve the quality assurance. They should provide proper chances for teachers to produce their full potential where students will benefit from it. There should be effective trainings to enhance their skills as well as their performance. Decision makers should always be well-informed about how their teaching staff is doing. To upgrade the quality version of Myanmar's education system, there should be more strategic studies in social science, humanities and psychology.

References


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Work Life Balance of University Teachers in Myanmar

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Abstract

Work–life balance has been identified as a key workplace issue for staff in Higher Education Institutions. This research has demonstrated that increasing demands in higher education, such as rising staff–student ratios, growing student fees, a need for improved responsiveness to student needs, greater accountability and more pressure to publish and conduct impactful research, all contribute to increase staff workload. This increased workload that encourages and facilitates after-hours work, and decreases in autonomy all contribute to perceptions of relatively poor work–life balance within HEIs. The aim of this research is to measure work–life balance in higher education with five groups of variables identified by HELMs 2014 (Higher Education Leadership and Management Survey), to investigate work–life balance as a barrier to progression with four major, inter-related themes, all associated with work–life balance and further consequences of work–life balance for leaders of higher education. The survey was conducted in different leadership contexts for teachers employed by universities, university governors and those working in other higher education service organisations. Survey questionnaires proposed by Higher Education Leadership and Management Survey (HELMs 2014) were applied and specific questions tailored to the different groups of respondents. The survey additionally provided many opportunities for respondents to give explanations for their responses or to share related thoughts. In 2018, the researchers sent 150 emails to senior executive and university teachers who had engaged with the researchers in some way with an invitation to visit the HELMs site and complete the survey. There were 115 responses to the institutional survey. In total, then, the response rate was 76.66% (115 from 150). In this research we examine the quantitative and qualitative HELMs data associated with work–life balance. We first examine the qualitative data produced by participants describing the work–life balance in higher education with five groups of variables identified by HELMs 2014. We then follow this with an analysis of the quantitative data in relation to work–life balance as a barrier to progression with four major, inter-related themes; all associated with work–life balance and explore the possible consequences. Altogether 115 respondents provided qualitative responses in this research. In this research, we identified three types of data all associated with work–life balance. This research is about Leadership and work-life balance and is one of four that analyse the data generated by HELMs. The survey was completed by over 100 participants from the HEIs, and was conducted between November 2018 and January 2019. Most participants (71%) describe a positive leadership environment.
within their organisations, only 29% of those surveyed believe leaders in their organisation are developed to lead change well, and just over half state that they feel leaders in their organisation have the necessary skills to lead change. The report also highlights that fewer than half of those surveyed felt their organization provides sufficient support for virtual working.

**Keywords:** work life balance, university teachers

**Introduction**

We define work–life balance as an individual’s ability to devote appropriate amounts of time and energy both to their work and to their life outside work. What is appropriate will depend very much on the individual, the demands on their time, and their attitudes and values. Indeed, the balance in favor of work or life outside work may change over time and indeed from day to day. Across all sectors, work–life balance has become a key strategic organizational focus for HR professionals and leadership teams. Its growing importance is due to a number of key influences. The shifting demographics of the workplace throw up a number of factors. More women are entering and remaining in the workplace while still taking primary responsibility for childcare, and an ageing population necessitates greater caring responsibilities for elderly relatives. Such caring patterns put time pressures on employees, and necessitate family-friendly policies (such as part-time work, flexible working and job-share options) if organizations are to attract and retain staff members. While issues of work–life balance are most often associated with family life, and in particular with childcare, this need not necessarily be the case, with an increasing number of individuals living outside traditional family units. Thus, work–life balance can be seen not just as juggling competing time constraints but also as an active, individual choice.

**Work–life balance in higher education**

Analysis of the responses related to participants' perceptions of the barriers to their career progression revealed a number of key issues directly associated with work–life balance.

(a) The sheer volume of work required, particularly aspects associated with teaching and administrative tasks, was seen as an impediment to career progression.

(b) Issues of workload were closely associated with organisational culture, which was seen by some as 'workaholic', and to reward long hours. This was particularly problematic for those who worked part time.

(c) Many individuals struggled to balance their work commitments and career progression with their family lives. This involved the time demands of caring responsibilities and the fact that family responsibilities precluded geographical mobility. Analysis of the quantitative responses also revealed evidence of high workloads and issues associated with work–life balance.

(d) The majority of respondents, and in particular academic leaders, reported frequently working long hours.

(e) The majority of respondents were unsatisfied with their work–life balance.
(f) There was a clearly evident gender difference, particularly for academics. Women were more likely to work longer hours, be unhappy with their work–life balance, and feel unable to cope.

(g) Access to flexible hours was generally high across participants, but this was not necessarily associated with better work–life balance or coping with stress.

(h) Academics, who were more likely to report flexibility in their hours, were also more likely to be dissatisfied with their work–life balance and were less likely to be able to cope.

Research Methodology

The study involves 115 Director Generals, Deputy Director Generals, Rectors, Pro-rectors and Professor Heads from Myanmar universities. The participants represent a broad range of academic disciplines, including the government and university sectors. The organizations participating in the study have high proportions of women at middle and high management levels. The issue of progressing women's career paths remains both a challenge and a priority for them. Between April and May 2018, researchers sent 150 emails to participants (senior executive and university teachers) and complete the survey. There were 115 responses to the survey. The in-depth analysis and production of this series of reports were undertaken by the researchers.

The study has adopted an in-depth interview technique that allows open-ended conversation between researcher and participant. This approach captures the more subtle experiences women face in their day-to-day working environments, affecting their attitude to work and the career choices they make. Moreover, it allows participants to set the parameters of conversation rather than be constrained by a predetermined research agenda. This enhances exploration of organizational values, roles and relationships within the context of personal career development.

Sample and focus

This report provides an examination of the responses of the HELMs sub-sample of 115 staff working in higher education institutions (HEIs). It is dominated by senior staff and those in professional service roles, but it nonetheless broadly reflects the heterogeneity of the sector in terms of institutional type, job role, and demographic characteristics. It focuses on respondents’ perceptions of their work–life balance, including their workload, their ability to cope, and the availability of flexible working. It also examines key consequences of work–life balance and proposes a series of recommendations based on the data.

Consequently, this sample is in a unique position to provide an understanding of leadership issues in higher education. An analysis of the qualitative responses revealed that work–life balance provides some participants with workplace motivation. In the responses to a question about what motivated them at work, work–life balance was clearly evident, for example: ‘The flexibility to work around my childcare and family commitments’ (Respondent 115) and from another participant ‘Balance of work and life’ (Respondent 115).

While work–life balance may be a motivator, poor work–life balance can also be seen as a barrier to career progression. Participants were asked to identify major blocks or barriers to their career development, and 115 individuals took up this
opportunity. In the report on motivation 2, initial thematic analysis revealed three inter-related barriers: workload, a lack of time and work–life balance. Given that work–life balance plays an important role as both a motivator to those working in higher education, and as a potential barrier for those seeking to progress their careers, this report provides an in-depth examination of the data associated with work–life balance. More specifically, this report will provide (1) a more detailed thematic, qualitative analysis of the impact of work–life balance, (2) a quantitative exploration of the consequences of work–life balance in the higher education sector, and (3) some initial recommendations for how leaders may facilitate a better work–life balance for their staff. An overview of the questions that are included in this analysis is provided below.

2.1 Measuring work–life balance in higher education

In the HELMs 2014 questionnaire there was a direct measure of work–life balance, five groups of variables, were identified as work–life balance: (1) immediate leadership, (2) support, (3) reward or recognition, (4) role attributes, and (5) valuing diversity.

For each statement, participants were asked to respond using a four-point scale (where 1=strongly agree, 2=agree, 3=disagree, 4=strongly disagree).

(1) Immediate leadership (44.25%)
We included the following four questions where participants were asked about their immediate senior leaders:

a. Positive environment: ‘Creates a positive work environment for me and my team.’ (61%)
b. Lack of voice: ‘Listen to the views of staff.’ (42%)
c. Lack of recognition: ‘Value my contribution.’ (31%)
d. Empowerment: ‘Makes me feel empowered.’ (43%)

For each statement, participants were asked to respond using a five-point scale (where 1=strongly agree, 2=agree, 3=don’t know, 4=disagree, 5=strongly disagree).

(2) Support (43.66%)
We included the following three questions where participants were asked about the support they received:

a. Immediate senior leader support: ‘My immediate senior leader is supportive.’ (53%)
b. Professional service support: ‘I feel well supported by professional services colleagues in my institution.’ (23%)c. Academic support: ‘I feel well supported by academic colleagues in my institution.’ (55%)

For each statement, participants were asked to respond using a five-point scale (where 1=strongly agree, 2=agree, 3=don’t know, 4=disagree, 5=strongly disagree).

(3) Reward (13%)
We included the following two questions where participants were asked about how they were rewarded for their work:
(4) Role attributes (19%)
We included the following two questions where participants were asked about the attributes of their role:

a. Role clarity: ‘I understand how my role contributes to the institution’s goals and objectives.’ (13%)

b. Job security: ‘I am confident my current role is secure for the immediate future.’ (25%)

For role clarity, participants were asked to respond using a five-point scale (where 1=strongly agree, 2=agree, 3=don’t know, 4=disagree, 5=strongly disagree). For job security, participants were asked to respond using a four-point scale (where 1=strongly agree, 2=agree, 3=disagree, 4=strongly disagree).

(5) Valuing diversity (45.5%)
We included the following four questions where participants were asked about diversity practices:

a. Institutional support for diversity: ‘I believe my institution is effectively managing its equality and diversity policies.’ (26%)

b. Gender balance: ‘It is not harder for women to succeed in my institution compared to their male colleagues.’ (66%)

c. Senior leadership support for diversity: ‘Leadership and management at my institution take diversity and equality into account when appointing, recruiting or promoting members of the team.’ (47%)

d. Immediate leader’s support for diversity: ‘My immediate leader takes diversity and equality into account when appointing, recruiting or promoting members of the team.’ (43%)

For each statement, participants were asked to respond using a five-point scale (where 1=strongly agree, 2=agree, 3=don’t know, 4=disagree, 5=strongly disagree).

Responses were subject to thematic content analysis; the major themes are described in this report. In most cases, themes are illustrated with three representative quotes, except where this introduced redundancy or where more were required to convey the breadth of the theme.

(a) Immediate leadership (44.25%)
(b) Support (43.66%)
(c) Reward (13%)
(d) Role attributes (19%)
(e) Valuing diversity (45.5%)
2.2 The importance of work–life balance

We define work–life balance as an individual's ability to devote appropriate amounts of time and energy both to their work and to their life outside work. Across all sectors, work–life balance has become a key strategic organisational focus for HR professionals and leadership teams. Its growing importance is due to a number of key influences. The shifting demographics of the workplace throw up a number of factors. While issues of work–life balance are most often associated with family life, and in particular with childcare, this need not necessarily be the case, with an increasing number of individuals living outside traditional family units. Thus, work–life balance can be seen not just as juggling competing time constraints but also as an active, individual choice.

2.3 Work–life balance as a barrier to progression

Four major, inter-related themes, all associated with work–life balance. Participants were asked to identify major blocks or barriers to their career development, and 115 respondents provided qualitative responses to this question. We explore these responses in further detail, and highlight four major, inter-related themes that emerge from the qualitative data, all associated with work–life balance: (1) perceptions of workload, (2) organisational culture, (3) family and personal constraints, and (4) personal choices around work–life balance.

(1) Perceptions of workload as barriers to career progression (Avg = 23.50%)

- (a) High workload (22%)
- (b) Work overload (24%)
- (c) Unrealistic workload (8%)
- (d) Having too much teaching and administration (36%)
- (e) Workload due to staff shortages (42%)
- (f) Increase in volume of work (9%)
(2) Organisational culture (27.50%)
Workaholic culture in my department (2%)
Promotion should be given only to those who progress fast (53%)

(3) Family and personal constraints (47.71%)
Maternity career breaks (2%)
Barriers extended beyond the period of maternity leave (31%)
Childcare was an issue (57%)
Caring for elderly parents and having to care for terminally ill parents (58%)
Living with health issues (62%)
Lack of capacity to take on even more additional hours of work for personal reasons of health problems and disability (63%)
Not wanting to relocate as having a family (61%)

(4) Personal choices around work–life balance (56.00%)
Unwilling to sacrifice family life for workplace promotion (56%)

Figure 2: Four major, inter-related themes, all associated with work–life balance

Taken together, this thematic analysis of participants’ perceptions of the barriers to their career progression identified a number of issues closely associated with work–life balance and that echo those outlined in the literature more broadly. For many respondents, the sheer amount of work required was seen as a barrier to career progression, with a particular focus on teaching and administrative tasks as an impediment. Issues of workload were closely associated with organisational culture, which was seen by some as ‘workaholic’. Workplace culture was seen to value and
reward particular types of work and work patterns, and organisational culture was seen as particularly problematic for a number of respondents who worked part time. It was clear that some people struggled to balance their work commitments and career progression with their lives outside work. The majority of these responses spoke directly about the role of family, either in terms of the way in which caring responsibilities and family life were not compatible with what was needed to progress in one's career, or how the geographical mobility seen by some as necessary for career progression was not possible under some family circumstances. While some saw these limitations as being imposed on them, others were more accepting and saw work–life balance as an active personal choice.

2.4 Perceptions of work–life balance
Given that issues associated with work–life balance are clearly seen by some as a barrier to career progression, it is important to examine how our sample of respondents perceive their work–life balance. We will examine (1) workload (in terms of frequently working more than 48 hours a week), (2) satisfaction with work–life balance, (3) availability of flexible working, and (4) ability to cope with stress and pressure. We compare the data across job roles, distinguishing between those who defined themselves as (a) academics (but not academic leaders), (b) academic leaders, and (c) professional services staff (but not academics or academic leaders).

2.5 Further Consequences of Work–Life Balance
Given that work–life balance seems to be an issue for the majority of respondents, it is important to understand the consequences of work–life balance on key workplace attitudes measured by HELMs. On the basis of past literature, in this section we look at the degree to which satisfaction with work–life balance is correlated with five key items: (1) Coping with stress, (2) institutional pride, (3) recommending the institution, (4) motivation to help institution succeed, and (5) intentions to stay. Table 1 describes the vicariate correlations between work–life balance and these key consequence variables.

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Item</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>5</td>
<td>Having ability to cope with stress</td>
<td>62%</td>
</tr>
<tr>
<td>6</td>
<td>Having institutional pride</td>
<td>42%</td>
</tr>
<tr>
<td>7</td>
<td>Recommending institution to others</td>
<td>33%</td>
</tr>
<tr>
<td>8</td>
<td>Having motivation to help institution succeed</td>
<td>51%</td>
</tr>
<tr>
<td>9</td>
<td>Having intentions to stay</td>
<td>29%</td>
</tr>
</tbody>
</table>

Table 1 indicates that participants' satisfaction with their work–life balance is significantly and moderately correlated with key consequence factors identified in the literature. There is a strong and negative correlation between perceptions of work–life balance and an inability to cope with pressure and stress. However, more satisfaction
with work–life balance was also associated with greater pride in the institution and, relatedly, a willingness to recommend the institution to others. Participants’ greater satisfaction with work–life balance also fuelled their willingness to help contribute to their institution’s success and their intentions to remain with the institution over the next two years.

**Figure 3: Five key items on further consequences of work–life balance**

Participants from three different roles (Academic leadership role, Academic role and professional service role) were asked to indicate their agreement with a range of workplace attitudes and evaluations. Factor analysis revealed that the predictors and the outcome measures are summarized here accordingly.
Table 2

Key items associated with participants’ satisfaction with their work–life balance

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Item</th>
<th>Responses (Percentage of participants)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Academic leadership roles</td>
</tr>
<tr>
<td>1</td>
<td>We frequently work &gt; 48 hours a week.</td>
<td>68% Yes</td>
</tr>
<tr>
<td>2</td>
<td>Institution allows flexible hours.</td>
<td>55% Yes</td>
</tr>
<tr>
<td>3</td>
<td>Institution provides positive work environment.</td>
<td>58% Yes</td>
</tr>
<tr>
<td>4</td>
<td>Institution listens to views of staff.</td>
<td>88% Yes</td>
</tr>
<tr>
<td>5</td>
<td>Institution values my contribution.</td>
<td>97% Yes</td>
</tr>
<tr>
<td>6</td>
<td>Institution makes me feel empowered.</td>
<td>78% Yes</td>
</tr>
<tr>
<td>7</td>
<td>Institution provides support.</td>
<td>54% Yes</td>
</tr>
<tr>
<td>8</td>
<td>Leadership listens to views.</td>
<td>75% Yes</td>
</tr>
<tr>
<td>9</td>
<td>Institution rewards for performance.</td>
<td>96% Yes</td>
</tr>
<tr>
<td>10</td>
<td>provides recognition and value.</td>
<td>95% Yes</td>
</tr>
<tr>
<td>11</td>
<td>have job security.</td>
<td>33% Yes</td>
</tr>
<tr>
<td>12</td>
<td>order for women to succeed.</td>
<td>35% Yes</td>
</tr>
</tbody>
</table>

Table 2 reports the bivariate correlations between work–life balance and these key antecedent variables. While some mean differences were visible across job families and gender, analysis did not reveal meaningful significant in relationships between these variables, so correlations are only reported across the entire sample.

As expected, there is a strong negative correlation between both workload and the lack of flexibility with participants’ satisfaction with work–life balance. However, beyond issues of time, the analysis also reveals that participants’ beliefs about the organisation and about their roles also have a clear impact on satisfaction with work–life balance. Of particular note, participants’ evaluations of the immediate supervisor or line manager have a clear role to play in work–life balance issues, particularly an immediate leader's ability to provide a positive work environment and empower his or her staff. Support and recognition also played a key role. In particular, support from personal services staff and from immediate supervisors and line managers was
associated with satisfaction with work–life balance. Appropriate recognition and reward also facilitated satisfaction with work–life balance, as did job security.

Figure 4: Key items associated with participants' satisfaction with their work–life balance
Finally, participants’ perceptions of equality and diversity practices were also an important predictor of work–life balance, particularly at an institutional level. We conducted a hierarchical multiple regression analysis. This analysis revealed that time played the most significant role in predicting work–life balance, both in terms of the frequency of working more than 48 hours a week (21%) and not being able to work flexibly (55.6%). When examined in combination with one another, the most significant antecedents of work–life balance were: immediate line manager providing a positive work environment (59%), support from professional services staff (23.6%), leadership not listening to views (88.6%), and job security (73%).

Findings

It is clear that the quantitative data reveals that a large proportion of respondents experienced some issues related to their work–life balance. Of particular note was the high proportion of academics and academic leaders who reported frequently working more than 48 hours a week, and the effect this had on satisfaction with work–life balance. This is of particular concern, given that work–life balance is clearly related to key workplace outcomes: coping with stress, motivation, institutional pride and turnover intentions. Importantly though, there are clear antecedents to work–life balance than can be influenced by higher education leadership teams if they wish to improve staff work–life balance. Key here is the management of workload, but broader leadership practice is clearly also important, including creating a positive working environment and providing support and recognition to their staff. When noting the barriers to their careers, a number of participants mentioned the organisational culture. Of particular relevance to issues of work–life balance was 'the workaholic culture in my department' (Respondent 33) and the 'perception of others that I have worked too long to merit further promotion, that is, promotion should be given only to those who progress fast. This culture works against those with family responsibilities' (Respondent 101). In this section we examine the quantitative and qualitative HELMs data associated with work–life balance. We first examine the qualitative data produced by participants describing the barriers to their career progression. We then follow this with an analysis of the quantitative data in relation to work–life balance, and explore the possible consequences associated with (dis)satisfaction with work–life balance. Additionally, just over half of those surveyed say that top leaders in their organisation do not spend sufficient time communicating with staff. In spite of the fact that business is aware of the importance of communication, this figure has not changed since 2004. The findings have many implications for senior managers and academic professionals as many of the issues are ones where all levels of management have a part to play - better communication within organisations, structured and well thought-out succession planning and investment in relevant learning and development. One of the major findings of the survey was the discrepancy between the motivating factors cited by organisations compared with those named by individual managers. The findings indicate a greater alignment.
Conclusions and Recommendations

The findings from the data in this research show an appropriate balance between the participants' lives at work and their lives outside work. It is clear that a low proportion of staff have issues with work–life balance – a culture of long working hours is clearly evident, particularly for academics and academic leaders, and this translates to a significant number of academics and academic leaders reporting dissatisfaction with their current work–life balance.

Specific work–life balance issues were identified for female academics. Importantly, staff dissatisfaction with work–life balance has clear consequences, in particular with their ability to cope with pressure and stress. More positively, satisfaction with work–life balance was also associated with greater institutional pride, a willingness to help contribute to institutional success, and a desire to continue working within the institution. Given the importance of work–life balance for key organisational outcomes, it was useful to note that some of the keys of work–life balance were under the control of leadership teams. The most obvious of these is workload (both in terms of hours worked and work patterns), but work–life balance is also determined by their evaluations of leadership and the support and recognition staff receive from leaders and colleagues. Below we outline a number of initial recommendations for leadership teams looking to improve the work–life balance of their staff.

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Challenges in Conducting Postgraduate Research: The Case of Myanmar

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Abstract

Thesis work is an integral part of postgraduate education. It serves as the first stepping stone into scientific writing. But during research work, student-researchers and supervisors face various problems. A number of research works has been conducted in different parts of the world on this issue. Postgraduate research is a form of study offered by a university or an institution of advanced learning. The emphasis of postgraduate research is on developing systematic skills of investigation in research process. It is not necessarily aimed at producing groundbreaking innovation or extending knowledge as is commonly perceived. Most postgraduate research involves basic and to a lesser extent applied and / or collaborative research. This study was conducted to investigate the challenges faced by postgraduate students when conducting research and to explore the distribution of students who encountered challenges when conducting research. It is therefore imperative that the causes of such challenges be identified and addressed. The research makes use of descriptive surveys and focus group discussions. Random sampling shall be researched. The research model was a case study. The themes of the problems experienced by participants during interviews were semi-structured and conducted with 42 supervisors in the study with questions about the challenges encountered during research in graduate education, and participants’ experiences on the themes of the problems in terms of their research knowledge and skills. The study examines challenges that student-researchers faced in conducting research in Myanmar Universities. This has been motivated by the realization that, a good number of postgraduates was used for questionnaire surveys, while purposive sampling shall be employed for focus group discussions, which shall be conducted in selected universities in Myanmar. One hundred and twenty-four Master's students filled in the questionnaire. Research data were analyzed and interpreted thematically. The study came up with three categories of some of the challenges that postgraduate students experience in their conduct of research. This research explores the challenges of postgraduate research with special reference to universities in Myanmar. Once the problems are identified, we can find ways and means to solve those problems as much as possible. Thus the student-researchers as the primary group will be benefitted from the results of this study and the supervisors will gain insights and will be able to lighten the problems. The student-researchers proffer suggestions on minimizing the challenges of postgraduate research faced by university institutions in Myanmar. Data have been drawn from experiences of Myanmar postgraduate students from Higher Education Institutions. This research follows a mixed methods design where qualitative and quantitative approaches, including interviews with university teachers, and focus group
questionnaire with students, dominated the overall research process. The issues they encountered in the research work included difficulties in starting the thesis and a lack of knowledge was stated to be a cause of the problem. In this research, we present the reflections on some challenges student-researchers and teachers encountered during their research work in Myanmar for their Master's degree, which was completed in Myanmar local Universities.

Introduction

The aim of this study was to identify the problems faced by graduate students in the research process and to determine the solutions for these problems. For this purpose, the problem statement of the research was: “What kinds of problems do graduate students face during the research and what do they do to solve these problems?” In this context, the following sub-problems emerged: (i) What are the main problems experienced by postgraduate students during the research process? (ii) What kinds of solutions to these problems are suggested by the students and do they think that these suggestions are effective? (iii) What kinds of attempts have been made to gain knowledge and skills while doing postgraduate research?

Challenges in Conducting Educational Research (Murray, 2003)

Challenge 1: Choosing the right topic (Murray, 2003)

One of the hardest aspects of research is choosing a topic. When faced with an unlimited number of subjects, it is hard not to be intimidated. One way to alleviate the stress of choosing a topic is to ask effective research questions. Unfortunately, there are problems that often arise as students attempt to formulate questions and topics. The first step in avoiding frustrating hours of wasted time is to recognize potential problems. When researching, they will have a much better experience if they avoid the following pitfalls: topic apathy, failure to ask questions, not reading enough and choosing a broad topic. Selection of a perfect research topic has always been intriguing. Student-researchers, at one stage or the other, during their academic career, have to deal with the challenge. The ability to develop a good research topic is an important skill. A meticulously chosen topic is the first step towards a successful research project. Resultantly, a great deal of research scholars, in this part of the world, fail to complete their research work within the stipulated period of time and ultimately, a bigger chunk of them, leave their Master's, halfway, incomplete.

Challenge 2: Developing a doable topic (Murray, 2003)

In developing a doable project topic, students will need to carry out extensive research in library in order to peruse through the qualities of the best project topics. In this case, the library will be their primary source of reference for any contentious issues that they come across pertaining to the wise choice of topic. Successful completion of the prospectus needs some reasonable amount of financial resources. It is apparent that the family comes first in nearly everything in this world. For that reason, commitments from the family may adversely affect the completion of the prospectus. Therefore, to counter this challenge, a researcher will need to develop an effective work-life balance that will enable him to provide significant attention to his family without affecting my progress with the prospectus.
Challenge 3: Finding a theoretical basis to support the topic (Murray, 2003)

The development of the theoretical framework helps to clarify the implicit theory in a manner that is more clearly defined. It helps the student-researchers to consider other possible frameworks and to reduce biases that may sway the interpretation. As the researcher develops the theoretical framework, he will consider alternative theories that might challenge his perspective. He will also consider the limitations associated with his theory, and quite possibly, that his problem could be better understood by other theoretical frameworks. The theoretical framework is how he conceptualizes the nature of his research problem, its basis and the analysis he will choose to investigate that problem. This framework determines how he perceives, makes sense of, and interprets his data. Explanation of the theoretical framework helps the reader understand your perspective and context.

Challenge 4: Choosing the right methodology (Murray, 2003)

The first major challenge in establishing a methodology for doing research is to explore own motivations to do this particular piece of research and to locate these motivations in a research paradigm. After much reading and choosing research methodologies as a novice researcher, students fix a methodological approach. Having said this, after time and reflection, some consistencies appeared in methodological approaches that articulated their research aims. The student-researcher is concerned with issues of power and injustice and exploring the ways that the economy, matters of race, class, gender, ideologies, discourse, education, religion, and other social institutions and cultural dynamics interact to create a social ‘norm’.

Challenge 5: Formulating research questions (Murray, 2003)

Formulating a research question begins with a question derived from a general topic that piques the interest, often through general reading, topical discussion, lectures, family experiences, etc. In many cases the general topic is set by the instructor. Generally, the question should be:

1) Relevant
   The question should have some bearing on the topic and remain within the limits that were set beforehand.

2) Interesting
   The researcher should choose a topic that interests and stimulates the researcher otherwise searching could become tedious.

3) Focused and specific
   The question should not be too broad or vague. The student-researchers can however begin with a broad question and then narrow it down to be more specific. They can narrow the question down by: - a particular aspect, - a particular time period - a particular event, - a geographical area - gender - age group.

Challenge 6: Honing the research design (Murray, 2003)

Research design is defined as a framework of methods and techniques chosen by a researcher to combine various components of research in a reasonably logical manner so that the research problem is efficiently handled. It provides insights about “how” to conduct research using a particular methodology. Every researcher has a list of research questions which need to be assessed – this can be done with research
design. The sketch of how research should be conducted can be prepared using research design. Hence, the market research study will be carried out on the basis of research design. Research design which produces the least margin of error in experimental research can be touted as the best. The essential elements of research design are:

1) Accurate purpose statement of research design
2) Techniques to be implemented for collecting details for research
3) Research method applied for analyzing collected details
4) Type of research methodology
5) Probable objections for research
6) Settings for research study
7) Timeline
8) Measurement of analysis

Challenge 7: Problems in using survey questionnaires (Murray, 2003)

1) Demographics questions
Too many surveys start with a series of demographic questions (name, title, address, phone number, email, etc.) that are often unnecessary when surveying respondents. Existing respondents will find these questions repetitive. Besides maintaining a well-organized contact list, look for survey tools that allow for demographic information to be populated. This helps to reduce respondent annoyance and improve response rate.

2) Inadequate response options
The researcher should make sure to include response ranges that cover all scenarios for the respondents, but make sure the ranges do not overlap to avoid confusion. Creating a situation in which a respondent is not sure what to select can create confusion and result in erroneous response data.

3) Rating level inconsistencies
When a researcher is asking a number of questions based on a similar rating scale, it is easy to overlook rating level inconsistencies. While several scales could be utilized throughout a survey, be sure that the answer rating – whether it’s 1 to 5 or 0 to 10 – flows consistently on similar type questions throughout the survey. Also, the researcher should be sure the scales are reflected the same way (i.e. left to right) when offering the same choices.

4) Assuming prior knowledge or understanding
The survey should leave no room for ambiguity or incorrectly rely on presumed prior knowledge from respondents. An example of this would be utilizing acronyms or industry jargon that may not be readily known by all respondents, or could be easily confused, leading to inconsistencies in the data.

5) Leading questions
The question itself can “lead” respondents to a particular response. This is often unintentional and is a common mistake when a survey is designed by someone who is too closely associated with the project.

6) Double-barreled or compound questions
When a researcher reviews each survey question ask him if the question contains more than one “question”. The words “and” and “or” represent possible tell-tail signs of a compound survey question.
7) Question is ambiguous or unintelligible
A common example arises from survey questions containing “negative” wording, which can easily confuse respondents. Such questions usually include the word “not” and ask respondents to disagree or agree with the statement or position. This is not to be confused with answer choices, which often include the terms “disagree” or “agree” in surveys.

8) Unnecessary questions
The researcher should ask himself, “What am I looking for that is actionable?” He should not try to incorporate everything in his survey design. For example, I once saw a survey question that asked: “When you looked at yourself in the mirror today, what was the first thing you thought?” After reading this question, I decided the survey wasn’t worth my time.

9) Excessive open-ended questions
Many respondents will not write out responses to more than just a few open-ended questions. Keeping open-ended questions to three or four is generally sufficient. Thus, the researcher should choose wisely and use open-ended questions thoughtfully.

10) Lengthy surveys
Surveys that are too long, too complex, and too confusing will frustrate respondents, resulting in skipped questions or drop-offs. The researcher should limit the questions to subjects that he can act upon within the next six months. He should demonstrate that he respects the time and effort respondents spend answering the survey.

Challenge 8: Dealing with data (Murray, 2003)

Figure 1: Research data management (Murray, 2003)
Research data is any information that has been collected, observed, generated or created to validate original research findings. Although usually digital, research data also includes non-digital formats such as laboratory notebooks and sketchbooks. “Research data management” is simply the effective handling of information that is created in doing a research. Managing research data is usually an integral part of the
research process, so researchers probably already do it. Most of the activities should be familiar: naming files so they can find them quickly; keeping track of different versions, and deleting those not needed; backing up valuable data and outputs; and controlling who has access to the data.

How research data is handled depends on the type of data involved, how that data is created or collected and how the data is to be used now and in future. For example, most data from experiments is reproducible; other data may not be repeatable, such as observations from the field. However, any research outputs or data may be used to evidence published findings, or may be combined with other data to produce new types of data record. Effective data management is carried out for the entire lifecycle of the data, from the point of creation through to dissemination, publication and archiving. Aspects of data management will usually continue long after the initial research project has ended.

**Challenge 9: Assembling a research team (Murray, 2003)**

What constitutes a research team in one department or institution might be described elsewhere as a research group, research centre, research unit or research institute. The key characteristic of a research team is that it comprises a group of people working together in a committed way towards a common research goal.

**Challenge 10: Managing the supervisor (Murray, 2003)**

The role of a supervisor is a multitasking function that supports the leadership of a business, troubleshoots, creates new solutions, provides team-building, gives guidance and confirms accountability in all the areas assigned to him. It can be a bewildering and stressful role at times, and it can also be very fulfilling. Those who understand how the function works before getting into a supervisor’s position will tend to perform better, since much of the learning involved is by experience rather than theory. A supervisor’s responsibilities can vary and are not just limited to the obvious function of personnel supervision. They can include company representation to external parties, committee membership, training of rank and file, recruitment, disciplinary functions, hiring and selection duties. The supervisor is usually the lowest delegated level of company management to represent the company in all matters affecting the supervisor’s area. As such, the job expects the recruit to be flexible, creative and able to anticipate where an issue will go before making a decision.

**Challenge 11: Finding study participants (Murray, 2003)**

One of the biggest bottlenecks of research and a topic of unjust misconceptions is finding people who will participate in research. It’s a bottleneck because without participants there is no research. A common misconception is that finding participants for research is hard, costly, and time consuming, almost an unachievable goal, especially from the perspective of those who never conducted research with people.

The following is a list of options of ways to find participants for studies. Some ways are easy, others hard, some are free, and others will cost a lot. In any case, researchers have multiple ways for finding participants.

1. Asking people who work in the organization that develops the product.
2. Asking family and friends of people who work in the organization that develops the product.
3. Asking to recruit from a friend’s large pool of potential participants as a favor.
iv) Snowball: letting everyone we know who we look for.
v) Source on LinkedIn by searching for people with specific criteria and using in Mail or 2nd degree intros to contact.
vi) Asking students.
vii) Recruiting past research participants (ask them in advance if it’s okay and keep their details, especially good for specific audiences).
viii) Going to where your audience physically lingers (e.g., dance schools for novice dancers).
ix) Asking conference attendees.
x) Recruiting to a pool of people who generally wish to participate in research, then from it per specific research study.
xi) Asking participants we find to refer friends or colleagues.
xii) Calling through a newsletter.
xiii) Posting signs in libraries.
xiv) Publishing an ad on a relevant website.
xv) Publishing an ad on a print newspaper or magazines.
xvi) Publishing an ad on radio or TV.
xvii) Posting on social media (Facebook, Google Plus, Twitter). “Hey, fill out this Google form and see if you qualify for this 30 minute activity that will get you a $50 Amazon gift certificate.” This includes topic-specific message boards and Facebook groups or other online communities.

Challenge 12: Leveraging the power of a network (Murray, 2003)
Networks provided three opportunities: academic discussion, benchmarking progress and personal support. Networking was perceived to be most valuable when conducted face to face. Loss of formal structures and increasing independence of research projects over time contributed to network fragmentation. Network cohesion was enabled by ‘physical presence’, ‘shared experience’ and a sense of ‘common purpose’. Suggestions for the development of structures to support cohesive doctoral networks are made.

Challenge 13: Learning to sell yourself (Murray, 2003)
A researcher's first task is always selling himself. The followings are a few ways to go about it.
i) Transforming actions into skills.
   Communicating about these projects is also a part of my work.
ii) Pitching yourself.
   In research, we explain, the more we explain the more it is clear.
iii) Networking
   Keep yourself updated on Twitter, LinkedIn, Facebook, and your blog or website if you have one. When you attend meetings, present yourself, discuss, give your card and connect to others!
iv) Sharing experience with others!
   We need to share our experiences: do you agree with these tips? Do you have other ones?
Research Conduct among Postgraduate Students (Kearney, 2012)

1) Starting the thesis
Getting started on thesis can be extremely difficult. This can be challenging because the classical approach to academic research cannot be applied to all domains. It's advisable to begin work on the aspect the candidate finds the easiest. The candidate can also help himself by doing plenty of advance planning. Articles are written to be watertight, and an inexperienced researcher struggles to identify what the shortcomings of a given research work are. Learning to identify what is not being described or what is missing is an important but challenging skill to master.

2) Time management
Strong time management is one of the most important parts of research study. The candidates should therefore treat their Master's as a full-time job, while also appreciating that a complete lack of leisure time can be damaging to their health and chances of success. Their time management is particularly important when writing their thesis. One needs to be disciplined enough to get work out to supervisors, giving them enough time for critiquing, warns Kearney (2012). Sending large chunks of research work to supervisors is a common pitfall. Short and regular submissions are much more productive, he adds. Similarly, it is necessary to manage, as tactfully as possible, the breadth of activities.

3) For gaining an in-depth understanding of the research problem
An essential early step in the process of research is to find a research problem. What a research problem is, and how to find one, are very important. The nature of the problem will, in its turn, influence the form of the research. The rationale for considering multiple cases is that individual cases would share some common and contrasting characteristics that would provide an in-depth understanding of the research problem (Stake, 2006).

Methodology
A questionnaire survey was conducted at 20 different universities in Myanmar. A total of 124 postgraduate students, 42 supervisors participated in the study. Purposive sampling technique was used. Two pretested semi-structured questionnaires were used (one for students and one for supervisors) to collect data.

Table 1
Demographic Characteristics of Postgraduate Participants

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Department</th>
<th>Participants</th>
<th></th>
<th>Supervisors</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
<td>Male</td>
</tr>
<tr>
<td>1</td>
<td>Science</td>
<td>5</td>
<td>23</td>
<td>28</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Social Studies</td>
<td>9</td>
<td>30</td>
<td>39</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Mathematics</td>
<td>7</td>
<td>27</td>
<td>34</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Languages</td>
<td>4</td>
<td>19</td>
<td>23</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>25</td>
<td>99</td>
<td>124</td>
<td>11</td>
</tr>
</tbody>
</table>

25 of the participant individuals in the sample were male and 99 were female while 11 in the sample were male supervisors and 31 were female. The distribution of the individuals in the sample by department was as follows: 28 science students and 8
Challenges in Conducting Educational Research (Murray, 2003)

The results obtained from the responses of the participants to the structured interview questions are presented as follows.

Challenge 1: Choosing the right topic (50%)

Research topic is the foundation on which everything else rests, so it is crucial to choose carefully, said 50% of the participants. “We can’t do anything else until we figure out the basic focus of our topic,” says one of the participants who earned her Master’s in Psychology. The participants share their recommendations for choosing an effective research topic.

i) Reading everything on the topic.
ii) Finding a theoretical basis to support the topic.
iii) Making sure the topic will hold the interest.
iv) Looking for a niche in which we can make a difference
v) Fine-tuning the topic based on input from others.

Challenge 2: Developing a doable topic (46%)

One of the participants who earned his MSc in Chemistry said that we have to determine what resources we have available — time, money, people — and choose a topic that we can do justice. One of the participants scrapped an initial study idea of replicating another researcher’s study because it would be too resource-intensive. We also read everything we can on the topic. Sometimes, the topic was outside the required class reading, but ultimately provided theoretical framework. 46% of the participants determine what resources they have available — time, money, people — and choose a topic that they can do justice. The key is having an overarching theoretical context for our results. They will be spending at least a year on a thesis or any large research project, so it has to be compelling enough that they will go the distance. They look for a niche in which they can make a difference. My view is that we really should be offering something new to the field,” says one of the participants.

Challenge 3: Finding a theoretical basis to support the topic (69%)

Theories are formulated to explain, predict, and understand phenomena and, in many cases, to challenge and extend existing knowledge within the limits of critical bounding assumptions. The theoretical framework is the structure that can hold or support a theory of a research study. The theoretical framework introduces and describes the theory that explains why the research problem under study exists. One of the participants admits that the topic she started out with was “in no way” what she ended up with. They fine-tune their topic based on input from others. They take every opportunity they can to pick the brains of experts, 69% of the participants recommend.

Challenge 4: Choosing the right methodology (36%)

Once the students have chosen a topic, they need a methodology — a procedure for conducting research — in order to move forward. One of the participants, a faculty member in Master's degree program, has received the award two times for outstanding research papers. He offers several techniques for getting on the right path when it comes to choosing the appropriate methodology for study. 36%
of the participants said that the methodology that is used comes from the research question, not from our personal preferences for one design or another.

**Challenge 5: Formulating research questions (49%)**

The participants determine what kind of design and methodology can best answer their research questions. If the questions include words such as “explore,” “understand,” and “generate,” it is an indication that the study is qualitative. Whereas words such as “compare,” “relate,” or “correlate” indicate a quantitative study. The design comes out of the study, rather than being imposed on the study. Sometimes research question seems doable at first but when we begin the research, it turns out not to be the case. It is recommended by the 49% of the participants that researchers should do a preliminary search to test if they can get enough material, and then, if necessary, they should revise their question.

**Challenge 6: Honing the research design (67%)**

Before examining types of research designs it is important to be clear about the role and purpose of research design. Students need to understand what research design is and what it is not. They need to know where design into the whole research process from framing a question to analyzing and reporting data. Once they become clear whether they are going in a quantitative or qualitative direction, they can begin to look in more detail at the methodology. This will be determined by figuring out “from whom they are going to collect data, how they are going to collect the data, and how they are going to analyze it once they collect it,” says 69% of the participants.

**Challenge 7: Problems in using survey questionnaires (41%)**

Because of the time and cost-saving benefits of survey questionnaires, 41% of the participants agreed to distribute the questionnaires to the respondents. In order to increase the response rate, they also sent follow-up mail invitations to the participants. They discussed this issue with some experienced researchers and supervisors at university. At this point, many of the supervisors indicated that they had not noticed what the questionnaire expected from them as written in the beginning of the questionnaire or in the explanatory statement.

**Challenge 8: Dealing with data (Avg = 49%)**

The final challenge is knowing how to make sense of the data collected. Murray (2003) offer tips for working with the data as follows.

(i) **Ground yourself in the research. (50%)**

Fifty percent of the participants stated that, to address a large volume of research, they had to connect their own research to the existing research. Grounded in a “huge survey of the literature,” they had the parameters to organize their research. They also add that data should be presented in a way that demonstrates how the research adds to the body of knowledge.

(ii) **Get back to your methodology. (44%)**

Forty four percent of the participants credit a course in research methodologies taught by their mentor and committee chair to deal with their data.

(iii) **Listen to the data. (68%)**

“When we have that kind of qualitative data, and we are looking at it cold, the biggest challenge is not to look at it with any preconceived ideas — we literally have to step back and wait for the data to come alive and start speaking,” 68% of the participants say.
(iv) **Take advantage of technology. (65%)**

“The key thing in qualitative research is looking for patterns, and that’s where having a software program which was invaluable,” 68% of the participants say. They couldn’t have done it without that.

(v) **Stay focused. (63%)**

63% of the participants cautions against being distracted by irrelevant data as you do your analysis. They suggest “keeping a really close eye” on research questions and hypothesis, “because sometimes the data collected will take them away from that.”

(vi) **Account for biases. (25%)**

25% of the participants explain that, in a quantitative study, the researcher needs to address the biases of the individuals completing the survey before the results can be generalized to a larger population. Whereas qualitative work requires researchers to discuss “how their bias or interpretation may have played into their conclusions.”

(vii) **Let the data drive your presentation. (48%)**

48% of the participants say, “The data should drive how the researcher presents what he is doing.” It is their job to organize it around the research questions.

(viii) **Draw on the details. (36%)**

“A good quote or a good point pulled from a quantitative survey — that information can always give the researchers a greater sense of what actually occurred,” 36% of the participants say.

**Challenge 9: Assembling a research team (60%)**

Research is never done in a vacuum. Once the topic and methodology are in place, 60% of the participants said that they will need a research team to support them. Master's students should have a network of advisors before starting their research.

**Challenge 10: Managing the supervisor (Avg = 60%)**

A positive student-supervisor relationship is paramount to the success. However, it's not uncommon for problems to develop. These include:

(i) **Absence (63%)**

The supervisor may be frequently unavailable, perhaps due to other research and teaching commitments. If the co-supervisor doesn't increase their level of support, 63% of the participants said that they will need to demand more regular contact.

(ii) **Conflict (63%)**

If the research is interdisciplinary and the candidate has been allocated two leading supervisors, they may give conflicting advice - or even dislike each other. If so, 63% of the participants report that the candidate could meet with them separately - but whatever the candidate does, he should not take sides.

(iii) **Intimidation (59%)**

The supervisor may actually be playing a more active role in the research than necessary, something that is particularly likely if 58% of the participants are attempting to compensate for their inexperience. The student should not be afraid of asking them to take a step back.
(iv) **Leave (54%)**

In some rare cases, supervisors may retire, change university or go on sabbatical with little notice. The candidate will need to discuss what happens next with the department. If the situation doesn't improve after he has talked through any problems together, 54% of the candidates think that they should consider changing supervisor.

**Challenge 11: Finding Study Participants (35%)**

Once a researcher has his team together, it is time to conduct his study, and that means finding participants. 35% of the participants studying Master's degree, managed to overcome a big challenge to recruiting participants for their study.

**Challenge 12: Leveraging the Power of a Network (54%)**

Participants should use what are called “snowball” sampling techniques — “targeting a particular group, locating advocates within that social network,” and then asking them to recommend others who might be willing to participate in the study. “The researchers almost get a domino effect, if it works,” 54% of the participants explain.

**Challenge 13: Learning to sell yourself (53%)**

Writing financial reports become fundraising, working with another laboratory become lunchesing collaborations, learning a student about a new technique become transferring skills. They have to do a lot of selling of themselves and what they are trying to do, 53% of the participants said. But, they warn, there’s a fine line between being persistent and not turning people off.

**Challenges in Conducting Educational Research**

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenge 1: Choosing the Right Topic</td>
<td>50%</td>
</tr>
<tr>
<td>Challenge 2: Developing a doable topic</td>
<td>46%</td>
</tr>
<tr>
<td>Challenge 3: Finding a theoretical basis to support the topic</td>
<td>69%</td>
</tr>
<tr>
<td>Challenge 4: Choosing the Right Methodology</td>
<td>36%</td>
</tr>
<tr>
<td>Challenge 5: Formulating research questions</td>
<td>49%</td>
</tr>
<tr>
<td>Challenge 6: Honing the study design</td>
<td>67%</td>
</tr>
<tr>
<td>Challenge 7: Problems in using survey questionnaires</td>
<td>41%</td>
</tr>
<tr>
<td>Challenge 8: Dealing with data</td>
<td>49%</td>
</tr>
<tr>
<td>Challenge 9: Assembling a Research Team</td>
<td>60%</td>
</tr>
<tr>
<td>Challenge 10: Managing the Supervisor</td>
<td>60%</td>
</tr>
<tr>
<td>Challenge 11: Finding Study Participants</td>
<td>35%</td>
</tr>
<tr>
<td>Challenge 12: Leveraging the power of a network</td>
<td>54%</td>
</tr>
<tr>
<td>Challenge 13: Learning to sell yourself</td>
<td>53%</td>
</tr>
</tbody>
</table>

According to the data, the most important parts of a research conduct among postgraduate students are as follows.

(i) **Starting the Thesis (51%)**

(a) Challenge 1: Choosing the Right Topic (50%)
(b) Challenge 2: Developing a doable topic (46%)
(c) Challenge 3: Finding a theoretical basis to support the topic (69%)
(d) Challenge 7: Problems in using survey questionnaires (41%)
(e) Challenge 8: Dealing with data (49%)

(ii) **Time Management (52.4%)**

(a) Challenge 9: Assembling a Research Team (60%)
(b) Challenge 10: Managing the Supervisor (60%)
(c) Challenge 11: Finding Study Participants (35%)
(d) Challenge 12: Leveraging the power of a network (54%)
(e) Challenge 13: Learning to sell yourself (53%)

(iii) For gaining an in-depth understanding of the research problem (50.6%)
(a) Challenge 4: Choosing the Right Methodology (36%)
(b) Challenge 5: Formulating research questions (49%)
(c) Challenge 6: Honing the study design (67%)

According to the data, the most important challenge in doing research is starting the thesis (51%) followed by for gaining an in-depth understanding of the research problem (52.4%) and time management (50.6%).

Findings

After analyzing the problems faced by postgraduate students during the research process, it was found that the main problems are (i) starting the thesis (51%) (ii) time management (52.4%) and (iii) for gaining an in-depth understanding of the research problem (50.6). According to the data, finding a theoretical basis to support the topic was found to be the most important one as it is 69% of all. The second most important one is “Honing the research design”. “Finding study participants” was the lowest one because which constitutes only 35% of all. To overcome the various problems experienced by postgraduate students during the research process, they should prepare well to do research. They should stay motivated and work their plan. Motivation can get over the obstacles in their research. Everyone should take a positive attitude through the process. They should receive rewards for their work and ask for help to people who are going to be positive and supportive. Moreover, the participants couldn't have done without technology and stay focused on their work.

After analyzing the problems faced by postgraduate students during the research process, the participants are able to understand how to sort out the problems and one can have the ability for transferring skills.
Conclusion

In conclusion, it was observed that the participants experienced various problems during the research they conducted as graduate students but gained experience during this process and will be guided by this experience in the future. In the light of these findings, it can be said that the problems experienced by the participants during the research process actually contributed to the development of their research skills. In addition, if students who are going into graduate education become aware of the problems they may face, and the suggestions about how to solve them found in this research, they may have a better understanding of those problems when they arise during the process and be able to take measures to avoid them.

The present study revealed that finding a theoretical basis to support the topic, assembling a research team, managing the supervisor and honing the study design were found the most important general problems. Leveraging the power of a network and choosing the right topic were also found the most common problems related to the institute. The recommendations made were - research methodology and biostatistics should be incorporated in undergraduate and postgraduate curriculum, regular practical workshops on research methodology and biostatistics for the students and the supervisors, provision of adequate fund for academic thesis works, arrangement of adequate research facilities and resources in all institutes/universities conducting postgraduate courses, introduction of checklist and meeting schedule to be used both by supervisors and students during thesis works.
References


Challenges Being Experienced by Postgraduate Students in Conducting Academic Research at Myanmar Universities

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Abstract

Students at Myanmar Universities have to submit academic research for their degrees. Academic research is a careful and systematic investigation in some field of knowledge, undertaken to establish facts or principles (Kumar, 2005). Postgraduate students encounter some extent of challenges when conducting research. The study examined challenges that postgraduate students face in doing academic research in Myanmar universities. The research makes use of descriptive surveys, focus group discussions and document analysis. Random sampling shall be used for descriptive surveys, while purposive sampling shall be employed for focus group discussions, which shall be conducted in selected Myanmar universities. Data were collected from 124 Master's students and 42 supervisors through questionnaire. Research data were analyzed and interpreted thematically. The study came up with three categories of challenges that postgraduate students experience in their conduct of research. They comprised supervisor-related, student-related and institute-related challenges. The result of this research is to decide which challenges are the main impact to students and supervisors implementing a good research. The most significant problems are too few meeting with students, too little practical help given and lack of research experience in the categories of supervisor-related challenges. Another category is concerned with student-related challenges, lack of money, lack of library resources, lack of commitment and motivation and family problems or commitments. Institution-related challenges (lack of internet facilities, lack of research-related courses, lack of library resources, and lack of computer literacy and lack of workshops) negatively impacted on the students’ capacities to conduct research. The researchers also drew some conclusions from the findings. Firstly, the challenges that concerned with three categories were mutually exclusive to each other. All the institution-related challenges were on the high side in terms of how they were experienced by postgraduate students who were undertaking research. The major recommendations for the Myanmar universities students to be research-minded ones is to create to get exposure of both supervisors and students with research skills, to have internet access in line with computer literacy and research materials.

Keywords: Challenges, Postgraduate Students, Academic Research, Myanmar Universities
Introduction

At Myanmar Universities, a research project is a prerequisite for the completion of a Master's degree program to increase in knowledge or understanding of the subject under studyin all the faculties. This research seeks to interrogate the challenges being experienced by postgraduate students in conducting research in Myanmar. Myanmar postgraduate students sometimes face challenges in conducting research. Some supervisors cease to continue researching soon after graduating (Cresswell, 2003). Challenges are hindrances or problems that negatively impact on supervisors’ abilities to supervise students’ research project. Some students are scared of carrying out research (Pearce, 2005). Students at the Universities are attached to a single supervisor. Some of these supervisors have varying research exposures and experiences. The quality of the research product as a result of the supervision processes seems to be one of the challenges that the Departments at Myanmar universities faces among other competing challenges. This research examines findings of challenges that influence the quality of academic research at Myanmar universities. Not all supervisors in universities get the opportunity to present conference papers, attend research workshops and get involved in conducting base line studies (Bell, 2000). It is against this background that the researchers were motivated to investigate challenges that students in Myanmar universities experience in carrying out research. The study sought answers for these research questions:

(i) What challenges do postgraduate students experience in conducting research in Myanmar?

(ii) How do these challenges affect the quality of the students’ research projects at Myanmar universities?

(iii) How can these challenges be overcome in a bid to raise the standards of research supervision and quality of research supervision and quality of research products at Myanmar universities?

Research projects undertaken at Master's Degree level are crystal indicators of the quality of academic work going on at universities. Supervisors and students who are challenged during research supervision may compromise the quality of research work at universities. The study consciously hoped to collect data on the challenges that postgraduate students face in conducting research. Also the research students’ input on research challenges they face would contribute to policy formulation and evaluation of Myanmar universities’ current supervisory practices.

(i) Supervisor-Related Challenges in the Supervision of Research Projects (Source: Pearce, 2005)

Postgraduate students experience challenges in conducting research. Research-challenged students experience problems in coming up with research products of high quality. There are three categories of challenges that impacts on the way students carry out their research projects. These are supervisor-related, student-related and institution-related. Research scholars in the mould of Pearce (2005) highlight some of the supervisor-related challenges in the supervision of students’ research projects: Too few meetings with students; No interest with students; No interest in the topic; Too little practical help given; Too little direction; Failure to return work promptly; Absence from work (Department) leaving no co-supervisor; lack of research experience; lack of relevant research skills and or knowledge.
(ii) Student-Related Challenges in the Supervision of Research Projects (Source: Bell (2000) and Pearce, 2005)

Research authorities in the likes of Bell (2000) and Pearce (2005) sounded the following as some of the student-related challenges in the supervision of their research projects: Lack of time; lack of money; lack of library resources; lack of commitment and motivation to do the research; lack of adequate theory in the area being researched on; students’ failure to meet regularly with the supervisor; and family problems/commitments produced by both the supervisor and student.

(iii) Institution-Related Challenges (Source: Pearce, 2005)

Apart from student and supervisor-related challenges cited above, Pearce (2005) concur that students’ capacities to conduct research are constrained by institution-related challenges such as: lack of exposure of supervisors to research skills, lack of exposure to computers, lack of internet services, lack of exposure to computers, lack of workshops and lack of research materials. Thondhlana, Mawere and Weda (2011) add another dimension of supervisor-related challenges by indicating that the practice of imposing research topics on the students militates against students’ success in research work. It was in the light of such findings that the conduct of this study became a possibility in order to find out how well institution-related challenges other than student and supervisor-related challenges were impacting on the postgraduate students’ research outcomes in Myanmar with a particular focus on the Master's program.

Methodology

The population of the current study comprised 69 registered Arts and Science research students at Myanmar universities. A questionnaire with both closed and open-ended sections was distributed to a random sample of 69 research students. Also a sample of 55 supervisors was participated in this research. Data were analyzed and interpreted thematically. Focus group discussions with the supervisor were also conducted. Focus group discussions were recorded and sent to supervisor participants for verification, before being analyzed using the grounded theory.

(i) Challenges in the Supervision of Research Projects (Source: Pearce, 2005)

There are three categories of challenges that impacts on the way students carry out their research projects. These are supervisor-related, student-related and institution-related. Research scholars in the mould of Pearce (2005) highlight some of the Supervisor-related challenges in the supervision of students’ research projects.
Table 1
Perceptions of the Master's students towards supervisor-related challenges in the supervision of research projects (Source: Pearce, 2005)

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Supervisor-related challenges</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>1</td>
<td>Too few meetings with students</td>
<td>68%</td>
</tr>
<tr>
<td>2</td>
<td>No interest with students</td>
<td>51%</td>
</tr>
<tr>
<td>3</td>
<td>No interest in the topic</td>
<td>56%</td>
</tr>
<tr>
<td>4</td>
<td>Too little practical help given</td>
<td>74%</td>
</tr>
<tr>
<td>5</td>
<td>Too little direction</td>
<td>49%</td>
</tr>
<tr>
<td>6</td>
<td>Failure to return work promptly</td>
<td>63%</td>
</tr>
<tr>
<td>7</td>
<td>Absence from work (Department) leaving no co-supervisor</td>
<td>51%</td>
</tr>
<tr>
<td>8</td>
<td>Lack of research experience</td>
<td>60%</td>
</tr>
<tr>
<td>9</td>
<td>Lack of relevant research skills and or knowledge</td>
<td>51%</td>
</tr>
</tbody>
</table>


Research authorities in the likes of Bell (2000), Pearce (2005), Sidhu (2001), Anderson (2006) and Aspland (1999) sounded the following as some of the student-related challenges in the supervision of their research projects: Lack of time; lack of money; lack of library resources; lack of commitment and motivation to do the research; lack of adequate theory in the area being researched on; students’ failure to meet regularly with the supervisor; and family problems/commitments.

Table 2
Perceptions of the Master's students towards student-related challenges in the supervision of research projects (Source: Pearce, 2005)

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Student-related challenges</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>1</td>
<td>Lack of time</td>
<td>31%</td>
</tr>
<tr>
<td>2</td>
<td>Lack of money</td>
<td>14%</td>
</tr>
<tr>
<td>3</td>
<td>Lack of using library resources</td>
<td>62%</td>
</tr>
<tr>
<td>4</td>
<td>Lack of commitment and motivation to do the research</td>
<td>73%</td>
</tr>
<tr>
<td>5</td>
<td>Lack of adequate theory in the area being researched on</td>
<td>42%</td>
</tr>
<tr>
<td>6</td>
<td>Students’ failure to meet regularly with the supervisor</td>
<td>64%</td>
</tr>
<tr>
<td>7</td>
<td>Family problems/commitments</td>
<td>4%</td>
</tr>
</tbody>
</table>

Lack of time (31%), students’ failure to meet regularly with the supervisor (64%) and lack of using library resources (62%), lack of commitment and motivation (73%) are student-related factors that can affect the quality of research supervision.
and work. The ability to handle both supervisor-related and student-related challenges in research supervision is a pre-condition to the quality of research projects produced by both the supervisor and student.

(iii) Institution-Related Challenges (Source: Mouton, 2001; Shumba, 2004, Nyawararnda, 2005; Pearce, 2005)

Apart from student and supervisor-related challenges cited above, (Mouton, 2001; Shumba, 2004, Nyawararnda, 2005; Pearce, 2005) students’ capacities to conduct research are constrained by institution-related challenges such as: lack of exposure of supervisors to research skills, lack of internet services, lack of exposure to computers and lack of research material.

Table 3
Perceptions of the Master's students towards institution-related challenges in the supervision of research projects (Source: Pearce, 2005)

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Institution-related challenges</th>
<th>Responses</th>
<th>Agree</th>
<th>Not Sure</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lack of exposure of supervisors to research skills</td>
<td>74 %</td>
<td>8 %</td>
<td>18 %</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Lack of internet services</td>
<td>87 %</td>
<td>3 %</td>
<td>10 %</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Lack of exposure to computers</td>
<td>66 %</td>
<td>4 %</td>
<td>30 %</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Lack of research materials</td>
<td>70 %</td>
<td>4 %</td>
<td>26 %</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Lack of workshops</td>
<td>60 %</td>
<td>13 %</td>
<td>27 %</td>
<td></td>
</tr>
</tbody>
</table>

It was in the light of such findings that the conduct of this study became a possibility in order to find out how well institution-related challenges other than student and supervisor-related challenges were impacting on the postgraduate students’ research outcomes in Myanmar with a particular focus on the Master's program.

Findings

A questionnaire survey was conducted in 20 different universities in Myanmar. A total of 134 postgraduate students, 48 supervisors participated in the study. Purposive sampling technique was used. Two pretested semi-structured questionnaire were used (one for students and one for supervisors) to collect data.

Table 4
Demographic characteristics of postgraduate participants

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Department</th>
<th>Participants</th>
<th>Supervisors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>1</td>
<td>Science</td>
<td>5</td>
<td>23</td>
</tr>
<tr>
<td>2</td>
<td>Social Studies</td>
<td>9</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>Mathematics</td>
<td>7</td>
<td>27</td>
</tr>
<tr>
<td>4</td>
<td>Languages</td>
<td>4</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>25</td>
<td>99</td>
</tr>
</tbody>
</table>
25 of the participant individuals in the sample were male and 99 were female while 11 in the sample were male supervisors and 31 were female. The distribution of the individuals in the sample by department was as follows: 28 science students and 8 science teachers, 39 social studies students and 9 teachers, 34 Mathematics students and 13 teachers and 23 language students and 12 teachers.

Analysis of data of the current study indicated that diverse supervisor and student related challenges in the supervision of research projects could militate against the quality of research work submitted by students at Myanmar universities.

Discussion

The conduct of this study was based on a triangulated methodology. It employed the survey research design complemented by the case study research design as well as document analysis. Use of survey research design was preferred because it is the most appropriate design where participants’ opinions are sought (Punch, 2004). The population of the current study comprised all registered Master's research students at Myanmar universities. A questionnaire with both closed and open-ended sections was distributed to a random sample of 96 research students. Data were analyzed and interpreted thematically. Focus group discussions were also conducted; these consisted of 31 students and 19 supervisors. Analysis of data of the current study indicated that diverse supervisor and student-related challenges in the supervision of research projects could militate against the quality of research work submitted by Master's students at Myanmar universities.
Figure 1: Perceptions of the Master's students towards supervisor-related challenges in the supervision of research projects (Source: Pearce, 2005)

Figure 1 shows supervisor-related challenges being faced by postgraduate students in conducting research. Too little practical help given ranked first with (74%) followed by too few meetings with the students (68%), failure to return work promptly (63%) ranked lowest. All students in the questionnaire interviews and focused groups indicated that supervisor-related challenges: too little practical help given, too few meetings with students, failure to return work promptly, and no interest in the topic as ineffective challenges in their conduct of research. It can be argued that not all supervisor-related challenges in Figure 1 are being experienced by postgraduate students in the studied universities. However, most supervisors were dedicated to their work, although some students were challenged by some strict supervisors. As a result of strict supervision some less confident students are scared of carrying out research (Pearce, 2005).
Figure 2: Perceptions of the Master's students towards student-related challenges in the supervision of research projects

Figure 2 shows student-related challenges being experienced by postgraduate students in conducting research. Most of the students indicated that lack of commitment and motivation to do the research (73%), students’ failure to meet regularly with the supervisor (64%), and lack of library resources (62%) as challenges of great concern that the postgraduate students experienced in conducting their research works. On that note, they were in agreement with Anderson et al (2006) who pointed out that time was a very limited resource for students carrying out research. Consequent upon these findings, the quality of research supervision and research projects might be compromised. Research students had to strike a balance between financing their education as well as looking after their families. These students had to buy and provide basic needs (food, shelter and clothes) for their families. These commitments competed with their need to successfully complete their research projects. To underscore this scenario, one research participant indicated that lack of commitment and motivation to do the research was quite prohibitive in the conduct of one’s study as one could fail to register for the research project that spans over two semesters. All postgraduate students at Myanmar universities agreed with Pearson and Kayrooz’s (2004) perception that lack of commitment and motivation to do research is one challenge that students face. It is common knowledge that students choose
research topics in their areas of interest, expertise and experience. They also consider issues of resources to enable them successfully carry out their research projects.

Figure 3: Perceptions of the Master's students towards institution-related challenges in the supervision of research projects

The scenario in Figure 3 portrays that the majority of the studied postgraduate students perceived: Lack of internet facilities (87%), lack of exposure of supervisors to research skills (74%), lack of research materials (70%), lack of exposure to computers (66%), and lack of workshops (60%) as some of the most pronounced institution-related challenges that postgraduate students in Myanmar universities experience. It has been also found that students’ capacities to conduct research are constrained by institution-related challenges such as: lack of exposure of supervisors to research skills, lack of internet services, lack of exposure to computers and lack of research materials. They however tend to miss out the practice of imposing research topics on the students that militate against students’ success in research work.

Conclusion

The present study sought to explore the challenges being experienced by postgraduate students in conducting research at Myanmar universities. We distributed questionnaire to 96 supervisors at selected universities. The results confirmed existing results in connection with supervisor-related challenges such as: Too little practical help given and too few meetings with students; student-related challenges; lack of commitment and motivation to do the research, students’ failure to meet regularly with the supervisor; and institution-related challenges; lack of internet facilities, lack of library resources, lack of computer literacy, and lack of workshops as some of the overaching challenges that the studied postgraduate students experience in conducting their research. Thus, it can be concluded that students needed to work with sensitive supervisors who commit themselves to the progress and success of their students. Supervisors ought to be students’ models in the conduct of research projects. Lack of library resources was viewed as one of the greatest let downs to effective
research supervision and writing. Supervisors could be more resourceful by accessing and providing students with relevant reading material. Students needed to be coached how to balance their time to enable them to carry out their research well. In order to perfect the art of research but supervisors for the benefit of the student supervisors need regular research workshops because not all supervisors get the opportunity to present conference papers, attend research workshops and get involved in conducting base line studies. Workshops are avenues to drive candidates towards the main route to successful research work. Commonwealth of Learning (2001) speaks highly of research-related workshops which has the capacity to enhance students’ abilities to scale to dizzy heights. The study also concluded that no one set of challenges that research participants experienced in the conduct of their studies wholly impacted on the quality of their research projects. The three categories were mutually exclusive to each other. Ignoring the challenges three categories of challenges mentioned above militates against the quality of research projects undertaken by postgraduate students.

Recommendations

In a deliberate drive towards the improvement of the quality research projects submitted at Myanmar universities, the following recommendations are made. The university needs to:

i) Mount regular workshops for research supervision and writing for both supervisors and students to aware of each other’s strengths, weaknesses, threats, opportunities and challenges in the conduct of academic research projects.

ii) Encourage to mount regular students’ research workshops in which students could present their works to peers and supervisors for some critiquing in building confidence in the students as they obtain diverse opinions from peers and supervisors.

iii) Approach ‘Myanmar Universities Students Counselling Services Unit’ at the Students who may be experiencing family problems/challenges may be given proper academic advisement to enable them carry on with their research well.

iv) Approach ‘Myanmar universities’ Marketing Services’ with the intention of collaboratively devise ways and means of assisting research students with opportunities to purchase computer lap tops and internet facilities.

v) Provide opportunities for supervisors and students to carry out collaborative research works to improve their research skills, expertise, experiences and submission of their research articles to refereed journals.

vi) Motivate supervisors and students to present conference papers at local and international conferences. It is in such conferences that supervisors and students can polish their research experiences and skills.

vii) Supply supervisors and student with research supervision guidelines so that they will not abuse and misuse each other. That way, both parties will be able to know what is expected of them in the supervision of research projects, as well as, their writing of the research reports.

viii) Ensure that further research be carried out at a national scale or regional level on a comparative basis in the same area. This will give rise to tried and tested ideas on how to deal with supervisors and student-related challenges in the supervision and writing of research projects. Myanmar University students will be able to do applicable research when they can face supervisors-related, students-related and institution-related challenges.
References


Challenges of Educational Research in Myanmar

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Abstract

Educational researches are being conducted to garner new knowledge and to shed light on the human condition and educational phenomenon. However, significant challenges have been encountered when conducting research in developing countries. The purpose of this research is to investigate the challenges of effective research in Myanmar. In collecting data, semi-structured interviews were conducted with university teachers who have experience in doing research from main sectors in Myanmar. The challenges of educational research are identified in the following areas: lack of proper research ethics; ineffective research methodology; ineffective “Import Knowledge”; ineffective library system; poor infrastructural management; low accessibility of data and information; insecurity of research data; lack of funds for research and poor technological advancement in doing educational research. The results showed that the under-stocked libraries in Myanmar universities are major problem of research in Myanmar. The improvised availability of published data from academic institutes, government agencies and other corporate agencies operating in Myanmar is a huge problem of research in Myanmar, said 82.00% of the participants. 79.50% of the participants agree that Myanmar researchers should study and follow the appropriate Research Methodology. According to 79.00% of the participants, Myanmar researchers need to follow the proper ethical applications, approach and principles in conducting research to ensure credibility. This study suggests that the government and education department should support university libraries with authentic materials. Moreover, university teachers in Myanmar who will conduct effective research should know research ethics and methodology.

Keywords: challenges, educational research, Myanmar, university teachers

Introduction

Educational research is important because education is considered to be an essential component of a country’s development (Pring, 2000). Contemporary educational research is an institutionalized activity. The aim of educational research is to make education an effective profession in shaping the new generations of citizens and professionals (Elliot, 2007).

When a decision to conduct research has been made, a multifaceted process begins. Each step of that process requires different knowledge and skills. Whatever the research method, all research has certain similarities. These relate to focusing the research purpose, marshalling the needed resources, and scheduling and assigning responsibilities. Research is simply the accumulation of knowledge; research is the careful, detailed and systematic collection of data in order to increase stock of knowledge or information.
In many countries, large amounts of money are invested in educational research with the aim of improving public education and eradicating its challenges. However, it is thought that Myanmar has not invested enough amount of money in doing educational research. Although doing research is an academic requirement and it has numerous benefits and usefulness, there can be challenges faced by educational researchers in Myanmar. Therefore, this study aims to identify the problems faced by the researchers in conducting educational research in Myanmar. The findings of this study will hopefully give valuable information on the challenges of educational research in Myanmar.

Objectives of the Study
1. To investigate the challenges of effective research in Myanmar
2. To figure out solutions to research problems in Myanmar.

Background of the Study
Challenges of educational research in Myanmar

(i) Lack of Proper Research Ethics
Ethics are closely associated with morals and involve embracing moral issues in the context of working with humans (Gregory, 2003). Ethics have now evolved to include issues beyond humans, incorporating a respect for and conservation of the environment. Ethics are also located within human rights and democracy discourses. With respect to the latter, society has become sensitive to the idea that the rights of people should be protected, particularly those who are vulnerable. Broadly, there are three different perspectives on ethics:

a. Ethics as a disposition: This perspective is derived from Aristotle’s notion of virtues that a person possesses, such as justice, generosity and honesty. Ethics in this instance is a disposition.

b. Ethics as duty: This perspective is derived from Kant, and it focuses on the duty humans (as rational beings) have to act in ways that show respect to other human beings.

c. Ethics as utilitarian: This perspective relates to guiding principles for ethical conduct that should benefit a majority of people.

All three of these perspectives are important and they should not be seen as mutually exclusive. Educational researchers should be aware of all of them; however, it is the latter one that dominates approaches to ethics within institutions where educational research is conducted.

Research ethics have become a central issue in educational research and no research can be conducted without due regard to ethics. Regulatory frameworks and regulatory bodies have been established to manage and approve research ethics protocols. Hence, data gathering for an educational research project can only begin once ethical clearance has been sought, approved and a certificate of ethical clearance has been issued. For most research conducted in higher education, ethical clearance is managed and processed through dedicated structures within the institution.

(ii) Ineffective Research Methodology
Research methodology is a way to systematically solve the research problem. In it, not only the research methods are talked but also the logic behind the
methods in the context of research study are considered and explained why researchers are applying a particular method or technique and why they are not implying others so that research results are capable of being evaluated either by the researcher himself or by others. Research methodology indicates the logic of development of the process used to generate theory that is procedural framework within which the research is conducted (Remenyi et al, 1998). It provides the principles for organizing, planning, designing and conducting research. Methodological decisions are determined by the research paradigm not only guides the selection of data gathering and analysis methods but also the choice of competing methods of theorizing (Sayer, 1992). The research methodology section should clearly show why the methods suit the objectives and convince the reader that a researcher chose the best possible approach to answering problem statement and research questions. Throughout the section, a researcher relates the choices back to the central purpose of research. Methodology can be strengthened by reference to existing research in the field, either to: confirm that the researcher followed established practices for this type of research; discuss how he evaluated different methodologies and decided on his approach; and show that he took a novel methodological approach to address a gap in the literature.

(iii) Ineffective “Import Knowledge”

According to Ponce & Pagan (2017), research has been defined as creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications. Since the time of the Copernican revolution, scientific research has been understood as the search for knowledge. This knowledge has to increase the effectiveness of the profession in the following way: (a) generate theories that explain the practice of the profession, (b) validate these practices, and (c) produce laws that precisely guide the profession towards its achievements (Ponce & Pagan 2017). The usefulness of knowledge emerges as a relevant topic on the effectiveness of educational research (Ranis, 2009). Educational research should aim at improving educational practice by analyzing the world of Education to understand it and make it better. It should be a critical, reflective and professionally oriented activity. Educational research should have three objectives: to explore issues and find answers to questions (for academics), to share policy (e.g. relationships between education/work/training, for policy makers) and to improve practice (for practitioners). Historically the role of the educational researcher has moved from academic theorist, through expert consultant, to reflective practitioner. Educational research has changed from the positivist assumptions underpinning the scientific–experimental paradigms which had prevailed during the 20th century, to the recent postmodernist and poststructuralist trends, which challenged the previous assumptions. Educational purposes are many and varied, and there is probably no consensus on this issue. The purposes of education can be affected by the context of
the historical periods and by ideology. The purposes of education research can also be affected by the views and beliefs of reality. Educational research can in turn be affected and constrained by ethical issues.

(iv) Ineffective Library System

Libraries can bring substantial value to researchers and research (RIN & RLUK report, 2011). A library should evolve and respond with enthusiasm to the new opportunities and challenges for higher education, the information society and knowledge economy. It is no longer seen simply as a provider of content, and is actively pursuing new opportunities to build institutional value. In the value of libraries for research and researchers - research libraries UK, one of the library’s most important characteristics is its strong service culture, ingrained in the mindsets of librarians at all levels, in the governance of the library, and in all library processes. The reward is respect for the library across the institution, high levels of researcher engagement, and strategic collaboration with other providers of research support. The practices of subject specialists in such a library are far removed from traditional collection management roles; they adopt a much more proactive approach, working in partnership with academic departments. They understand and speak the language of the subjects they support. They often take up an embedded position where support is required. They operate as liaison officers between the library and researchers in their domain, consultants to identify and solve problems, and trainers to improve skills and understanding. Better links with researchers and academic departments help the library to position itself in a changing environment, to take advantage of new opportunities, and to respond to researchers’ evolving needs and behaviours. A strong service culture is closely linked to an outward facing stance. The library exploits its skills and its position at the centre of the institution to cultivate links with many other bodies, identifying opportunities for creating new value and delivering that value in collaboration. The information and organisational skills of library staff are drawn on regularly and routinely to support the institution’s research mission.

(v) Poor Infrastructural Management

According to Research European Commission, research infrastructure means facilities, resources and related services that are used by the scientific community to conduct top-level research in their respective fields and covers major scientific equipment or sets of instruments; knowledge-based resources such as collections, archives or structures for scientific information; enabling information and Communications Technology-based infrastructures such as Grid, computing, software and communication, or any other entity of a unique nature essential to achieve excellence in research. Research infrastructures are a fundamental requirement for research work. They support organized research and researcher education while maintaining and developing the University's research capacity. Typical components of research infrastructures include:

a. Equipment, research and measuring stations, research vessels, specialized laboratories
b. Research material collections and databases, archives and libraries
c. Communication networks, high-performance computing centers, other IT capacity
d. Infrastructure maintenance and upkeep as well as support services for users

(vi) Low Accessibility of Data and Information

The advance of knowledge is based on the open flow of information. Only when a researcher shares data and results with other researchers can the accuracy of the data, analyses, and conclusions be verified. Different researchers apply their own perspectives to the same body of information, which reduces the bias inherent in individual perspectives. Unrestricted access to the data used to derive conclusions also builds public confidence in the processes and outcomes of research. Furthermore, research is a cumulative process. New ideas build on earlier knowledge, so that the frontiers of human understanding continually move outward. Researchers use each other’s data and conclusions to extend their own ideas, making the total effort much greater than the sum of the individual efforts. Openness speeds and strengthens the advance of human knowledge. Finally, only by sharing research data and the results of research can new knowledge be transformed into socially beneficial goods and services. When research information is readily accessible, researchers and other innovators can use that information to create products and services that meet human needs and expand human capabilities.

(vii) Insecurity of research data

Research data is collected, observed, or created, for purposes of analysis to produce original research results. Research data may be collected in many ways, e.g. paper questionnaires, tape or digital recordings of interviews and focus groups, online surveys; and stored in a range of formats e.g. handwritten notes, analogue and digital recordings, computer files. Each mechanism for collecting and storing data poses particular issues with regard to security against unauthorized access and use, prevention of accidental loss or damage, and eventual disposal. Data security is critical to protecting confidential data, respecting the privacy of research subjects, and complying with applicable protocols and requirements. Even seemingly de-identified data may be re-identified if enough unique characteristics are included.

(viii) Lack of Funds for Research

Having the funds to carry out the work is very important element for research. Many government agencies provide funding to individuals and teams of researchers to work on specific types of research projects. Many private companies provide grants and / or materials and supplies in support of research. Privately funded foundations are another good source of funding for research. Finally, professional organizations represent still another possible source of funding for your research project.

(ix) Poor Technological Advancement

As society transforms and is transformed by new technology, so there are new ways in which qualitative researchers collect and analyse data and new forms of data to collect. From elementary schooling to doctoral-level education, technology has become an integral part of the learning process in and out of the classroom. With the implementation of ICT, the skills required for research are more valuable than ever. Traditional paper-based materials and methods have been left behind, while Web 2.0 tools and other technologies and programs are used to discover, gather, and organize information. Within universities, opposing views may further complicate the process.
of learning research methods, for in libraries, a greater emphasis and reliance is placed on online databases and search engines as an access point to acquire information.

**Methodology**

The purpose of this study is to investigate the challenges in conducting researches in Myanmar. Firstly, semi-structured interviews were conducted with 81 university teachers who have experience in doing research from main sectors in Myanmar. To encourage teachers to honestly and freely express their ideas, the confidentiality of the data was emphasized and no names were recorded. Then, data were analyzed and frequencies of data were counted and inverted into percentages.

**Results**

Research is simply the accumulation of knowledge; research is the careful, detailed and systematic collection of data in order to increase stock of knowledge or information. As stated previously, the aim of this study is to explore challenges of educational research in Myanmar. The objectives of research are to investigate challenges of effective research and to figure out solutions to research problems in Myanmar.

**Table 1**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Challenges of effective research in Myanmar</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lack of Proper Research Ethics</td>
<td>79.00%</td>
</tr>
<tr>
<td>2</td>
<td>Ineffective Research Methodology</td>
<td>79.50%</td>
</tr>
<tr>
<td>3</td>
<td>Ineffective “Import Knowledge”</td>
<td>77.50%</td>
</tr>
<tr>
<td>4</td>
<td>Ineffective Library System</td>
<td>82.00%</td>
</tr>
<tr>
<td>5</td>
<td>Poor Infrastructural Management</td>
<td>65.50%</td>
</tr>
<tr>
<td>6</td>
<td>Low Accessibility of Data and Information</td>
<td>69.50%</td>
</tr>
<tr>
<td>7</td>
<td>Insecurity of research data</td>
<td>61.00%</td>
</tr>
<tr>
<td>8</td>
<td>Lack of Funds for Research</td>
<td>69.50%</td>
</tr>
<tr>
<td>9</td>
<td>Poor Technological Advancement</td>
<td>71.50%</td>
</tr>
</tbody>
</table>

Table 1 shows the challenges of effective research in Myanmar. It also indicates that the most common challenge of educational research in Myanmar is ineffectiveness of library system because the under stocked libraries in Myanmar usually offer limited research materials and public libraries are scanty.

**Challenges of effective educational research in Myanmar**

**Challenge 1: Lack of Proper Research Ethics (79.00%)**

Because of the importance of Research in academics, modern inventions, general human life and culture, there are ethical applications and principles which must be judiciously followed when conducting any form of research. Research Ethics involves the application of fundamental ethical principles to a diversity of topics. According to 79.00% of the participants, Myanmar researchers need to follow the
proper ethical applications, approach and principles in conducting research to ensure credibility. Meaning that in order to properly tackle the problems of research in Myanmar, researchers in Myanmar must be well trained.

Challenge 2: Ineffective Research Methodology (79.50%)

Some academic professionals believe that Research Methodology is a systematic plan for conducting research but a Research Methodology is the general research strategy that outlines the various methods in which a Researcher should go about his research. Research Methodology helps the researcher to identify which method or set of methods or best practices can be applied to a specific study. According to the data, wrongly adopted methodology is one of the major problems upsetting Myanmar researchers and largely influencing research results in Myanmar. Although Myanmar sorely strive to become the best in whatever field they venture into, but some Myanmar researchers do not necessarily follow the acceptable, accurate and normal methods of conducting research. To tackle this problem of research in Myanmar, 79.50% of the participants agree that Myanmar researchers should study and follow the appropriate Research Methodology because even though they possess some of the qualities without following the acceptable and proper Research Methodology their research result, conclusion or theorem will never be accepted.

Challenge 3: Ineffective “Import Knowledge” (77.50%)

Myanmar needs a total makeover in her education sector from basic up to tertiary level. The truth is that our education system is completely ineffective because of the way we teach our future researchers, said 77.50% of the participants. For example, some Myanmar universities mostly teach only about the theoretical aspect of research rather than the practical aspect of conducting a credible and acceptable research.

Challenge 4: Ineffective Library System (82.00%)

With the ineffective library system getting access to data and information will pose somewhat of a barrier to researchers when conducting a research. University-owned libraries in Myanmar universities usually offer limited research materials and public libraries are usually scanty. According to the 82.00% of the participants, the under-stocked libraries in Myanmar universities are another major problem of research in Myanmar. Libraries around Myanmar should be stocked with copies of old and new acts, rules, reports, and other academic, economic and government publications. The very few operational libraries around the country are also poorly managed most times researcher spend most of their time locating the books, journals or reports needed to conduct an acceptable and credible research than actually uncovering relevant evidence, data or information from the materials.

Challenge 5: Poor Infrastructural Management (65.50%)

Another major problem of research in Myanmar is the poor state of infrastructure, said 65.50% of the participants. The laboratories in some Myanmar universities are ill kept, mismanaged and under-maintained hence, discouraging and toting more heaviness on the workload of researchers in Myanmar. The best way to go about finding a possible solution to this problem is to encourage public-private infrastructural development to aid science and research; not just developing the infrastructures but information these days is not cheap.

Challenge 6: Low Accessibility of Data and Information (69.50%)

Myanmar also barely has a database that is built to take stock of data and information which can easily be retrieved by authorized researchers like in the western countries. According to the 69.50% of the participants, the access to journals, reports and statistics needed by researchers in conducting research whether on the internet or in print is outrageously expensive hence encouraging the researcher in Myanmar to abandon the research before actually starting. The government in collaboration with other corporate organizations operating in Myanmar can provide a helping hand by aiding scientist and researchers to gain subsidized access to any information needed for conducting their research in Myanmar.

Challenge 7: Insecurity of research data (61.00%)
Security generally is a problem in Myanmar. The improvised availability of published data from academic institutes, government agencies and other corporate agencies operating in Myanmar is a huge problem of research in Myanmar, said 61.00% of the participants.

Challenge 8: Lack of Funds for Research (69.50%)
Another problem of research in Myanmar is the lack of fund. Research facilities are not cheap to set up these days; neither is the cost of research equipment needed to conduct these researches and then the need to properly manage these research facilities and apparatus effectively. Funding also is a limiting factor of research in Myanmar, said 69.50% of the participants.

Challenge 9: Poor Technological Advancement (71.50%)
A researcher with a limited technological skill would probably spend all his time surfing through useful data on a technological data base without fully knowing the usefulness of such data because of a restricted technological skills or knowledge. In order to effectively tackle this problem of research in Myanmar, 71.50% of the participants suggested that technological skill should be imbibed university curricula to efficiently prepare the researcher.
The empirical results are presented in the figure respectively, obtained from the semi-structured interview conducted with Myanmar university teachers. The results show that three challenges are identified that affect the effectiveness of educational research. The most common challenge of educational research in Myanmar is ineffectiveness of library system because the under stocked libraries in Myanmar usually offer limited research materials and public libraries are scanty.

Discussion

To solve the problem, libraries should access to up-to-date and generous collections of both print and electronic resources, archives and special collections that facilitated in recent years by libraries’ digitization projects, efficient ICTs, quick document delivery services and specialist help and advice in tracing resources.

Research methodology is a way to systematically solve the research problem. It is necessary for the researcher to know not only the research methods but also the methodology. Researchers not only need to know how to develop certain indices or tests, how to calculate the mean, the mode, the median or the standard deviation or chi-square, how to apply particular research techniques, but also know whether these methods or techniques are suitable or not and purposes. In this study, most of the teachers assumed that the wrongly adopted methodology can be mostly found in research results in Myanmar that make researchers upset. To tackle this problem, Myanmar university teachers or researchers should apply and follow the relevant research methodology and also give a series of lectures and practice to younger researchers for choosing appropriate methods or techniques in conducting researches. Likewise, the respondents show that the principles, applications and ways
of research ethics cannot be found in most Myanmar researches. To solve the problem, most of university teachers think that Myanmar researchers need to follow the proper ethical applications, approaches and principles in conducting research to ensure credibility.

Recommendations

Based on the findings of this study, the researchers recommend that some of the problems of research in Myanmar including creating an increased pool of well trained professionals, providing the resources needed, improving the relative status of researchers, making the availability of research material easier and strengthening the nation’s infrastructure can only be solved through time. To conduct more and more reliable, valid able and credible researches, university teachers in Myanmar should give a series of lecture on research ethics and methodology. Government should provide a lot of training on educational researches to juggle conducting researches, planning, organizing, implementing and evaluating workshops, seminars and conferences on university teachers. And then government and education department should modify university libraries by supporting authentic materials and cooperating with librarians in Myanmar. Apart from direct financial and technical support from the government and other cooperate organisations, there is a continuous need for international assistance through the provision of fellowships, field trips, visiting researchers and establishing facilities for research studies. This study only presents the challenges of educational research in Myanmar. Therefore, it would be sensible to do further research on the opportunities of conducting effective educational research.

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Challenges Postgraduate Students Encountered in Collecting Data of Educational Research: The Case of Myanmar

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Abstract

Educational research refers to the systematic collection and analysis of data related to the field of education. Research may involve a variety of methods and various aspects of education including student learning, teaching methods, teacher training, and classroom dynamics. The main purpose of this study was to investigate the challenges of conducting educational research in Myanmar and identify the major factors that hinder/enable teachers in conducting educational research. This research followed a mixed methods design where qualitative approaches, including interviews with teachers and questionnaire survey with students, dominated the overall research process. About 97\% of the questionnaires were properly filled and returned. In addition to this, interview, focus group discussion and document analysis were made to collect the necessary information. Results obtained were analyzed by using descriptive statistics and narratives. The issues encountered in this research work included recruiting intended participants, using survey questionnaires and difficulties in getting permission from key authorities. The study drew some conclusions from the findings. First, it concluded that although recruiting intended participants has been found highest percentage, no one set of challenges that research participants experienced in the conduct of their studies wholly impacted on the quality of their research projects. The three categories were mutually exclusive to each other. All the challenges were on the high side in terms of how they were experienced by undergraduate students who were undertaking research. Thus, to alleviate these problems, it was recommended that when implementing recruitment activities, researchers should continually evaluate their efforts and adapt their strategies to ensure they are maximizing the number of participants enrolled, while minimizing their individual time and workload burden. In this paper, some challenges that participants encountered in collecting data in Myanmar for Master's research. Researchers may find some context-specific information on challenges of doing educational research in such contexts and gain insights from this research.

Keywords: Challenges, Postgraduate Students, Collecting Data, Educational Research, Myanmar
Introduction

Educational researchers generally agree that research should be rigorous and systematic. However, there is less agreement about specific standards, criteria and research procedures. Educational researchers may draw upon a variety of disciplines.

Challenges encountered in collecting data of educational research

Challenge 1: Getting permission for collecting data (Source: Russell, Bebell, O’Dwyer & O’Connor, 2003)

Researchers require cooperation to conduct a solid and ethical study. Another important part of a research study is the informed consent process used to communicate information about the research to potential research subjects. Research participants can choose to cooperate with researchers by volunteering to participate in a study and share data. Many times, getting access to people or data for research can require soliciting cooperation from other individuals, associations, organizations, and / or government agencies before the researcher ever asks for consent from the human subjects. Permissions and approvals are used to communicate and verify the cooperation between an organization and the researcher. It is important for researchers to understand that obtaining the necessary permissions to conduct a study can be a time-consuming process. Also, it is important to recognize that organizations are not required to grant you access to their members or their data. Furthermore, at times organizational changes may occur, and prior permissions may be rescinded if a new administrator or leader determines that the organization will no longer cooperate with you on your study. Individuals, publishers, or organizations who own the copyright to an instrument the researchers intend to use for data collection must provide permission to use the existing survey or data collection tool. The permissions process also extends to any graphs, charts, models, figures, photos, or other supporting materials for literature review, data support, data results, or discussion sections. An organization that owns data the researcher would like to access for his research must also grant him permission to use their data. If the human subjects the researcher wants to gather data from are members of an organization, he is required to get permission from the organization before he can contact the potential subjects. If he wants to use a site to conduct an interview, he may need permission to use the site for research purposes. Sometimes those who fund research have a unique set of approvals and permissions. Many organizations, like government agencies, corrections facilities, social service agencies, and universities, have specific policies or committees that outline what research can be done within the organization and how to obtain permissions. He needs to check with those agencies, facilities, or organizations in advance to see if he needs to clear his research with those committees or policies.

Challenge 2: Recruiting intended participants (Yancey, Ortega, and Kumanyika, 2006)

Recruitment of participants into research studies is an essential part of the research process. No matter how creative, innovative, or potentially science-altering a research project may be, if researchers are unable to recruit participants into the study, the study is destined to fail and its potential impact on the field of science is lost. While all researchers face recruitment challenges, recruiting participants can be particularly difficult for junior investigators (i.e., graduate students, postdoctoral fellows, and early-career faculty) and faculty at universities due to limited monetary and personnel resources. Graduate students are commonly tasked with implementing...
small-scale research projects for their master’s thesis or doctoral dissertation. Likewise, junior-level faculty at universities is becoming increasingly required to conduct pilot studies to obtain preliminary data to support larger grant applications. Faculty members at teaching-based and/or arts and science universities face similar challenges, as their institutions frequently lack programs and the infrastructure to support both intramural and extramural grant applications.

Limited research has focused on recruitment strategies for researchers conducting small-scale pilot studies. Such research is important because small studies often have limited funding streams and personnel resources. Accordingly, many techniques implemented by large-scale studies are of limited use to smaller research projects. This article provides an overview effective participant recruitment techniques for pilot studies with limited funds and personnel resources. Recruitment techniques were derived from recruiting participants during Master's, doctoral and postdoctoral studies. Five key recruitment techniques are discussed:

(i) **Leverage Existing Social Networks and Personal Contacts**

   The social relationships and personal contacts of a researcher are key resources to leverage and enhance participant recruitment efforts. A researcher’s social contacts are not only a free resource to help with study marketing and recruitment, but in many instances, they are enthusiastic to help with recruitment.

(ii) **Identify and Foster Collaborations with Community Gatekeepers**

   Enlisting community gatekeepers to assist with recruitment is an ideal strategy to maximize the reach of recruitment efforts when funds and personnel resources are limited (Lovato *et al.*, 1997; Russell *et al.*, 2008). Gatekeepers are individuals who are well-respected, trusted, and often sought after for advice among members of their community and can have both formal and informal roles within a community (Russell *et al.*, 2008). Formal gatekeepers can be local religious leaders, politicians, and/or high-ranking members of a workplace, community, or social organization. Informal gatekeepers are individuals with no formal leadership roles within a community, but still have a large amount of influence, such as the elders in a neighborhood.

(iii) **Develop a Comprehensive List of Potential Recruitment Platforms and Venues**

   Creating a list of all potential recruitment channels is another strategy researcher can use to ensure they exhaust all available resources to recruit for their study. While this seems intuitive, we find that few researchers actually sit-down and take the time to develop a comprehensive list. Development of this list should begin during the early stages of planning a research project, as it allows time for the list to be modified and new potential recruitment platforms to be identified.
(iv) **Create Recruitment Materials that Clearly Describe the Purpose of the Study**

The visual appeal and information provided on study recruitment materials will have a direct impact on participant recruitment. For researchers with limited budgets, print-based recruitment fliers are ideal for recruitment efforts. Recruitment fliers can be developed by researchers at low-cost and can be distributed using both in-person (i.e., face-to-face distribution) and mediated (i.e., postings in public places, email distribution, website postings) recruitment efforts. Recruitment fliers will likely be potential participants’ first time to hear about and/or be introduced to the study.

(v) **Visual Appeal**

The visual appeal of recruitment materials is equally as important, if not more important, than the information included on the materials. Images and text used in recruitment materials should be aesthetically pleasing and easy for potential participants to read. Text should be in large, bold letters and in a font that is easy-to-read (i.e., Arial, Times New Roman). Calligraphy, overly embellished, and/or cursive fonts should be avoided, as these are often difficult to read. Incorporating images that help depict the purpose of the study can also be beneficial in drawing attention to recruitment materials.

**Challenge 3: Problems in using survey questionnaires (Source: Gul & Ali, 2010)**

A survey is a way of collecting information that researchers hope to represent the views of the whole community or group in which they are interested. There are three main ways of going about this:

(i) **Case study surveys**, which collect information from a part of a group or community, without trying to choose them for overall representation of the larger population. A researcher may need to conduct several of these before he get a sense of how the larger community would respond to his survey. Case study surveys only provide specific information about the community studied.

(ii) **Sampled surveys**, which are the type a researcher will be focusing on in this section, ask a sample portion of a group to answer your questions. If done well, the results for the sample will reflect the results researchers would have gotten by surveying the entire group.

(iii) **Census surveys**, in which a researcher gives his survey questionnaire to every member of the population he wantsto learn about. This will give him the most accurate information about the group, but it may not be very practical for large groups. A census is best done with smaller groups, for example, as opposed to all of the citizens of a city.

Surveys and questionnaires are an effective way to gather input and feedback from a large group of people, and they enable him to reach people from different backgrounds. After a researcher designs his questionnaire, he can administer it to participants in person, over the phone, through the mail or via the Internet. Offering an incentive such as a coupon or discount can be effective in generating interested takers. He explains to the potential takers how answering the questionnaire might help others. Since the respondents are concerned about those issues, they will likely want to help people in those situations. Be personable, polite and respectful at all times, and respondents will want to do their best. Questionnaires are a very useful tool in information-gathering bag of tools. It's a much cheaper alternative to other
types of information gathering and it allows getting information from many people across long distances without paying extremely high phone bills.

Method

The study examined challenges that graduate students face in conducting research in Myanmar Arts and Science Universities. The paper makes use of questionnaire survey and focus group discussions. Random sampling filled in the questionnaire while purposive sampling was employed for focus group discussion. A questionnaire survey was conducted in 14 different universities in Myanmar. A total of 172 postgraduate students participated in the study. Purposive sampling technique was used. Semi-structured questionnaire were used to collect data.

Table 1
Demographic characteristics of postgraduate participants

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Department</th>
<th>Participants</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Languages</td>
<td></td>
<td>31</td>
<td>56</td>
<td>87</td>
</tr>
<tr>
<td>6</td>
<td>Social Sciences</td>
<td></td>
<td>22</td>
<td>63</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>53</td>
<td>119</td>
<td>172</td>
</tr>
</tbody>
</table>

Only 53 of the participant individuals in the sample were male and 119 were female. The distribution of the individuals in the sample by department was 87 language students and 85 social science studies students.

Challenge 1: Getting permission for collecting data (20%)

The challenges 20% of the participants faced in this regard were the process maintained in the universities in Myanmar, gatekeepers’ concern about limited understanding on academic research interview with the teachers and focus group interviews with students in its purposes. To follow the required procedure of the education office, they prepared an application letter to the head of the office, a gatekeeper with the power to say ‘yes’ or ‘no’ to me. The application needed to be authorized by a responsible person, only 20% of the participants said that they had difficulties in finding the appropriate person for the authorization.

Challenge 2: Recruiting intended participants (Avg = 49%)

Same happened in recruiting students for focus group interviews. The participants wanted high-performing students to participate, whereas they could recruit students of different abilities and performances. They were worried that their weaknesses would be exposed if they selected underperforming teachers and students, and they might get into trouble with higher authorities.

Leverage existing social networks and personal contacts (63%)

The researchers can look to assist with recruitment include: work colleagues, friends, casual acquaintances, and family members. When approaching personal contacts to help with recruitment, 63% of the participants briefly describe the main purpose of the study and provide them with a study recruitment flier so they can quickly determine if they are able or willing to assist with recruitment efforts. For
personal contacts willing to help with recruitment, researchers should provide them with both paper and electronic versions of the study recruitment flier(s). Paper recruitment fliers can be used by social contacts to personally distribute to their friends, colleagues, family members, etc. and to post in visible areas at their workplace, church, and/or other social / organizational institutions in which they belong. Likewise, electronic recruitment fliers can be emailed to one’s social contacts, posted on social media accounts (i.e., Twitter, Facebook), and distributed via email.

**Identify and foster collaborations with community gatekeepers (59%)**

Recruiting community gatekeepers to assist with recruitment efforts is a valuable strategy for all types of research studies; however, this strategy may be particularly useful for studies focused on underserved or traditionally hard-to-reach populations (i.e., low-income, racial/ethnic minorities, older adults) (Crawford Shearer *et al*., 2010; Lovato *et al*., 1997). To identify gatekeepers within a specific community, 59% of the participants consult with their professional colleagues, local service organizations, and members of the community to identify the individuals who are highly respected, socially connected, and have influence on the opinions and behaviors of community.

**Develop a comprehensive list of potential recruitment platforms and venues (41%)**

Researchers should consult with their colleagues, friends, social networks, and community gatekeepers to identify potential recruitment platforms and consider both in-person (i.e., distributing recruitment fliers/recruiting face-to-face) and mediated (i.e., posted flyers, etc.) recruitment strategies. For in-person recruitment sites, “high traffic” areas for potential study participants are ideal. Example sites include: public libraries, community events (i.e., fairs, festivals), and churches. Social organizations are also excellent venues for researchers to consider, as most have pre-established communication channels to disseminate recruitment materials/information. For mediated or passive recruitment of participants, 41% of the participants identify frequently viewed and high traffic locations to post recruitment fliers. Example mediated recruitment platforms: community message / bulletin boards, newspapers, organizational / community / neighborhood email, social media platforms (i.e., Facebook, Twitter), crowd sourcing websites, and online forums.

**Create recruitment materials that clearly describe the purpose of the study (48%)**

Therefore, recruitment materials that clearly describe the purpose of the study (e.g., fliers) should be visually appealing, clearly and succinctly describe the purpose of the study, and include the contact information of the researcher and/or study staff. 48% of the participants briefly describe aspects researchers should consider when developing recruitment materials for a study.

**Visual appeal (34%)**

Moreover, including the logo of the institution which a researcher is affiliated can also help build credibility for the study, said 34% of the participants. When deciding on a color scheme, researchers should choose one with a light
background and bold colored font. This will draw the readers’ eyes to the text of the recruitment materials and allow them to quicker read the recruitment materials.

**Challenge 3: Problems in using survey questionnaires (31%)**

Questionnaires are popular and fundamental tools for acquiring information on public knowledge and perception of natural hazards. Questionnaires can provide valuable information for developing research procedures. Although many researchers describe results generated from questionnaires, few explain the techniques used for their development and implementation. Methodological detail should include, as a minimum, response format (open / closed questions), and mode of delivery, sampling technique, response rate and access to the questionnaire to allow reproduction of or comparison with similar studies. Key features include questionnaire design, delivery mode, sampling techniques and data analysis. Recommendations are made to overcome these problems before the questionnaires are applied in future research projects. In a review of methodological issues in research articles, it has been found by 31% of the participants that most studies using semi-structured questionnaires lacked specific information on question wording and phrasing.

**Results**

Educational research often depends on gaining access to either people or data. That means researchers need the cooperation of the gatekeepers to the data they want to access, or to the people they want to talk with before they can get to the stage of asking permission from the potential research participants themselves. And it is also important for the researchers to enhance participant recruitment. To do so, they have to create respectful and trusting relationships with potential study participants. Although survey questionnaires are the most popular and fundamental tools for acquiring information on public knowledge and perception of natural hazards, there may be different perception because of the people being questioned or differences in the framing of the questions posted. According to the results of the research, we identified the challenges.

**Challenge 1: Getting permission for collecting data**  (Avg =20%)

**Challenge 2: Recruiting intended participants**  (Avg = 49%)

**Challenge 3: Problems in using survey questionnaires**  (Avg =31%)
Figure 1: Challenges postgraduate students encountered in collecting data of educational research

It is shown in figure 1 above that the least portion of challenges can be found in challenge 1: Getting permission for collecting data, that is only 20%. And challenge 2: Recruiting intended participant is the highest one that the postgraduate students encounter challenges in collecting data. The percent is 49%. There are five key recruitment techniques and their challenges in percentage are as follow:

(i) Leverage existing social networks and personal contacts: (63%)
(ii) Identify and foster collaborations with community gatekeepers: (59%)
(iii) Develop a comprehensive list of potential recruitment platforms and venues: (41%)
(iv) Create recruitment materials that clearly describe the purpose of the study: (48%)
(v) Visual appeal: (34%)

Out of 172 postgraduate students, 31% of them are encountering challenge 3: problems in using survey questionnaires. In order to overcome these problems, researchers should provide enough detail on important methodological features such as response format, mode of delivery, sampling technique and response rate in peer reviewed research article. And researchers should also aware whether the questionnaires can easily be caught by the participants.

Discussion

In this research, challenges that postgraduate students encounter in collecting data are identified. Studying the percentage of Challenge 1, it exemplifies how the slow process common in Myanmar necessitates a huge amount of time and labour if one is to gain permission from gatekeepers. That means they may need to secure permission or approval from different organizations or bodies before the researchers go ahead with their studies. It further illustrates how a researcher from a university might encounter additional challenges in getting access to research information. As noted previously, in the data, research in education or other social science arenas is often conducted without much difficulties.

Challenge 2 in this research provides with strategies to recruit participants into small-scale research studies. The techniques discussed require minimal monetary
resources and can be done by individual researchers without the help of additional staff members. On the other hand, the techniques will require significant labor and time commitments from individual researchers. While this is not ideal, especially for junior faculty members, it is unavoidable for researchers with limited resources. When implementing recruitment activities, researchers should continually evaluate their efforts and adapt their strategies to ensure they are maximizing the number of participants enrolled, while minimizing their individual time and workload burden. This will require researchers to modify recruitment strategies if previous efforts are not resulting in increased participant enrollment. Likewise, not all study populations will respond similarly to specific recruitment techniques (Gul & Ali, 2010). A strategy that was successful with one population may not translate into success with another population. Formative research (either formal or informal) with members of the study population can help guide a researcher on best way to allocate their recruitment resources. The recruitment techniques discussed were heavily influenced from our research experience, which is based in the social and behavioral sciences. Therefore, we recognize that the techniques presented may be applicable to researchers conducting research. In summary, recruitment of participants into research studies is necessary for study success. The limited resources available for researchers conducting small-scale research studies can greatly impact their ability to successfully recruit participants into their trials. The tools and techniques discussed in the current article provide a “starting point” for health promotion researchers to use when recruiting participants into their small-scale research studies.

Challenge 3, might be – Myanmar’s examination-driven education system. In Myanmar, the success of teachers and universities is measured by students’ results in the exams. As the university exams mostly demand memorization and recall of the content from the textbooks, and only ‘correct’ answers are valued, the power of exams reinforces teachers to encourage students in rote-learning and providing ‘correct’ answers, rather than developing and expressing their own ideas. Participating teachers, products from such examination-driven environment, showed tendency to provide answers in socially desirable ways. This also provided with a feeling that a clearly written statement of the purpose of research may sometimes not be able to communicate to the research participants their role in the research process; rather a verbal communication may be necessary. Whilst it was not sure if verbal communication with the participants was sufficient to address the issue, we felt that it would increase the possibility of getting their own authentic views rather than ‘fabricated’ views.

**Recommendations**

The aim of this research is to understand the challenges that can be encountered in doing educational research for both supervisors and students. This study’s major recommendations are to face the challenges of data collecting period, the core of a research. To get the specific data, the researchers should acquire soliciting cooperation from other individuals, organizations and government agencies. To be in touch with intended participants and collaborating with gatekeepers is also effective in collecting data. It is important to make sure case study surveys and sample census surveys of a community or group represents the entire group of people. The first and foremost challenge for doing research is collecting data for most of the
researchers. Researchers have to challenge this to be able to do many more innovative researches.

References


Sarkar Challenges in Conducting Educational Research


English Language Teachers’ Perceptions on Employing Critical Thinking Skills in Their Teaching: Higher Education Institutions of Myanmar

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Abstract

The concept of critical thinking was featured in taxonomies a few decades ago. Critical thinking is a complex process that requires higher levels of cognitive skills in the processing of information. The teachers' perceptions of critical thinking influence their behaviors in the classroom. This research addresses the need to ensure that higher education is suitably adapted to equip students with effective skills, which are regarded key requirements for a successful professional career in the 21st century, and draws attention to the importance of these skills. In more detail, it reports on the result of a study conducted across higher education providers in Myanmar that focused on teachers’ critical thinking skills’ conceptual knowledge and understanding; their perception of critical thinking in relation to the English language classroom; and the teaching and professional development of critical thinking. Findings reveal that teachers perceive the importance of employing critical thinking skills in their teaching, yet they lack support in their implementation. Both at an institutional level and in terms of professional development, there is scope for improving how critical thinking is incorporated in English language classrooms, instructional approaches and teaching materials.

Keywords: critical thinking skills, higher education institutions, English language teachers, perceptions

Introduction

Critical thinking was first highlighted by Benjamin Bloom's taxonomy a few decades ago (Duron, Limbach, & Waugh, 2006; Lauer, 2005). It was perceived that a higher level of cognitive ability involving critical thinking was a feature in the analysis, synthesis, and evaluation levels while lower levels of cognitive ability that is knowledge, comprehension, and application only involved remembering, relating and applying information respectively (Duron et al. 2006). According to Paul and Elder (2000), the essential traits of a critical thinker require an extended period of development, and the role of higher education in this endeavor is significant. Acknowledging the given importance of English as the language for employable criteria (Livingston, 2012), the study was designed to answer the question about how critical thinking and problem-solving skills are taught and what approaches, strategies and techniques are used by the English language teachers.
1.1 Critical Thinking and Language Teaching Methodologies and Approaches

Undoubtedly, critical thinking is one of the most important tools of inquiry and resources in one's personal and civic life. The development of critical thinking skills among learners is among common educational goals across a variety of educational contexts and subject areas. This educational goal gives special importance and value to the process of learning and the critical role of teaching (Bondarevskaia, 2001). According to Facione (1990), the “ideal critical thinker is habitually inquisitive, well-informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider, clear about issues, orderly in complex matters, diligent in seeking relevant information, reasonable in the selection of criteria, focused in inquiry, and persistent in seeking results which are as precise as the subject and the circumstances of inquiry permit”. However, the question has always been about how to develop this ideal individual with the intellectual roots of critical thinking being traceable in the teaching practice and vision of Socrates 2,500 years ago (A brief history, n.d.). This question has not lost its significance today. Moreover, in various local educational contexts it may take on different shapes, integrate broader scientific knowledge and so many disciplines (e.g. philosophical base, psychological knowledge, etc.), culturally specific educational and practice-based research traditions, and individual scientific endeavors. Therefore, every research endeavor that contributes to the process of education that creates conditions and situations for critical thinking development is crucial for the growth of global knowledge, pedagogy and education. In their article Rosefsky and Opfer (2012) discuss the higher-order thinking skills which they believe students ought to be learning in the 21st century. The authors offer nine steps to increase students’ learning outcomes regarding various thinking skills including critical thinking. Topics include the use of educational technology, the practice of making curriculum contextually relevant to students' lives, as well as the encouragement of learning transfer in which students can transfer their skills and knowledge to different environments. First of all, Rosefsky and Opfer (2012) believe that teachers should make curriculum relevant to students' lives. Rosefsky and Opfer (2012) stress the importance of thinking skills and simultaneous development of lower and higher order thinking skills. Encouragement of learning transfer is considered. According to Rosefsky and Opfer (2012), “students must apply the skills and knowledge they gain in one discipline to another and what they learn in school to other areas of their lives”, and English language teaching and learning are not an exception.

A number of English language educators and linguists have investigated the relationship between language acquisition and cognitive development. One of the areas which has been explored is the language teaching approaches and their role in promoting students’ critical thinking skills. Alagozlu (2007) argues that “since the traditional instructional process urges the students to receive ready-made information without questioning, students are not encouraged to think critically, which is probably transferred into ELT classes as well”. However, other approaches like the content-based approach are considered as an effective technique to develop students’ critical thinking skills while teaching them language skills (Stoller, 1997). According to Stoller (1997), it is believed that a content-based language teaching approach is the effective way of teaching higher order thinking skills due to the of infusion of
language in teaching all the subject matters and the close connections between the oral and written language and thinking.

Both content-based instruction and critical thinking activities are intrinsically motivating (Lightbown, 1985). Using a content-based approach brings different and interesting topics from different subject matters into the ESL/EFL classroom. Brown (2007) states that “content-based classrooms have the potential of increasing intrinsic motivation and empowerment, since students are focused on subject matter that is important to their lives, their own competence and autonomy as intelligent individuals are capable of actually doing something with their new language”. Similarly, improving students’ critical thinking skills motivates them “because it appeals to our innate desire for self-improvement” (Crocker & Bowden, 2010). Also, Brinton, Snow and Wesche (1989) argue that content-based activities provide teachers with opportunities to stimulate students to think through using the target language. Crocker and Bowden (2010) propose using a content-based approach as a way of merging the notional-functional approach and critical thinking in a language course. Both, notional-functional approach and critical thinking subject share similar learning outcomes. According to Crocker and Bowden (2010), “self-correction, clarifying ideas, making distinctions, giving reasons, formulating appropriate questions, making connections and comparing” are examples of learning outcomes which can be found in either discipline. The only difference is that in critical thinking the students are expected to improve their cognitive skills, whereas the notional-functional approach aims to improve students' ability “to express or articulate these cognitive skills” (Crocker & Bowden, 2010). Hence, combining the two disciplines through a content-based program places more emphasis on critical thinking in the language classrooms. Such an approach allows a direct instruction on critical thinking skills while achieving the intended notional-functional learning outcomes.

Learning strategy instruction is also considered as an effective approach to teach critical thinking skills in the English language classroom. Language teachers can promote their students’ critical thinking through teaching them some learning strategies. In doing so, students can develop their metacognitive awareness. Teachers can encourage students to describe and share their own learning techniques and strategies. According to Reid (2000), the best way to develop students’ metacognitive skills is by making them consciously aware of the learning strategies they use when attempting different tasks. Thus, explicit instruction on learning strategies is needed. Chamot & O’Malley (1996) suggests a framework for building a community of thinkers in the language classroom. This framework consists of five kinds of instruction to help students demonstrate and improve their thinking:

(i) Recognizing and building on students' prior of knowledge
(ii) Providing meaningful learning tasks
(iii) Engaging in interactive teaching and learning
(iv) Focusing on learning processes and strategies
(v) Helping students to evaluate their own thinking

Kabilan (2000) emphasizes the importance of incorporating critical thinking in the second language classroom. He argues that the communicative approach, which places emphasis on using the language rather than learning about the language, does not really prepare students to be proficient in the target language. He strongly believes
that learners should be able to employ creative and critical thinking when using the language. Only then can learners become proficient language users. As Lipman (2003) points out, it is teachers’ responsibility to promote their students’ critical thinking. Teachers should change their attitudes towards their students, pedagogy and themselves as teachers. They should respect learners’ individuality, listen to their opinions and build mutual relationships with them. In addition, he proposes engaging learners in problem-solving situations and decision-making processes. More importantly, teachers need to act as facilitators and guides and lead their students to be critical thinkers. Therefore, students are not given opportunities to develop their metacognitive awareness when they engage in the communicative tasks.

Research Objectives

The aim of this research is to report on teachers' perceptions into how critical thinking skills necessary for the 21st century are currently integrated in teaching of higher education institutions. The objectives of this research are:

1.1 to investigate teachers' critical thinking skills,
1.2 to reveal teachers’ knowledge and understanding, views and perception of critical thinking in relation to the English language classroom and
1.3 to find out the teaching and professional development of critical thinking.

Research Methodology

English language teachers’ perceptions toward critical thinking skills and its use in the classroom were investigated using a quantitative approach. The data were used to explore the effectiveness of explicit and implicit training of critical thinking within higher education institutions in Myanmar. The study was conducted in higher education institutions in different regions and states of Myanmar, including MUDE, SG, Monywa University, YUDE, MUFL, YUFL, YUOE, West YU, and SUOE. The study was designed to take interpretative approach that employed meaning-based forms of data analysis and relied on linguistic data (Elliott & Timulak, 2005). Klein and Myers (1999) explain that interpretative approach is based on an assumption that “our knowledge of reality is gained only through social constructions such as language, consciousness, shared meanings, documents, tools, and other artifacts”. In Al-Riyami’s (2015) view, the use of interpretive approach makes it possible to conduct a study in its natural setting”. Plummer (2001) points out that in life histories, obtaining relevant information can be accomplished by chance, luck and being pragmatic. Bogdan (1992) suggest purposeful sampling. In our study, the data was obtained from the sampling of English language teachers at higher education institutions. Only teachers who had experience of teaching in either foundation or credit-bearing English courses offered by these institutions were invited. Such an approach to study allowed exploring personal histories and experiences in a specific context of tertiary education level institutions.

3.1. Participants

The study covered a sample of 114 teachers from different higher education institutions in Myanmar. The gender was covered almost equally at 61% female and 39% male. Age groupings are as follows: 21% from 25-35 years, 46% aged from 36-50 years and 33% aged over 50 years. 100% teachers had a master's degree and 11% had doctoral degrees. Almost all the respondents, (99%) specialized
in English as a foreign language. There were 34% of the respondents who had more than 20 years' experience in teaching, and over half, (66%), had less than 10 years of experience in Myanmar. In addition, 62% were teaching on bachelor degree programs while 38% were teaching at the master's level.

3.2. Instrument

The instrument was a questionnaire both in paper and online to investigate language teachers' responses to the concept of critical thinking and its use in the classroom. The questionnaire consisted of four sections: teacher critical thinking skills' knowledge and understanding; teachers' views and perceptions of critical thinking and the English language classroom; critical thinking skills teaching and teacher professional development; and a section relating to the participants' demographic details. The questionnaire included definitions of critical thinking for participants to choose; a section to write their personal definition of critical thinking; ranking of one to ten in relation to the importance of words associated with critical thinking and problem solving; yes / no / not sure responses in relation to the English language classroom and professional development; Likert-type 5-point scale ranging from very adequate to not present regarding the emphasis of critical thinking in the institution they were teaching in and with regard to effective methods of teaching critical thinking in the English classroom; a ranking of skills related to critical thinking in each of the core English skills: reading, writing, speaking and listening; choosing items from a list as the most important in developing critical thinking skills in students; and demographic information.

The statements in the questionnaire were based on the most common contributory factors to the state of critical thinking teaching in higher education in the literature detailed in Paul (2004). In Paul's (2004) view, most college faculty at all levels “lack a substantive concept of critical thinking, believe that they sufficiently understand it, and assume they are already teaching students it”. Paul (2004) explains that “when faculty have a vague notion of critical thinking, or reduce it to a single-discipline model (as in teaching critical thinking through a “logic” or a “study skills” paradigm), it impedes their ability to identify ineffective, or develop more effective, teaching practices”.

3.3 Procedure

Categorical data are presented as frequencies and percentages which enable large amounts of data to be simplified, and mean was used to measure the center of a numerical data set in analyzing important words associated with critical thinking.

Results

Critical thinking skills are important to prepare students to face technological changes that are so fast to anticipate the decline of thinking in the digital world. The application of critical thinking through a framework that requires commitment to active learning, student-centered, although initially learning is less desirable and inconvenient between students and teachers. Critical thinking is a general term given to the various cognitive skills and intellectual dispositions needed to identify, analyze and evaluate arguments and truths and to find and overcome personal prejudices and irregularities in formulating and providing compelling
reasons to support conclusions and make reasonable decisions and smart about what to believe and what to do.

4.1. Teachers’ knowledge and understanding of critical thinking skills

This section refers to teachers’ knowledge and understanding of critical thinking skills and reports words which the participants associated with critical thinking in relation to teaching and learning.

There were 114 participants, 62% aligning critical thinking with making a judgment, whereas 25% relate the skill to thinking and 13% see it as a habit that is developed. This illustrates that the majority of respondents consider critical thinking as requiring a position of evaluation in order to make a judgment. According to them, critical thinking requires informed judgment from the reader, listener, viewer or thinker by linking their cognitive skill with the disposition to employ this skill, meaning that the cognitive aspect alone is not enough. Critical thinking involves both the disposition to engage in its use and the ability to employ it. There were many words associated with critical thinking in teaching and learning. Participants were asked to prioritize the following words: collaboration, innovation, technology, culture, community engaged, interaction, communication, autonomous learning and reflection, as they perceive their relevance to critical thinking and problem solving.

Table 1

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Word</th>
<th>Frequency (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Technology</td>
<td>52.61%</td>
</tr>
<tr>
<td>2</td>
<td>Community engaged</td>
<td>50.99%</td>
</tr>
<tr>
<td>3</td>
<td>Culture</td>
<td>47.04%</td>
</tr>
<tr>
<td>4</td>
<td>Collaboration</td>
<td>43.63%</td>
</tr>
<tr>
<td>5</td>
<td>Innovation</td>
<td>38.55%</td>
</tr>
<tr>
<td>6</td>
<td>Interaction</td>
<td>38.48%</td>
</tr>
<tr>
<td>7</td>
<td>Reflection</td>
<td>37.52%</td>
</tr>
<tr>
<td>8</td>
<td>Autonomous learning</td>
<td>35.50%</td>
</tr>
</tbody>
</table>


4.2. Teachers’ perceptions: critical thinking skills and the English language teaching

This section focuses on teachers’ perceptions about promoting and integrating critical thinking skills in the English language classroom. The majority of respondents (84.18%) agree that critical thinking should be a consideration in English language teaching and that it is beneficial for students (94.43%). On the other hand, roughly two thirds (67.00%) see it as a priority while less than half refer to critical thinking explicitly in their lesson plans (41.63%). Teachers evaluated how adequately their institution promoted critical thinking mostly as “somewhat adequate”. This
'fence-sitting' option may be most chosen because participants are not fully confident with how critical thinking is addressed within the academic categories stated. While most categories follow a similar response pattern, how critical thinking is addressed 'out of class' indicates a different spread indicating that this area is not dealt with within institutions.

Table 2
Participants’ perceptions about promoting critical thinking in teaching reading

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Teaching activities</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Analyzing</td>
<td>83.95%</td>
</tr>
<tr>
<td>2</td>
<td>Making inferences from text</td>
<td>78.70%</td>
</tr>
<tr>
<td>3</td>
<td>Evaluating</td>
<td>73.14%</td>
</tr>
<tr>
<td>4</td>
<td>Reflecting</td>
<td>68.25%</td>
</tr>
<tr>
<td>5</td>
<td>Distinguishing facts from opinions</td>
<td>63.68%</td>
</tr>
<tr>
<td>6</td>
<td>Linking ideas to wider field</td>
<td>60.11%</td>
</tr>
<tr>
<td>7</td>
<td>Recognizing bias</td>
<td>54.53%</td>
</tr>
<tr>
<td>8</td>
<td>Identifying main ideas and details</td>
<td>43.74%</td>
</tr>
<tr>
<td>9</td>
<td>Learning new vocabulary</td>
<td>28.30%</td>
</tr>
<tr>
<td>10</td>
<td>Reading aloud</td>
<td>8.00%</td>
</tr>
</tbody>
</table>

The respondents' choices from a list of options including skills and activities are reflected that they consider as highly promoting critical thinking in a particular sub-skill. Table 2, for example, shows teachers' perceptions of activities that promote critical thinking in teaching reading in the English language classroom. 83.95% of the respondents highly recommend 'analyzing'. 'Making interfaces from the text' and 'evaluating' are also reflected as effective ways for promoting critical thinking in reading at 78.70%, 73.14% respectively. These relate to higher order thinking skills in Bloom's Taxonomy. On the other hand, 'reading aloud' is shown as the lowest effective way to promote critical thinking in teaching reading in the English language classroom (8.00%). In determining ways that teachers consider as promoting critical thinking in teaching writing in the English language classroom, Table 3 shows that the majority of the teachers (77.34%) highly considered 'writing analytical essays' as the most effective, while 75.21% said that 'evaluating evidence' is important. In contrast, (13.86%) evaluated 'learning spelling' as the least effective way to promote critical thinking in teaching writing in their classroom.
Table 3
Teachers’ perceptions on promoting critical thinking in teaching writing

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Teaching activities</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Writing analytical essay</td>
<td>77.34%</td>
</tr>
<tr>
<td>2</td>
<td>Evaluating evidence</td>
<td>75.21%</td>
</tr>
<tr>
<td>3</td>
<td>Reflective journal writing</td>
<td>62.14%</td>
</tr>
<tr>
<td>4</td>
<td>Writing Compare and contrast essays</td>
<td>59.28%</td>
</tr>
<tr>
<td>5</td>
<td>Responding to comments on forums</td>
<td>53.55%</td>
</tr>
<tr>
<td>6</td>
<td>Summarizing</td>
<td>51.10%</td>
</tr>
<tr>
<td>7</td>
<td>Paraphrasing</td>
<td>48.94%</td>
</tr>
<tr>
<td>8</td>
<td>Sequencing sections of a text</td>
<td>33.79%</td>
</tr>
<tr>
<td>9</td>
<td>Note taking</td>
<td>28.72%</td>
</tr>
<tr>
<td>10</td>
<td>Learning new vocabulary</td>
<td>19.91%</td>
</tr>
<tr>
<td>11</td>
<td>Learning spelling</td>
<td>13.86%</td>
</tr>
</tbody>
</table>

Table 4 highlights 'justifying an opinion', 'engaging in debates' and 'reflective interactions' (80.41%, 77.90% and 71.74% respectively) as the most effective ways of promoting critical thinking in teaching speaking in English language classroom. On the other hand, (4.78%) of respondents indicated that ‘reciting a memorized passage’ activity is viewed as the least effective.

Table 4
Respondents towards promoting critical thinking in teaching speaking

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Teaching activities</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Justifying an opinion</td>
<td>80.41%</td>
</tr>
<tr>
<td>2</td>
<td>Engaging in debates</td>
<td>77.90%</td>
</tr>
<tr>
<td>3</td>
<td>Reflective interactions</td>
<td>71.74%</td>
</tr>
<tr>
<td>4</td>
<td>Class discussions</td>
<td>65.62%</td>
</tr>
<tr>
<td>5</td>
<td>Persuading others</td>
<td>62.35%</td>
</tr>
<tr>
<td>6</td>
<td>Constructing &amp; asking questions</td>
<td>54.72%</td>
</tr>
<tr>
<td>7</td>
<td>Answering questions</td>
<td>38.46%</td>
</tr>
<tr>
<td>8</td>
<td>Oral Presentation</td>
<td>35.58%</td>
</tr>
<tr>
<td>9</td>
<td>Reporting</td>
<td>25.01%</td>
</tr>
<tr>
<td>10</td>
<td>Learning new vocabulary</td>
<td>18.85%</td>
</tr>
<tr>
<td>11</td>
<td>Reciting a memorized passage</td>
<td>4.78%</td>
</tr>
</tbody>
</table>

Table 5 refers to teachers' perceptions of ways to promote critical thinking skills in listening in the English language classroom. 75.97% of respondents chose 'evaluating the creditability of an argument or opinion' and 72.30% respectively chose 'evaluating' as the most effective methods. Six of the listed options rate over 50%. Activities such as 'gap-fill exercises' and 'gaining literal meaning' ranked at less than 30%; both activities would be considered lower order skills. Surprisingly, 'note-taking skills' records 24.86%, while this may appear to be a mechanical task, it could be argued that a degree of judgment is necessary in evaluating which information is relevant when summarizing or paraphrasing.
Table 5
Teachers’ perceptions of ways to promoting critical thinking in teaching listening

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Teaching activities</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Evaluating the credibility of an argument/opinion</td>
<td>75.97%</td>
</tr>
<tr>
<td>2</td>
<td>Evaluating</td>
<td>72.30%</td>
</tr>
<tr>
<td>3</td>
<td>Having an understanding of bias / subjectivity</td>
<td>67.26%</td>
</tr>
<tr>
<td>4</td>
<td>Comprehending connoted meaning (unstated)</td>
<td>66.14%</td>
</tr>
<tr>
<td>5</td>
<td>Reflecting</td>
<td>60.93%</td>
</tr>
<tr>
<td>6</td>
<td>Identifying an opinion</td>
<td>55.10%</td>
</tr>
<tr>
<td>7</td>
<td>Summarizing</td>
<td>42.36%</td>
</tr>
<tr>
<td>8</td>
<td>Identifying main ideas and details</td>
<td>40.58%</td>
</tr>
<tr>
<td>9</td>
<td>Comprehending denoted meaning (literal)</td>
<td>29.90%</td>
</tr>
<tr>
<td>10</td>
<td>Note taking</td>
<td>24.86%</td>
</tr>
<tr>
<td>11</td>
<td>Gap fill completion</td>
<td>20.4%</td>
</tr>
</tbody>
</table>

The results related to teachers’ perceptions of the activities aimed at developing students’ critical thinking skills, clearly demonstrate that this should be done in an integrated context, rather than in separate skills. This corresponds with the study by Comley (1989) that suggests that critical thinking can be fostered by the interrelationship of reading, writing and discussion.

While ‘exploring concepts’ activity ranked highest at 53.3% in ways to develop critical thinking in students, the next five in ranking relate to ‘individual projects’ (51.00%), ‘group projects’ (21.11%) and ‘team work’ (46.53%), ‘engaging in educational trips’ (42.09%) and ‘making links to other fields of study’ (55.08%). This sense of valuing collaboration is reported as a skill necessary for preparing students for the 21st century.

4.3. Teaching critical thinking skills and teacher professional development

This section reports how confident teachers feel about promoting critical thinking in their teaching and feel about linking content coverage to teaching critical thinking in English language classrooms. It also reports on teachers' experiences with professional development in teaching critical thinking.

The initial question relating to how teachers feel about promoting critical thinking in their English language teaching shows 49% are confident, 26% were not and 25% were not sure. Similar to their peers worldwide, most of the teachers who participated in this study are also of the opinion that critical thinking and problem solving are essential 21st century competencies. The second item again asked teachers about their confidence in teaching critical thinking, but this question was in relation to how they are able to link it with content covered in the English class. The results, while similar, show a greater percentage of uncertainty with 26%, 48% feeling confident, 11% not confident and 15% feeling not sure. The third item asked teachers whether they had had professional development in critical thinking. There, 38% reported that they had, and 62% indicated that they had had no professional development in this area. These results indicate a need for a nation-wide program of
professional development to assist teachers in developing confidence and skills necessary to prepare and train students in this skill for the 21st century.

![Figure 1: Teachers’ respondents to professional development in critical thinking](image)

The results demonstrate teachers’ perceptions of the importance of critical thinking, yet the result that they have had no professional development in this area supports the need for exposing this deficit with an end to providing resources in this field.

Following on, participants were asked about the methods they would choose to effectively integrate and promote critical thinking in the English classroom. According to teachers, practical ideas (29%), examples (19%) and workshops (52%) are more beneficial indicating that teachers prefer collaboration of ideas.

**Discussions**

This study aims to explore English language teachers’ perceptions on employing critical thinking skills in their teaching at universities in Myanmar. Student's critical thinking ability can be optimized through the steps that are determining the purpose of learning, experiments before drawing conclusions, providing feedback and assessment of learning, so that critical thinking skills and student learning outcomes can be improved. According to the data, it has been found that teachers perceive they are teaching critical thinking to their students and believe that critical thinking will provide the intellectual stimuli that will facilitate critical thinking. The evidence of critical thinking was perceived to be their ability to explain ideas and concepts in their own words. However, the ability to think logically and solve problems using new approaches paraphrase is not an indication of the students' higher-level cognitive skills but the process the student undertakes to gain understanding of the material presented. Some participants did not seem to understand the requirements needed to cultivate critical thinking among students. Although teachers perceive that they are encouraging critical thinking in the classroom, they are merely focusing on the comprehension of the subject matter. One of the ongoing debates in education research is whether students can learn to think critically through their own exploration or whether they need to be formally taught the skill as part of the curriculum. Sternberg and Williams (2002) noted that students may not need to be taught critical thinking as thinking is a natural process carried by everyone. But Duron, Limbach and Waugh (2006) argued that thinking is a natural process, but when left to it, can often be biased, distorted, partial, uninformed and potentially prejudiced; excellence in thought must be cultivated. Black (2005) also found that students are able to improve their thinking skills if they were taught how to think. Furthermore, Nickerson (1994) noted that students need to be taught how to think more effectively, that is more critically, coherently, and creatively. For example, teachers could provide students with the criteria for judging information and taught.
the terms and strategies used for critical thinking (Black, 2005). Therefore, although students have a natural ability to think critically, it is important for teachers to guide them in order to refine their skills.

**Recommendations**

Based on the findings of this study, the researchers recommend that English teachers should provide students with a criterion for judging information and should teach strategies and approaches to improve critical thinking skill and employ in their English classrooms. After investigating English teachers’ perceptions on critical thinking, some recommendations can be rendered. First of all, Myanmar English teachers put teaching critical thinking strategies integrated with context explicitly in their lesson plans. Secondly, education department should modify suitable methods and structure of syllabus that teachers choose to effectively integrate and promote critical thinking in English classrooms. Finally, government should provide resources for this field, workshops, seminars and nation-wide program of professional development to support teachers in improving confidence and skills necessary to practice students in critical thinking skill for 21st century learning styles. Supporting in-service training and capacity building programmes for this skill, English teachers can sufficiently enhance knowledge and understanding of the concept of critical thinking and employ it in English classrooms across Myanmar.

**References**


The Role of Teaching Experience on Teachers’ Perceptions of Language Assessment at Universities in Myanmar

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Abstract

Assessment is the process of gathering data. More specifically, assessment is the ways instructors gather data about their teaching and their students’ learning (Hanna & Dettmer, 2004). For assessment to have an impact on student achievement, teachers need to see assessment as an integral part of the instructional process rather than as an evaluation device to determine students’ grades. The present research aimed at exploring how language teachers conceive language assessment and whether these conceptions differ according to teaching experience. Accordingly, language teachers with different years of teaching experience were asked to describe ‘language assessment’ using a metaphor. Metaphors obtained from the written descriptions of the participants were analyzed and separated by themes. The conceptions that were revealed were then compared and contrasted to see whether experience plays a role in the beliefs of language teachers regarding language assessment.

Keywords: Metaphor analysis, themes, language assessment, teachers’ conceptions

Introduction

Assessment is an integral part of the instructional process. It establishes where learners are at present and what level they have achieved; it gives learners feedback on their learning; it diagnoses learners’ needs for further development; and it enables the planning of curricula, materials, and activities (Alderson, 2005). The importance of the teachers’ role in assessment is inevitable as they are the core of this process: making decisions about the process of the lessons, determining the strengths and weaknesses of alternatives available to them, making selections on their experience and making judgments about their learners’ progress (Rea-Dickins, 2004). Research shows that teachers’ conceptions of assessment affect their teaching and assessment practices (Black & Wiliam, 1994; Leung, 2004; Pajares, 1992; Shohamy, 2004; Brown, 2011). Then it is important to understand how the teachers perceive of assessment. The purpose of this study is to explore how language teachers conceive of assessment. Accordingly, following questions were asked: (1) How do teachers perceive language assessment? (2) Is there any difference among the conceptions of less experienced and more experienced teachers regarding assessment?
Assessment as a formative tool

Formative assessment provides feedback and information during the instructional process, while learning is taking place, and while learning is occurring. Formative assessment measures student progress but it can also assess the teacher's own progress as an instructor. For example, when implementing a new activity in class, the teacher can, through observation and/or surveying the students, determine whether or not the activity should be used again (or modified). A primary focus of formative assessment is to identify areas that may need improvement. These assessments typically are not graded and act as a gauge to students’ learning progress and to determine teaching effectiveness (implementing appropriate methods and activities). In another example, at the end of the semester, the teacher can informally ask students questions which might be on a future exam to see if they truly understand the material. An exciting and efficient way to survey students’ grasp of knowledge is through the use of clickers. Clickers are interactive devices which can be used to assess students’ current knowledge on specific content. For example, after polling students the teacher may need to go back and review that material or present it in such a way to make it more understandable to the students. This formative assessment has allowed the teacher to “rethink” and then “redeliver” that material to ensure students are on track. It is good practice to incorporate this type of assessment to “test” students’ knowledge before expecting all of them to do well on an examination.

Types of Formative Assessment

- Observations during in-class activities; of students non-verbal feedback during lecture
- Homework exercises as review for exams and class discussions
- Reflections journals that are reviewed periodically during the semester
- Question and answer sessions, both formal — planned and informal — spontaneous
- Conferences between the instructor and student at various points in the semester
- In-class activities where students informally present their results
- Student feedback collected by periodically answering specific question about the instruction and their self-evaluation of performance and progress

Assessment as a summative tool

Summative assessment takes place after the learning has been completed and provides information and feedback that sums up the teaching and learning process. Typically, no more formal learning is taking place at this stage, other than incidental learning which might take place through the completion of projects and assignments. Rubrics, often developed around a set of standards or expectations, can be used for summative assessment. Rubrics can be given to students before they begin working on a particular project so they know what is expected of them (precisely what they have to do) for each of the criteria. Rubrics also can help the teacher to be more objective when deriving a final, summative grade by following the same criteria students used to complete the project. High-stakes summative assessments typically are given to students at the end of a set point during or at the end of the semester to assess what has been learned and how well it was learned. Grades are usually an
outcome of summative assessment: they indicate whether the student has an acceptable level of knowledge-gain. Summative assessment is more product-oriented and assesses the final product, whereas formative assessment focuses on the process toward completing the product. Once the project is completed, no further revisions can be made. If, however, students are allowed to make revisions, the assessment becomes formative, where students can take advantage of the opportunity to improve.

**Types of Summative Assessment**
- Examinations (major, high-stakes exams)
- Final examination (a truly summative assessment)
- Term papers (drafts submitted throughout the semester would be a formative assessment)
- Projects (project phases submitted at various completion points could be formatively assessed)
- Portfolios (could also be assessed during it’s development as a formative assessment)
- Performances
- Student evaluation of the course (teaching effectiveness)
- Instructor self-evaluation

**Assessment as Something Agitation**
Agitation is inappropriate verbal, vocal, or motor activity, which is common among older persons with dementia. Its assessment is complicated both by communication difficulties and by the complexity of the manifested behaviors. Three general approaches are used to assess agitation: informant ratings, observational methods, and technological devices. Within each category, several assessment instruments exist. The approaches differ as to time sampling, objectivity, and cost. Assessment of agitation in pharmacological studies should include consideration of the specific meaning to the agitated behavior for the older person and for the caregiver, along with an evaluation of the consequences of the behavior. At times, the agitated behavior seems to signal a specific need, and alternative methods for fulfilling that need should be considered. Evaluation studies of pharmacologic agents should include consideration of the impact of these agents on non-target behaviors, as well as an awareness of the large intraperson and interperson variability in agitated behaviors.

**Assessment as a sign of self-efficacy**
Perceived self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self-efficacy beliefs determine how people feel, think, motivate themselves and behave. Such beliefs produce these diverse effects through four major processes. They include cognitive, motivational, affective and selection processes. A strong sense of efficacy enhances human accomplishment and personal well-being in many ways. They attribute failure to insufficient effort or deficient knowledge and skills which are acquirable. When faced with difficult tasks, they dwell on their personal deficiencies, on the obstacles they will encounter, and all kinds of adverse outcomes rather than concentrate on how to perform successfully.

**Metaphors for Assessment**
Everyone agrees that assessment is integral to education, but discussion about how to improve it is prone to contention and people talking past one another.
People who may be quite knowledgeable in their own areas of expertise draw mainly on their personal experience as students with familiar kinds of assessments (Braun & Mislevy, 2005). This intuitive frame suits familiar contexts, but it falls short for discussing assessment policy or for thinking about different kinds and contexts for future assessments. The goal in this research is to provide metaphors for understanding assessment. Each offers a set of concepts, relationships, processes, and actors for thinking about real-world situations. Applying their perspectives to assessment systems brings out assumptions and implications we might have otherwise missed. The four metaphors are these:

- Assessment as a formative tool
- Assessment as a summative tool
- Assessment as something agitating
- Assessment as a sign of self-efficacy

**Objectives of the Study**

1. To investigate the teachers’ conceptions of assessment.
2. To investigate the differences, if any, in teachers’ conceptions of assessment according to their years of teaching experience.

**Research Methodology**

The participants of this study include 138 English teachers at selected universities. Teachers were currently working at English departments, 68 had less than 10 years of teaching experience and 70 had more than 10 years. In order to reveal the participants’ conceptualization for language assessment, the teachers were asked to complete the sentence “A language assessment is like…” using a metaphor and giving a reason for their choice. The following stages were followed to analyze the data obtained from the participants: sorting the metaphors, developing themes, and validating. In the coding and sorting stage, the metaphors with their entailments were alphabetically listed and the ones that did not qualify as metaphors were omitted. In the second stage, the entailments from elicited metaphors were explicated and emerging themes were categorized under 4 main themes. To determine the validity of these categories, the themes and the categories were discussed with two university professors who have experiences in language assessment. In view of these discussions the themes that were close in their entailments were confirmed in grouping into four larger categories. As a final step, the metaphors obtained from the teachers with less than 10 years of teaching experience, and the teachers with more than 10 years of teaching experience were sorted. A total of 77 metaphors were identified (36 from less experienced teachers and 41 from more experienced teachers).
Table 1
Percentages of the metaphors in each theme for each group of participants

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Teachers</th>
<th>Assessment as a formative tool</th>
<th>Assessment as a summative tool</th>
<th>Assessment as something agitating</th>
<th>Assessment as a sign of self-efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Less experienced teachers</td>
<td>32%</td>
<td>5%</td>
<td>13%</td>
<td>5%</td>
</tr>
<tr>
<td>2</td>
<td>More experienced teachers</td>
<td>18%</td>
<td>12%</td>
<td>7%</td>
<td>8%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>50%</td>
<td>17%</td>
<td>20%</td>
<td>13%</td>
</tr>
</tbody>
</table>

In this research, these themes are analyzed and discussed separately. The metaphors within each group of participants have been calculated in order to see whether experience makes a difference in conceptions of assessment.

Discussion

Analysis of the 77 metaphors revealed four main themes: assessment as a formative tool (57%), a summative tool (11%), something agitating (22%), and a sign of self-efficacy (10%). Figure 1 presents the frequency and percentages of the metaphors in each theme for each group of participants. Assessment as a formative tool received the highest percentage among these four themes, which shows that there is a tendency among teachers to view assessment as promoting learning. In an exam-oriented country where this research took place, emphasis is placed more on the scores as outcomes and measures of abilities. It would be unlikely to expect these teachers conceive assessment as a way to promote learning. However, the results in this research might show that the recent attempt by the Ministry of Education and Higher Education Institution in Myanmar to shift from a teacher-centered to a learner-centered approach had positive results. Teachers value assessment as a tool for improving instruction.
Assessment as a formative tool

50% of metaphors fell into the under **assessment as a formative tool** category. These show that assessment is seen as an ongoing process (**lifelong learning**) and as a way to promote learning through feedback (**a close friend who shows you the way**), all of which are indications of formative assessment practices (Black & Wiliam, 2004; Tunstall and Gipps, 1996). These teachers do not limit their assessment practices. As seen in Table 1, all two groups of participants produced metaphors for these themes in similar percentages. It is possible to assume that regardless of experience, teachers are aware of the positive effects of formative assessment.

Assessment as a summative tool

The metaphors that were grouped under the category of **assessment as a summative tool** were indicators of summative assessment: assessment that shows the end product (**end of a journey**) and assessment to grade (**the medal received at the end of a race**) performance, which indicates summative assessment. When the percentages
of the total number of metaphors are analyzed, there seems to be no difference among the two groups of participants. However, analyzing metaphors separately for each group shows that assessment conceptions. Assessment was conceived as a summative tool least by less experienced teachers; only 5% metaphors of more experienced teachers were related to this (12%). It might be stated in this research that more experienced teachers are more aware of assessment than less experienced teachers.

![Figure 3: Assessment as a summative tool](image)

**Assessment as something agitating**

Conceiving assessment as something agitating was the third most frequent metaphor that emerged from the data. Metaphors associated to this were mainly about fear (*an enemy*) and difficulty (*a road of struggle*). In a conference, Alderson (2005) defined language testing as something technical, secret, full of forbidding jargon, remote from teachers and teaching, and thus ignorant of the goals and the realities of the language classroom. It is very common to have such negative beliefs about testing; however, it is necessary for teachers and learners to make a distinction between the terms of testing and assessment. Unlike testing, assessment, as Alderson puts forth, helps teachers establish where their learners are at present and what level they have achieved, give them feedback on their learning, and diagnose their needs for further development. Though not very high in percentage, considering assessment as something agitating probably occurred because of confusion between testing and assessment.

Teaching experience seems to have only a small effect on this theme. Less experienced teachers (13%) conceive assessment as a negative factor more than more experienced teachers (7%). The reason might be due to the new approach to education in Myanmar. The new focus on a learner-centered approach inevitably led to some changes in the assessment practices of teachers. This period was troublesome for most of the teachers as they had to attend seminars and change their assessment practices. Another reason might be the negative washback effect of the national exams that the students have to sit for in order to continue their education in the next stage. Since these exams have multiple-choice types of items, teachers have difficulty in achieving the intended communicative objectives. Experiencing such problems, less experienced teachers might see assessment as something agitating.
Assessment as something agitating

Assessment as a sign of self-efficacy

The metaphors generated in this category were mainly related to reflection of oneself (seeing yourself in the portrait) and professional satisfaction (building a house). It is possible to suggest that these two sub-themes refer to the notion of self-efficacy. Bandura (1994) defines self-certain level of achievement. Such beliefs determine how people feel, think about and motivate themselves. Teacher self their students will be their work of art, representing them. Interestingly, this motivation was not present for the more experienced teachers. More experienced teachers seemed to have the highest self-efficacy level, as metaphors (8%) were related to this concept. This might show that the more experienced teachers are, the more motivated they are to be successful in their career.

Assessment measures if and how students are learning and if the teaching methods are effectively relaying the intended messages. Hanna and Dettmer (2004) suggest that you should strive to develop a range of assessments strategies that match all aspects of their instructional plans. Instead of trying to differentiate between formative and summative assessments it may be more beneficial to begin planning assessment strategies to match instructional goals and objectives at the beginning of
the semester and implement them throughout the entire instructional experience. The selection of appropriate assessments should also match course and program objectives necessary for accreditation requirements. Brown and Remesal (2012) state that, teachers in New Zealand use assessment to improve instruction and to evaluate student learning. Brown (2011) mentions five conceptions of assessment: improving learning and teaching, being ignored and inaccurate, being bad, measuring university quality validly, and grading students. Some of these conceptions have also been found in this study. Analysis of the metaphors produced by the teachers in this study revealed two main conclusions. Teachers, in general, view assessment as being embedded within instruction. In other words, they perceive assessment as a way to provide evidence of teaching and learning. As Rea-Dickens (2004) states, teachers are agents of the assessment conceptions are reflected in classroom practices, which this study cannot answer, we can regard this finding as promising. Recent focus on formative assessment in pre-service and in-service teacher education programs should keep going. The other noteworthy conclusion is the one related to teacher self-idea that teachers self-prospective teachers and a small number of less experienced teachers associated assessment with this concept brings about two possible suggestions. Experienced teachers value themselves too highly and thus do not need to provide evidence of their teaching effectiveness, or experienced teachers lose their motivation for effective teaching. Whatever the reason, it is important to keep teachers motivated and perhaps organize some in-service teacher training activities to foster their motivation.

Recommendations

Discussions of assessment reform are complicated by the fact that there are many kinds of assessments, used in different ways for different purposes. Moreover, many disciplines are involved in assessments of various kinds for various uses. A change that improves assessment practice in one way for one purpose might impair it for another. Thinking and talking about assessment, much less setting assessment policy, can scarcely afford to take place at the level of surface features. This research provides four powerful metaphors to organize thinking about assessment in all its guises. It is clearly beyond the present scope to fully describe, illustrate, and connect them, in a variety of contexts and practices. It is unlikely that any single person could provide such an analysis, as each metaphor connects to deep and subtle bodies of knowledge that would take a lifetime of study to master individually. But awareness of the key ideas from each and their interconnections provides some common language to begin investigations of particular assessments, of assessment’s roles in systems, and in the future of assessment. These metaphors make us aware of conceptual frameworks we can take advantage of, and hook us into the experiences, the tools, and the wisdom of a many disciplines. The metaphors do not resolve questions about assessment, but they do help us ask them sensibly.
References


Teaching Professionals' Perspectives on Poster as a Presentation Mode in Conferences

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Abstract

Research knowledge is dispersed among peers commonly via three modes of presentation in conferences – workshop, oral presentation, and poster presentation. Each mode of presentation has certain advantages and disadvantages. A poster presentation is a way to communicate a research or understanding of a topic in a short and concise format. It usually includes two elements - a poster and a brief (usually no more than 2 minutes) explanation (Block, 1996). The researchers will need to analyse and evaluate information, synthesize ideas and creatively demonstrate their understanding of a topic or the findings of their research. Although many students view poster presentations as 'easy', they actually require a lot of thought and preparation. Poster presentations develop the ability to communicate perceptively (matching explanation to the audience) and concisely - an important workplace skill.

The aim of this research is to explore teaching professionals' perspectives on poster presentation. The objectives are to find out the advantages and disadvantages of poster presentation in conferences, to observe the challenges teaching professionals face when giving poster presentation and to give recommendation. A pretested questionnaire was used as the survey instrument. The instrument was composed of eight statements with Likert-type response option. A questionnaire survey was conducted among teaching professionals who participated in conferences where posters were presented for research presentation. Responses were expressed in percentages. According to the replies of the teaching professionals, it is found that over half of them dislike poster presentation. However, the best features of poster presentation was the option having facility to read the paper of interest only (73%), followed by the facility of face-to-face interaction with authors (63%) and to re-read the paper (35%). Highest opinion was received (81%) for applicability of poster in presentation of in-depth information about the research. This research revealed that preference of poster presentation is mostly due to the applicability of poster in presentation of in-depth information about the research, facility of reading the paper of interest only and option to re-read according to necessity. Face-to-face interaction
with researcher was another major advantage of poster as a presentation medium. Hence, an option for presenting oral papers as posters may be considered for wide dispersion of research knowledge.

**Keywords**: teaching professionals, perspectives, poster as a presentation mode, conferences

**Introduction**  
Workers in the occupation who teach, design and modify education curricula, inspect and advise on teaching methods, and make decisions concerning the organisation of teaching and related activities at universities are regarded as teaching professionals (Shalom, 1993). Occupations in this group include university and higher education lecturers, vocational and secondary education teachers, primary school and early childhood teachers, special needs teachers, and information technology trainers.

In scientific conferences, research knowledge is transferred among delegates commonly via oral presentation, poster presentation, and workshops. Each presentation mode has some advantages and disadvantages of its own. Workshops are being conducted to facilitate learning by active participation of learners. Participants get hands-on experience on the topic from workshops. However, workshops are arranged for a limited number of seats. Oral presentations are limited by their time frame. It is mostly a didactic method of presentation where discussion with the researcher is limited. Poster presentation is not limited by these factors. It has several advantages over workshops and oral presentation. However, it has some disadvantages too.

At an academic or professional focus conference, a poster session is included as a procedure in which selected posters converting research information in the form of a paper poster are presented. Oral presentation and Workshop are assigned in different sessions and venues as well. For all poster presentations, though, a certain area of hall or room is reserved and they are shown at the same time. Researchers in attendance have to answer questions posed by passing conference participators.

The common selection process for participating in a poster session is submitting abstract to the conference review committee, submitting full research paper for accepted abstract and being designated for poster presentation. A paper poster illustrates information like research methods and results. Although poster presentation is a way to communicate your research or your understanding of a topic in a short and concise format, it bears a mixed reputation.

**Objectives**

This paper aims to explore teaching professionals' perspectives of poster presentation in conferences. Thus, the objectives of this research are:

(i) To find out the advantages and disadvantages of poster presentation in conferences
(ii) To observe the challenges teaching professionals face when giving poster presentation
(iii) To give recommendation

The following research questions are also addressed in this paper:
(i) What are the perspectives of teaching professional on poster presentation in conferences?
(ii) What are the advantages and disadvantages of poster presentation in conferences?
(iii) What are the challenges teaching professionals face when giving poster presentation?

Materials and Methods
Instrument
A questionnaire survey was conducted in 2017 to 2018 which was drafted by the authors particularly for this survey. The questionnaire contained eight statements, each with a Likert-type response option. An additional question was asked for most preferred medium of research presentation. Questionnaire is a simple, easy, and free platform that can be used to conduct surveys. The questionnaire was created during 2017 and we conducted for the pilot study. It was then shared with the participants. After collecting the data, we conducted an interview with the participants of the pilot study. With the experience of interview, the instrument was modified for some phrases and wording, and the final version of the survey instrument were prepared.

Survey mode
The survey questionnaire was created in 2017 and it was open for responses effective immediately. The questionnaire for the survey was distributed among target respondents via e-mail and social messenger which have been found to be effective in communication. Users had the option to select a particular bullet point from multiple choices for each statement.

Participants and recruitment procedure
The survey was conducted on a convenience sample. Teaching professionals who participated in some international conferences where poster was a presentation mode were included in the study. Participants from Thailand, Philippines and Japan were invited for the survey via e-mail and messenger. The request e-mail and message contained details about the study with its purpose. It also contained a paragraph of text for informed consent. Hence, we assumed that those who participated were willing to participate voluntarily. We only collected the responses for the survey questionnaire. No demographic details were recorded (e.g., name, age, and sex) to minimize response bias.

Data acquisition
Participants filled up the questionnaires and sent it back to the researchers. After that responses provided by participants in the questionnaire were added in spreadsheet. After sending the request to 250 target teaching professionals during the period 2017, a reminder message was sent after 10 days for reinforcement. Responses
from (141) teaching professionals were presented in percentage and they were compared statistically.

**Results**

The following figure shows all the responses from 141 teaching professional regarding teaching professionals' most preferred method of presentation in a conference.

![Bar Chart: Most Preferred Methods of Presentation](chart.png)

*Figure 1: Teaching professionals' most preferred method of presentation in a conference*

As shown in the above figure, workshop is the most significant presentation method at 45% as opposed to Oral Presentation and Poster Presentation with 24% and 31% respectively.

The following figure depicts the perspectives of teaching professionals on giving poster presentation in research conferences.
Figure 2: Teaching professionals' perspectives on poster presentation

As shown in the above figure, only 31% teaching professionals prefer to give poster presentation. Over half of them dislike giving poster presentation in research conferences.

The next figure shows the Perspectives of Teaching Professionals on the features of poster presentation.

Figure 3: Perspectives of Teaching Professionals on the features of poster presentation
(Source: Rowe & Ilic, 2009)

Among four options relating to features of poster presentation, “having in-depth information about the research” and “having facility to read the paper of interest only” were ranked as 81% and 73% decisively under “Like” scale.
Figure 4: The reasons behind little higher preferences for poster presentation found in this study (Source: Miracle & King, 1994)

Posters are a highly visual medium and can be a very effective way of communicating information to a wide audience. The challenge is to produce a poster design that is both pleasing to the eye and logical to the mind. Time taken to produce a coherent and creative display can produce stunning results.

Figure 5: The Challenges for poster presentation found in this study

Nearly all of the respondents in the survey relating challenges for poster presentation agree that a poster design should appeal to the eye as well as mind of the passing conference participants. 3 out of 4 teaching professionals surveyed contents should be reduced enough to get the point on the poster.
Discussion

According to the survey result, workshop is the most preferred mode of research presentation (Table 1). It is obvious that participants get real-time experience of the research methodology from a workshop. Commonly, workshops are arranged by only the organizing institutions due to logistics limitations. Furthermore, workshops can be offered to limited number of delegates. Hence, it is not feasible to offer workshops for all the interested audience. However, for oral presentation, these limitations do not apply.

In a national or an international conference, oral presentations are conducted simultaneously in different halls. If a delegate is interested in some papers in a hall, and some papers in another hall, then she/he cannot attend both the halls simultaneously. Another limitation of oral presentation is less time for interaction between authors and delegates. In contrast, poster presentation is free of these limitations. When teaching professionals are interviewed the advantage and disadvantages of giving poster presentation, they discuss as the following:

Advantages

(i) The presence of its author is not necessary.
(ii) It is possible to present several posters in the same room and at the same time
(iii) We can have a look at the posters that we are interested in
(iv) We can evolve an interactive situation
(v) Posters can be used several times and presented at different events.
(vi) Posters are suited for those who suffer from stage fright

Disadvantages

(i) Difficult to make corrections or adaptations
(ii) Difficult to attract attention as it is to compete with many other posters
(iii) Can take time to prepare
(iv) Difficult to get to the point and
(v) Difficult to select what has to be included or omitted
(vi) Lack of knowledge how to design a poster.

According to the data, the following factors may be the reasons behind little higher preferences for poster presentation found in this study (Miracle & King, 1994).

(i) **Reading the topic again after browsing all the posters in the conference (87%)**

When delegates browse a poster, they may not understand the whole presentation of the poster at a glance; however, they may be attracted by the topic of the poster. Hence, they may be interested to read the topic again after browsing all the posters in the conference. This was the fact which got highest number of agreement (87%) in the survey. For oral presentation, it is a common practice to appoint some experts and jury members to discuss about the research after each oral presentation for assessment. If a presentation is allowed for 10 min, usually 5 min is allowed for discussion. This time is consumed by experts and jury members in most of the cases. Hence, there is little chance of interaction between delegates and researchers.
(ii) **Having plenty of time to discuss the topic with the author (71%)**

In poster presentation, there is also a discussion between the authors and experts or jury members. They usually come at a certain time, discuss with authors, and go to the next poster. However, after that limited time, delegates get plenty of time to discuss the topic with the author. It is a well-established fact that a discussion is more effective if it occurs face to face. These may be the potential reasons behind the remarkable strong agreement (71%) in support of face-to-face interaction as a preferable feature of posters.

(iii) **Preferential reading in poster presentation (65%)**

Delegates develop interest in a particular stream over time, and they may be attracted to research related to that field. Hence, preferential reading is practiced by many researchers. A total of 65% respondents agreed that this preferential reading in poster presentation is an advantage. When an individual is attracted to any article, she/he may think about conducting the same or a similar study. For this reason, some delegates may seek more detailed discussion with the author. This can be offered by authors during poster session as there is no time limit for discussion. Hence, poster presentation can provide a better platform for peer communication and 65% respondents in this study thought that it is a positive feature of a poster.

(iv) **An effective medium of knowledge transfer (61%)**

Among the respondents, 61% responded that poster can be an effective medium of knowledge transfer. It is obvious that oral presentation has several advantages. It helps new researchers to learn about handling information for a presentation. It helps in developing communication skills and presentation experience. And these help in their future career advancement. However, for postgraduate degree courses, we have made one oral prerequisite for eligibility for the examination. Hence, one oral and one poster should be considered as a partial fulfillment for the requirements of Master's degree.

(v) **Visual appeal of the posters (68%)**

Another remarkable finding is that 68% of respondents agreed about visual appeal of the posters. Posters are usually printed with attractive colors and all parts of poster can be browsed at a single glance. Hence, authors should stress more during preparation of the poster to make it more towards a self-explanatory one. Along with printed poster presentation, e-poster presentation is evolving in scientific conferences. Its major advantage is that different types of media can be presented in the posters (e.g., animation, video and enlarged figure). In contrast, printed poster can only present static text and images.

(vi) **Multiple authors can participate in poster presentation at different times (74%)**

When a research work is conducted by multiple authors, a single author gets the chance to present the paper in oral presentation. However, presenting research paper is an achievable experience by the authors. If the research is presented by poster mode, multiple authors can participate in presentation at different times. One author
may present the paper as oral presentation and a coauthor may participate in poster presentation for the same research. Hence, the poster may engage more authors in scientific discussion and this may help in greater dissemination of research knowledge.

Limitations

This study was conducted with questionnaire on a convenience sample; hence, response rate was lower. That was the major limitation of this study. We did not record the number of conference attended, number of poster session attended by the respondents, or their demographic details. For maintenance of anonymity, declaration of e-mail was an optional field.

Conclusion

Posters are often used to share information and are an important part of many conferences, seminars and exhibitions. They may be used to present quite complex material, and so it is important that the information on them is well laid out, legible and attractively presented (Murray, 2007). This study showed teaching professionals' perspectives on poster as a mode of research presentation. Cafeteria choice of reading the paper of interest, facility of reading paper several times, and interaction with the authors were the most popular features of poster as presentation mode. Poster preparation should be emphasized to make it more self-explanatory and to provide in-depth knowledge. A detailed discussion between delegates and researchers is possible in poster presentation. Considering these factors, facility of presenting a paper as both oral and poster may be introduced by conference organizers.

Recommendations

In this research, it has been found that poster presentations can be an excellent way to share research findings and the format of poster sessions has several advantages. Presenters are able to engage with the audience in an interactive setting that allows them to get feedback and network with other scholars. Poster sessions also have the potential to reach a larger number of people. An appealing poster that is done correctly is the first step in drawing in the audience. However, while the poster serves as a visual aid or illustration of the work, the poster session is really an opportunity for the researcher to personally educate others about the research findings.

Reasons Why You Should Present Posters at a Conference

Even if our main goal is to listen to the presentations, there are many good reasons to do so.

(i) Posters offer the opportunity to engage with other conference attendees interested in the same subject and application as ourselves. We might strike up a conversation with someone about our poster that may lead to future collaboration or even a job offer. One-on-one conversations about our poster enable us to talk about very specific aspects of your research that may not be possible in a presentation.

(ii) A poster session is a good way to disseminate our work, particularly if our research falls within a narrow field of specialization. It also gives us the opportunity to actively engage with others during the conference in a way that
networking alone does not, since by its very nature the poster defines the topic of conversation.

(iii) Another good reason to present a poster is that we can expect to receive compliments on our work and critiques that can help us in the future. An insightful, impartial discussion of our work by a peer can often provide ideas for improving our work downstream.

(iv) Sometimes a poster session is better than an oral presentation due to time constraints in the latter. During a typical oral presentation we will have 10-15 minutes for questions and comments while a poster session typically lasts several hours, allowing for more in-depth discussions. Moreover, not all people will manage to make it to our oral presentation because there will probably be concurrent tracks.

(v) Poster sessions offer the opportunity to practice our presentation skills. One advantage of presenting a poster is that it enables us to try explaining a concept in different ways, and see which explanation is most well received. At the same time that we are honing our ability to communicate verbally, we can also hone our ability to present information visually in a simple way.

(vi) A poster session is ideal for the early stages of the research, when we may not have much more than an idea, and we stand to benefit a lot from discussing our idea with other researchers from the same field.

(vii) In short, poster presentations provide value, both for attendees who discuss our poster content with us, and for ourselves because of the opportunities highlighted above.

References


Perceptions of Students on Language Testing and Assessment at Computer Universities of Myanmar

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Abstract

Assessment is any of a variety of procedures used to obtain information about student performance (Linn & Gronlund, 2000). As reported by Pellegrino, Chudowsky, and Glaser (2001), it provides feedback to students, educators, parents, policy makers, and the public about the effectiveness of educational services. Related research on language testing and assessment at Computer universities, which is one of the most controversial issues in Myanmar, have been carried out with a focus on perspectives of teachers rather than the students who obviously play the leading role in the process. Hence, the current research is primarily motivated to explore the perceptions of students on foreign language assessment at selected Computer universities in Myanmar. A total of 146 undergraduate students attending a bachelor degree program at Computer universities in Myanmar took part in the study. They were assigned a questionnaire consisting of open- and closed-ended items to reveal their perceptions on the applications of language assessment in higher education (e.g. core language skills, assessment types employed in testing foreign language development, and types of questions used in the tests throughout an academic year). The findings have demonstrated that most participants found assessment necessary in their education. Their perception of core language skills is that speaking and listening are considered the most important skills, while grammar and reading are regarded as the least important. As for assessment types and question types, Selected Response Items (e.g. Matching, Multiple Choice and Odd-one-out) have revealed the most-favored by students in comparison to the Constructed Response Items (e.g. Sentence Completion, Wh-Questions, and etc.) and Personal Response items (e.g. writing a paragraph), which might be attributed to the less challenging and demanding structure of the selected response items. The study concludes with a few pedagogical implications on language assessment at Computer universities, and suggestions for further directions.

Keywords: perceptions of students, language testing, assessment, computer
Introduction

When the students graduate from the college and become real engineers, they will find that English appears even more crucial than it used to be. In order to understand and coordinate with their colleagues and accomplish their projects fluently, students have to speak good English. Moreover, assessment is mostly conducted to see to what extent the educational goals and objectives have been achieved at the end of a certain teaching/learning process. Even though the way it is implemented varies across countries, provinces and even institutions, it is extensively realized using direct tools (e.g. standardized tests, term papers, oral presentations, projects and portfolios), especially in state educational institutions whereby educational programs are created and implemented in accordance with predefined goals and objectives. Llorente and Morant (2011) classify the tools typically used in higher education into two groups as written and oral techniques. According to the authors, written techniques attempt to bring the students to their maximum potential after several years of studies; whereas, oral examination procedure is unlikely to be successful in computer-processing as human voice–to–machine translation techniques are not sufficiently advanced. The written techniques could be summarized as: questionnaires (consisting of a number of close- and open-ended questions for students to answer); problem solving (requiring students to explain the way a correct answer was achieved); portfolio (a collection of materials demonstrating a student’s abilities and achievements; used as a method for testing and examinations, (Lupton, 2005); rubrics (scoring tools used for linking student criteria to learning objectives); concept maps (students are required to demonstrate subject knowledge by establishing key concepts and their relationships); notebook revision (revision of student’s notes taken to develop concepts given in class); academic work (written documents of the student to summarize ideas for a given concept, describe processes, compile information or state-of-the-art between others); essay writing (authoring a short document giving opinion of a concept or developing an idea from a topic); study case (studying a real-life problem; then proposing solutions and developing it); project (assignment of a technical project document used to integrate concepts and apply them to a project case); one-minute paper (developing a proposed subject or specific question to prompt students to summarize the day’s lesson). The oral assessment techniques could be summarized as: oral exams (aspects other than subject knowledge could be evaluated, e.g. speech techniques, body language); presentation (a short demonstration of work prepared and explained by a student to the rest of the class); open discussions and debate (dialogue between class members, guided by the lecturer). Like in many other countries, written rather than oral assessment techniques are extensively used in higher education institutions in Myanmar. This is likely because they can easily be designed to obtain quite accurate feedback on student abilities by reciting facts and solving simple problems (Babo, Azevedo & Suhonen, 2015). In this kind of assessment, students are posed questions of various categories such as open- and close-ended questions. The classification of response assessment types proposed by Brown and Hudson (1998) has been frequently employed in studies conducted on question types in practices of written assessment. The scholars identify three categories as selected response items, constructed response items, and personal response items. Selected response items require examinees to choose from a number of options (e.g. true-false, matching, multiple-Choice), while constructed response
items are relatively more challenging (e.g. sentence completion, essay writing, providing short and long answers), and personal response items include self- and/or peer-assessment and portfolio assessment.

(i) In respect of assessment in EFL settings, Munoz and Alvares (2007) surveyed EFL students’ perceptions on self-assessment. This study revealed that students believe that assessment is necessary and mandatory, and that it is performed by teachers and they do not have a say in it.

(ii) In another study, Cheng, Wu, and Liu (2015) probed Chinese university students’ perceptions on assessment tasks in EFL context and assessment environment relationship, and reported that congruence with planned learning and student consultation are positive predictors of the learning-oriented classroom assessment environment and negative predictors of performance-oriented classroom assessment environment at the same time. Based on that finding, they concluded that aligning assessment tasks with the goals and objectives of the learning programs and effectively informing students regarding how they will be assessed potentially have twofold benefits.

(iii) Struyven, Dochy, and Janssen (2005) examined student perceptions on evaluation and assessment in higher education. They found that students’ perceptions about assessment significantly influence their approach to learning and studying and students mostly favored multiple-choice rather than essay types. Kelly et al. (2010) investigated the perceptions of twenty-four physicians in a cross-cultural training program on four different examination methods (structured oral case simulations, multiple-choice tests, semi-structured oral examinations, and essay tests), and the techniques they use and barriers they face. They reported that all testing methods were found useful in measuring knowledge and clinical ability, and that the participants believe that they should be used for accreditation and future training programs.

Hence, this study aims to explore the perceptions of students on language testing and assessment at computer universities of Myanmar. It primarily investigates their perceptions of core language skills, assessment types and question types used in assessing their FL Development / proficiency during an academic year.

Objectives

In this study, three research questions were posed.

(i) What are the perceptions of EFL learners on language testing and assessment in higher education of Myanmar?

(ii) What are the perceptions of EFL learners on assessment types used in language testing and assessment in higher education in Myanmar?

(iii) What are the perceptions of EFL learners on question types used in language testing and assessment in higher education in Myanmar?

The following section is intended to describe and outline research design of the study.
Methodology

A total of 146 undergraduate students attending software and hardware computer students at Monywa Computer University, Mandalay Computer University, Pyay Computer University, and Taungoo Computer University took part in the current study. The mean age of the participants was calculated as 18.7 years old. It is significant to note that, at the time of the study, they were attending bachelor degree program of their undergraduate education, and that they were supposed to attend their major degree programs (e.g. computer software and hardware) in the following academic year. It is also important to note that English is not the medium of instruction in the programs they will attend. Throughout the EFL preparatory program, the students were required to take three different courses identified in the related curriculum at the beginning of the academic year. The courses aim to enable students to use English for communicative and academic purposes, providing them with core linguistic skills identified in the previous section. During the academic year, the students were supposed to take short and long tests comprised of various types of questions, and to prepare portfolios, as illustrated in Table 3.

For data collection, a questionnaire consisting of several items developed by the researchers was administered to the students in order to reveal their perceptions on the applications of language testing and assessment in higher education (e.g. significance of assessment in foreign language education, assessment of core language skills, assessment types, and types of questions). The students were requested to complete the questionnaire, which consisted of both Likert-type, multiple-choice and open-ended items, during a class hour, and no time limit was set. Data obtained from the questionnaires were both quantitatively and qualitatively analyzed, and the related results are presented in the following section.

The first question of the survey was intended to obtain students’ opinion about the necessity of testing and assessment in foreign language education. Approximately 63.5% stated that it is necessary, whereas 31% of students asserted the neutral, with the remaining staying contrary.

Table 1
Perceptions about the necessity of testing and assessment

<table>
<thead>
<tr>
<th>Q No</th>
<th>Survey Question</th>
<th>Responses</th>
<th>Neutral</th>
<th>It is contrary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Necessity of testing and assessment</td>
<td>5%</td>
<td>%</td>
<td>%</td>
</tr>
</tbody>
</table>

The second question of the survey investigated whether or not time was allocated for studying English outside of the classroom. Of the students who responded, 63.5% stated that they do not allocate time to study out of class. It is understood that those who positively responded to this item allocate an average of 5 hours a week studying English after school.
Table 2
Perceptions about the studying time outside the classroom

<table>
<thead>
<tr>
<th>Q No</th>
<th>Question of the survey</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Time was allocated for studying English outside the classroom.</td>
<td>Yes: 36.5%</td>
</tr>
</tbody>
</table>

As a follow-up question, they were asked whether or not they revise their working plans if they achieve poor grades on the tests. Slightly over 70% of the students responded positively. Quite naturally, the other students tend to be among those who reported that they do not spend any time on learning English outside the classroom.

Table 3
Perceptions about their working plans

<table>
<thead>
<tr>
<th>Q No</th>
<th>Question of the survey</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>We revise our working plans if we achieve poor grades on the tests.</td>
<td>Yes: 73%</td>
</tr>
</tbody>
</table>

In order to elicit their opinions about the quality of the abovementioned tests administered throughout the academic year, they were asked whether or not they think their exam results are consistent with their success in foreign language education. Their responses have revealed that approximately 75% of the participants find them consistent, and that most of the rest attribute this to the anxiety they feel during the tests.

Table 4
Perception about the consistent exam result with their success

<table>
<thead>
<tr>
<th>Q No</th>
<th>Question of the survey</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Exam results are consistent with our success in foreign language education.</td>
<td>Yes: 74.5%</td>
</tr>
</tbody>
</table>

Subsequently, their perceptions about types and frequency of assessment during the academic year were scrutinized. The majority (54%) reported that they are satisfied with both types and frequency of assessment. Interestingly, most of those who responded negatively stated that the number of exams should be increased, and that they should be speech-based.

Table 5
Perceptions on both types and frequency of assessment

<table>
<thead>
<tr>
<th>Q No</th>
<th>Question of the survey</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>We satisfied with both types and frequency of assessment.</td>
<td>Strongly like: 0.5%</td>
</tr>
</tbody>
</table>
The second part of the survey was designed to obtain their perceptions about the significance of core linguistic skills, assessment types, and question types. Accordingly, they were asked to choose among the options from ‘strongly dislike’ to ‘strongly like’ for each core skill. The related findings are shown in Figure 1.

Table 6
Perceptions about the significance of core linguistic skills

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Core linguistic skills</th>
<th>Responses</th>
<th>Important</th>
<th>Not Sure</th>
<th>More important</th>
<th>Most important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Speaking</td>
<td>-</td>
<td>22.5%</td>
<td>-</td>
<td>14.5%</td>
<td>63%</td>
</tr>
<tr>
<td>2</td>
<td>Listening</td>
<td>-</td>
<td>21%</td>
<td>2.5%</td>
<td>21%</td>
<td>55.5%</td>
</tr>
<tr>
<td>3</td>
<td>Reading</td>
<td>-</td>
<td>34.5%</td>
<td>-</td>
<td>22%</td>
<td>43.5%</td>
</tr>
<tr>
<td>4</td>
<td>Writing</td>
<td>-</td>
<td>32.5%</td>
<td>-</td>
<td>18%</td>
<td>49.5%</td>
</tr>
<tr>
<td>5</td>
<td>Grammar</td>
<td>-</td>
<td>24%</td>
<td>-</td>
<td>28%</td>
<td>48.5%</td>
</tr>
<tr>
<td>6</td>
<td>Vocabulary</td>
<td>-</td>
<td>24.5%</td>
<td>2.5%</td>
<td>24%</td>
<td>49%</td>
</tr>
</tbody>
</table>

They also reported that oral examinations were rated as significantly more useful than written ones and found to be the most useful examination method for assessing learners’ knowledge and ability. They are not afraid of reading and writing skills although they are not perfect. Speaking and listening skills are the most challenging for their university study to do project presentation successfully. So, speaking skill is the most important core linguistic skill for IT students. Most of the studies on language testing and assessment in Myanmar have been carried out from teachers’ perspectives rather than students, who obviously play the leading role in the process.

Table 7
Perceptions of undergraduate students on assessment types (Brown & Hudson, 1998)

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Practices of written assessment</th>
<th>Perceptions of undergraduate students on language testing and assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Like</td>
</tr>
<tr>
<td>1</td>
<td>Selected Response Items</td>
<td>91.5%</td>
</tr>
<tr>
<td>2</td>
<td>Constructed Response Items</td>
<td>61%</td>
</tr>
<tr>
<td>3</td>
<td>Personal Response items</td>
<td>39%</td>
</tr>
</tbody>
</table>

The above-mentioned classification of question types proposed by Brown & Hudson (1998) was also adopted in this study in investigating perceptions of undergraduate students on language testing and assessment. Research on students’ perceptions on assessment is mostly concentrated on their overall attitude towards assessment and their assessment preferences.
Finally, the participants were required to rate the types of questions posed to them in their written exams. Not surprisingly, findings indicated that Selected Response Items (e.g. Matching, MC, Odd-one-out, and T-F) were the most favored in comparison to the Constructed Response Items (e.g. Sentence Completion, Wh-Questions) and Personal Response items (e.g. writing a paragraph). Findings have also indicated that Personal Response Items which require examinees to write a paragraph / essay are not well favored by the majority of participants, which might be attributed to their being relatively more challenging and demanding than the other types.

Table 8
Perceptions of undergraduate students on question types (Brown & Hudson, 1998)

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Practices of written assessment</th>
<th>Responses</th>
<th>Strongly like</th>
<th>Like</th>
<th>Not Sure</th>
<th>Dislike</th>
<th>Strongly dislike</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Selected Response Items</td>
<td>Odd-one-out items</td>
<td>37.5%</td>
<td>45.5%</td>
<td>8%</td>
<td>6.5%</td>
<td>2.5%</td>
</tr>
<tr>
<td></td>
<td>Matching items</td>
<td>33.5%</td>
<td>54.5%</td>
<td>4.5%</td>
<td>4.5%</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Multiple-choice items</td>
<td>56.5%</td>
<td>36.5%</td>
<td>1.5%</td>
<td>3%</td>
<td>2.5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>True or False</td>
<td>36%</td>
<td>47%</td>
<td>6%</td>
<td>7%</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fill-in</td>
<td>25.5%</td>
<td>35.5%</td>
<td>9.5%</td>
<td>23%</td>
<td>6.5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Correcting mistakes</td>
<td>31%</td>
<td>44.5%</td>
<td>16.5%</td>
<td>7%</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes-no questions</td>
<td>29%</td>
<td>36.5%</td>
<td>6.5%</td>
<td>12.5%</td>
<td>15.5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wh-questions</td>
<td>33.5%</td>
<td>33.5%</td>
<td>3%</td>
<td>19.5%</td>
<td>10.5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Monologue, and dialogue items</td>
<td>25%</td>
<td>33%</td>
<td>16.5%</td>
<td>21%</td>
<td>4.5%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Constructed Response Items</td>
<td>Writing a paragraph</td>
<td>18%</td>
<td>23.5%</td>
<td>27.5%</td>
<td>23.5%</td>
<td>7.5%</td>
</tr>
</tbody>
</table>

As for the individual items, it could be concluded that multiple-choice items is the most popular type followed by odd-one-out items, while matching items was the least popular one, entailing that the more the chance of success is involved, the more preferred they are by the students. Namely, they have a fifty-fifty chance to answer multiple-choice items correctly, even if they have no idea about the given items.

Among the constructed response items, wh-questions appear at the top of the list, followed by correcting mistakes, monologue, and dialogue items, respectively. Fill-in are rated as the least popular.

Being the only personal response item, writing a paragraph was not revealed as that popular among the students. As a matter of fact, students might find
writing relatively more challenging since it requires a combination of skills such as grammar and vocabulary, as well as creativity.

Results

![Figure 1: Overall perceptions on core language skills](image)

As seen in Figure 1, participants believe that all language skills are important / very important in language education. Among them, speaking and listening are the ones considered the most important, while grammar and reading are the least important in this respect. Subsequently, they were asked to rate types of assessment administered to them at certain intervals, and the findings obtained from their responses are illustrated in Figure 2.
Figure 2: Overall perceptions on assessment types

In figure 2 the study in investigating perceptions of undergraduate students on language testing and assessment illustrates that they are more favoured on the assessment types of selected and the personal assessment types is not so much interesting for them.
Nevertheless, most undergraduate students prefer the assessment question types of selected to the other assessment types in figure 3. Among them, multiple choice question type is still strongly liked although writing paragraph is the one they don't like most.

Discussion

The study has indicated that learners consider testing and assessment is necessary for language instruction and they regard listening and speaking more important than the other skills in learning a language, entailing that they want to learn it primarily for communicating with other people with whom they do not share a mother tongue. Furthermore, they label grammar and reading the least important skills. In order to meet their needs, which do not seem to contradict with the general objectives of the implemented curricula, we might put more emphasis on listening and speaking skills and focus on fluency without totally ignoring accuracy while teaching.
English. It has also shown that they prefer selected response items, which are cognitively less demanding and difficult, rather than constructed response items and personal response items. However, this finding should not lead us to the conclusion / implication that our tests should comprise mostly this kind of items as they are unlikely to go beyond encouraging them to memorize certain formula in the target language in order to pass the tests at the end of the semester. Instead, we might increase the number of other types of questions likely to improve their cognitive skills and make their learning more meaningful and permanent. In order to help them perform better while answering these questions, we might employ activities for to improve their extensive reading skills. This study is confined to the investigation of adult EFL learners’ perceptions of language testing and assessment in higher education. It is also confined to a limited number of participants attending an English Preparatory Program at a state university in Myanmar. So, further studies might be conducted with a larger group of students studying various disciplines in other state or private universities or with students attending primary / high schools. Their perceptions on language testing and assessment might be elicited through questionnaires and / or structured or semi-structured interviews. The study might also be furthered to scrutinize what could be done in order to decrease / prevent learners’ negative feelings toward constructed response and personal response items, and to improve their success in responding to these kinds of items on the tests.

Recommendations

This study aimed at exploring the perceptions of students on language testing and assessment at computer universities of Myanmar. It primarily investigated their perceptions of core language skills, assessment types and question types used in assessing their FL Development / proficiency during an academic year. The findings showed that most participants found assessment necessary in their education. Their perception of core language skills is that speaking and listening are considered the most important skills, while grammar and reading are regarded as the least important. As for assessment types and question types, Selected Response Items (e.g. Matching, Multiple Choice and Odd-one-out) have revealed the most-favored by students in comparison to the Constructed Response Items (e.g. Sentence Completion, Wh-Questions, and etc.) and Personal Response items (e.g. writing a paragraph), which might be attributed to the less challenging and demanding structure of the selected response items. In order to meet students’ needs, which do not seem to contradict with the general objectives of the implemented curricula, teachers might put more emphasis on listening and speaking skills and focus on fluency without totally ignoring accuracy while teaching English. Like in many other countries, written rather than oral assessment techniques are extensively used in higher education institutions in Myanmar. This is likely because they can easily be designed to obtain quite accurate feedback on student abilities by reciting facts and solving simple problems (Babo, Azevedo & Suhonen, 2015). In this kind of assessment, students are posed questions of various categories such as open- and close-ended questions. In conclusion, the study concluded with a few pedagogical implications on language assessment at Computer universities, and suggestions for further directions. Further researches might focus on a larger group of students studying various disciplines in other state or private universities or with students attending primary/ high schools and
focus on scrutinizing what could be done in order to decrease/ prevent learners’ negative feelings toward constructed response and personal response items and to improve their success in responding to these kinds of items on the tests. It is hoped that this study showed the ways to need in language assessment and education in Myanmar.

References


Challenges of Teachers from Hakha College and Ways of Coping with Them

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²Tutor, English Department, Hakha College

Abstract

Education is challenging everywhere. Problems are similar in spite of cultural and environment differences for the execution of successful education policies (Brown, 2003). Hakha College is the only college in Chin State where students (the majority is Chin Ethnic Group) can study higher education. Admittedly, teaching to those who have different cultural and language background is not an easy task. Teachers are considered the most important and fundamental factor for the success of any educational system. A teacher is more than what is commonly talked about as his duties of profession have many other dimensions (Deen, 2000). This paper explores the challenges faced in the teaching and learning situation and how they address their challenges. It is also aim to find out whether the problems are the same according to the teachers' gender. Systematics and effective methods of Brown (2003) are applied in the analysis of data through questionnaire and interview. Forty Six teachers from 11 departments participated in this study. Fourteen of them are male teachers whereas 32 are female teachers. It is found out that Language, Teaching Aids and Cultural Differences are the major challenges faced by teachers from Hakha College. Limited Classroom Teaching Aids is the biggest challenge for male teachers and difficult to communicate with students is the major challenge faced by female teachers. Some suggestions are also given to overcome these challenges.

Keywords: challenges, teachers, Hakha college

Introduction

Education is a process through which a country develops its self-consciousness by developing the self-consciousness of the individuals who make it up. It is not only the public education but it is a social institution which provides mental, physical, ideological and moral training to the people of a nation so that they may become able to have full awareness of their mission, their aim of life and also equip them to attain that aim (Iqbal, 1996). The success of any educational system depends on good and well-resourced teachers. Teachers cannot be replaced with any other kind of instructional material. Therefore, teachers are considered the most important and fundamental factor for the success of any educational system (Deen, 2000). This study is specially designed to identify the challenges that affect the performance of teachers in Hakha College. In Myanmar, not many research papers have been written about the challenges faced by teachers who are serving their duties in remote areas. This paper addresses this gap as it has explored the challenges faced by teachers from Hakha College. This paper reports the biggest challenges of 46 teachers from 11 departments in Hakha College. It also tends to give proper solutions to overcome these challenges.
Objectives

The aim of this research is to explore some big challenges faced by teachers from Hakha College. It is also aimed to investigate whether there is difference challenge based on gender. This paper tends to report the major challenges of these respondents and give some suggestions in order to overcome these challenges. The following research questions are also addressed in this study:

1. What are the reasons why the choice for Hakha College is challenge?
2. Are the challenges the same or different according to the Gender?
3. Are there any strengths of teaching in Hakha College?

Research Method

This study is designed as a qualitative case study that explored the challenges faced by teachers at Hakha College and how the respondents address the challenges. Mixed methods such as questionnaire and interview are used to collect the data. In order to identify the challenges, the questionnaire by Brown (2003) was utilized. The researchers personally visited the eleven departments at Hakha College and distributed the questionnaires and interviewed the teachers to get detailed information about the challenges. Data analysis included the computation of descriptive statistics (frequencies) to complete information about demographics of the participants and to calculate the biggest challenges and to determine the variation of challenges according to the gender.

Participants

This study was conducted on 46 teachers who have been working in Hakha College. Among them, a hundred percent of teachers have at least one year of teaching experience in Hakha College. Some teachers have thirty years in teaching experiences. Eighty percent of teachers are masters’ degree holders and twenty percent of teachers are doctorate degree holders. There are total 14 male and 32 female teachers participated in this research. The main challenges were explored from twenty-nine percent of tutors, twenty-five percent of demonstrators, seventeen percent of assistant lecturers and twenty-nine percent of lecturers.

Table 1
Demographic description of the participants

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>14</td>
<td>30%</td>
</tr>
<tr>
<td>Female</td>
<td>32</td>
<td>70%</td>
</tr>
<tr>
<td>Designation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tutor</td>
<td>13</td>
<td>29%</td>
</tr>
<tr>
<td>Demonstrator</td>
<td>12</td>
<td>25%</td>
</tr>
<tr>
<td>Assistant</td>
<td>8</td>
<td>17%</td>
</tr>
<tr>
<td>Lecturer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecturer</td>
<td>13</td>
<td>29%</td>
</tr>
<tr>
<td>Degree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masters'</td>
<td>37</td>
<td>80%</td>
</tr>
<tr>
<td>Ph.D</td>
<td>9</td>
<td>20%</td>
</tr>
</tbody>
</table>
Results

Quantitative findings from the questionnaire survey in the following figure showed that the summary of challenges faced by teachers from Hakha College. The analysis of the teacher data reveals statistically as the following:

![Figure 1: Summary of challenges faced by teachers](image)

The above figure shows the summary of challenges faced by teachers from Hakha College in terms of eight categories. It is found out that the most frequently used category is Language Challenge (79%) followed by Limited Classroom Teaching Aids (71%), Differences in Culture (63%) and feeling isolated (58%). Having not enough salary (56%) is one of the biggest challenges faced by both male and female teachers. According to the teachers' replies, infrastructure (36%) and Students' Motivation (29%) become the second least challenges while Students' violence (13%) is the least frequently challenge.
Challenges faced by teachers according to the Gender

The result of the comparison of challenges by male and female teachers is recorded as follow:

![Figure 2: The comparison of the Challenges according to Gender](image)

As shown in the above figure, it is found out the challenges faced by male and female teachers are different. The greatest difference is Language Challenge which is ranked as the highest by 93% of female teachers, whereas Limited Classroom Teaching Aids is ranked as the highest by 78% of male teachers. This can be related to the nature and personality of females in that female teachers communicate and deal with students more than male teachers.

In this study, female teachers are found to face more challenges compared to male teachers. It is found out that 73% of female teachers significantly feel more isolated than male teachers. Only one third of the male teachers feel isolated. In addition, male teachers can motive their students in teaching than female teachers. Both male and female teachers show great challenge on salary but least challenge on violence.

Based on the replies of the teachers through interview questions, most of the teachers are afraid to come Chin State because of poor transportation system, lack of health care and extreme weather. However, students from Chin State are highly motivated to study and enthusiastic to learn. They are simple, obedient and respect to teachers. All the students have perfect attendance and they are highly interested in doing activities including sports, language competition and charity. Most teachers think that it is very effective to teach in Hakha College. In addition, teachers have very good conversation and interaction with students. Nearly almost all of the teachers who are currently serving in Hakha College like all year-round cold weather and admire splendid mountain scenery of Chin State.

However, teachers suggest that students from Chin State need to improve Myanmar Language Proficiency. Another drawback is that students cannot come to class in time in the early morning because of the extreme weather therefore they
would like to have flexible timetable. On the other hand, if students cannot come to class in time, it is very difficult for teachers to do experiments.

Discussion

The study reveals that there are some significance differences between the views of male and female teachers from Hakha College. According to the replies of the teachers, it can be summarized that interaction with students, teaching aids, cultural differences and isolation are the major challenges faced by teachers.

**Suggestions to overcome Language challenge**

Language challenge is the biggest challenge faced by teachers from Hakha College. According to Betageri (2013), “English lectures are suggested to teach English subject in simple and familiar English language and thereby create interest among the students towards English subject”. Although Chin Language is their first language, Myanmar Language or English Language should be used in the class. In order to understand the information clearly, complex sentences should be broken up into smaller sentences. Then new and difficult words are pointed out and if it is necessary the words should be defined, and teachers should explain how they can be used. When the lecture is given, teachers are suggested to select words and sentence structures purposely. Using bilingual language should be allowed in language classrooms. Finally, language environment should be created.

**Suggestions to overcome teaching with limited**

It is previously mentioned that over half of the teachers from Hakha College are facing lack of classroom teaching aids including not having enough textbooks, no way to photocopy worksheets, no way to show education films, no CDs with practice dialogues and no equipment to do the experiments. In order to overcome these challenges, Jessie Beck (2014) suggested to do some group activities for not having enough textbooks. An example of this could be having students read a text the book together, then one student narrates, two students act it out, and one other student writes new vocabulary from the text on the board and defines them for the rest of the class. Teachers get very attached to passing out photocopied worksheets. Therefore, it is suggested to write the worksheet on a large piece of flip-chart paper and taping it on the chalkboard for the whole class to see. Teachers always want students to see English in action by watching a movie, so they are suggested to show them films on your laptop. If the teachers don’t have access to pre-recorded dialogues or listening exercises, teachers are suggested to make themself. It would be using phone to record and another person speaking before class.

**Suggestions to overcome Cultural Differences**

The majority of teachers (63%) rate Cultural differences as the second highest challenge. Cultural differences that faced by teachers are because of different beliefs, principles, or lifestyle. Cultural competency is the ability to interact with people from different cultures. According to Diversity Training University International (DTUI), there are four components to overcome cultural differences. They are: awareness, attitude, knowledge and skills.
Suggestions to overcome Isolation

Findings indicate that 73% of female teachers feel isolated to stay in Chin State. Therefore, George Dickson (2017) gives some suggestions to overcome Isolation as follows:

(i) Take the community into own hands
(ii) Become a volunteer
(iii) Know where to find friend

Sometimes, teachers lose their motivation. There is an important distinction between a temporary lack of motivation and also a chronic lack of motivation. Chronic lack of motivation is problematic for individuals and for the organizations they work with. It can negatively impact a large number of important areas: productivity, quality of work, customer service, and employee retention are just a few of the many. Therefore teachers are suggested to think what can motivate them and create the environment where they can be supportive.

Conclusion

The findings and suggestions of the current research may help to improve teaching and learning processes. For the improvement and development of education, teachers play very important role because they are responsible for developing a learning environment. In our teaching society, challenges teachers encounter are always some hindrances that can affect in the teaching and learning process. It can be concluded from the findings of this paper that the challenges that teachers encounter include interaction with students, teaching aids, cultural differences and isolation. To overcome these challenges, it is recommended by Wink (2000), Pennycook (2001), Cardenas (2006), Monk (2007), Bonilla and Cruz-Arcila (2013) that the participation of the community and local support are very important. Furthermore, the authority should pay too much attention to listen to the needs of the teachers' voices and solve the challenges together with the teachers. Therefore, solving these challenges and bringing awareness together can help improve teacher retention, student success rates and finally overall quality of education in Chin State.

References


Holguin, B. R & Morales, J. A. (2016). "English Language Teaching in Rural Areas: A New Challenge for English Language Teachers in Colombia". ISSN 0121-053
An Analysis of the Citation Patterns in the Introduction Sections of Doctoral Theses in Myanmar

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Abstract

Appropriate reference to other texts is essential in writing an academic research and understanding how to cite others’ work can support the argument in the citing texts. The aim of this research is to explore citation patterns in the introduction sections of doctoral theses across Arts and Science disciplines submitted at Mandalay University in Myanmar. 24 doctoral theses from Arts disciplines and 24 from science disciplines have been analysed using the frameworks of Thompson and Tribble (2001), Hyland (2002) and Petric (2007). Both integral citations and non-integral citations were found in the introduction sections of the doctoral theses. The researchers made the most frequent use of “Integral verb controlling” and “Non-integral source”. This may be because the writers found “Verb controlling” easier and more obvious way of incorporating citations into text or because of the rhetorical purpose to give more prominence to the researchers. The highest density of “Non-integral source” is possibly due to the researchers’ desire to emphasize the information, enhancing their arguments. The researchers of the doctoral theses used citations mostly for the “attribution” function and thus the writers just attribute the authors and there is no special rhetorical function in doing so. The least frequently used citation in the thesis introduction sections is “Evaluation”. This study suggests that researchers should try to raise their awareness of the types and the rhetorical functions of citations.

Keywords: citation patterns, introduction sections, doctoral theses, arts and science disciplines

Introduction

Reference to other texts is essential for a research in persuading a particular community to accept the arguments and by including them the author can be recognized as an insider of the field as Hyland (2009, p.10) reported, “The inclusion of references to the work of other authors is obviously central to academic persuasion”. Hyland (2009, p.10) continued that it not only helps establish a persuasive framework for their arguments to be accepted by giving evidence of previous work in a discipline in their text, but also as it displays the writer’s credibility and status as an insider. According to Swales’ (1990) CARS modal, citation is required, in particular, in Move 1 of the introduction section of a research. The authors have to cite some sources so that they can establish a territory, claiming interest or importance of the field of their researches. In Move 2 of Swales’ (1990) CARS modal, citation is possible as the authors also review the previous researches critically so that they can find out the gap or limitation of the previous researches to
establish a niche. Thus the rhetorical functions of citation are prominent in the introduction section of a doctoral thesis.

Many researchers have developed citation frameworks and have applied them in analysing the citation patterns employed in different fields of research. Swales (1990) who studied 100 research articles in different disciplines distinguished “integral citation” from “non-integral citation”. Differences in citation practice by the authors of different disciplines have also been analyzed by Ken Hyland (1999). Thompsom and Tribble (2001) presented a “classification scheme” of citation and applied it to the doctoral theses from two different disciplines, Agricultural Botany and Agricultural Economics. Petric (2007) also explored the relationship between the types of citation and high-rated and low-rated master’s theses. Petric (2007) modified the classification of citation by Thompsom and Tribble’s (2001) and identified the rhetorical functions of citation in the high-rated theses and low-rated ones. Gol1, Hezareh and Soghondikolaei (2014) compare the use of citations between 60 Iranian and international ELT scopus journal articles according to the framework of Thompsom and Tribble (2001) and Petric’s (2007) framework. However, researchers in Myanmar do not pay much attention to the types and functions of citations and there are very few researches that analyses the types and rhetorical functions of citations in Myanmar context. An analysis of citation practice found in research articles published by the Myanmar Academy of Arts and Sciences was conducted by Hlaing, Soe and Yu (2015) basing on Thompsom and Tribble’s (2001) model. Their study reported the differences in citation practice in the arts and science research articles but the functions of the citations were not analysed in the study.

It is hoped that the findings of this study will make researchers be aware of the types and functions of citations and lead them to the affective use of citations in their academic writing.

Objectives of the Study

The objectives of this study are:
1. To explore the types of citations used in the introduction sections of doctoral theses in Myanmar
2. To explore the functions of citations used in the introduction sections of doctoral theses in Myanmar

Research Methodology

In this study, both qualitative and quantitative data analysis methods were employed, comprising frequency counts and text analyses of the doctoral theses. For instance, first the data were analyzed quantitatively for the citation patterns by counting each instance of citation. Then the function of each citation was described qualitatively. In this study, the citation patterns in the introduction sections of doctoral theses across Arts and Science disciplines submitted at Mandalay University in Myanmar which are 24 doctoral theses from Arts disciplines and 24 from science disciplines have been analysed using the frameworks of Thompsom and Tribble (2001) and Petric (2007). Before the analyses, the introduction sections of the doctoral theses were scanned and electronically stored. Then the citation patterns were explored through the hand-tagged analyses.
Framework of Thompson and Tribble (2001)

Thompson and Tribble (2001) have developed “a more sensitive set of categorizations”. Thompson and Tribble (2001) further categorized the integral citation into “Verb controlling”, “Naming” and “Non-citation”. Non-integral citation has also been divided into four sub-categories: “Source”, “Identification”, “Reference” and “Origin” by Thompson and Tribble (2001).

According to Thompson and Tribble (2001), there are three sub-classes of the integral citation.

(i) Verb Controlling
The citation is the agent controlling a verb, in active or passive voice, as in Thi-Ha (2004) states that a test is a measuring tool (Eng.3)

(ii) Naming
In Naming, the citation is a noun phrase or a part of noun phrase as in the following example:
According to Hawkey and Rezk (1990: 85), the three competences for reading English literature (Eng.3)

(iii) Non-citation
In Non-citation, the name of the cited author is given without the year of publication as in:
Lewis stated that Chesterton wrote his essays depending on the reader he intended, giving the message effectively. (Eng.5)

Thompson and Tribble (2001) have also identified four different functions of non-integral citations.

(i) Source
The first type of non-integral citations is Source or attribution citations which attribute a proposition which may be a statement of what is known to be true, a research finding or an idea to another author. An example of this is:
The term discourse can be referred to as a general term for examples of language use (Richards and Schmidt, 2002: 160). (Eng.6)

(ii) Identification
The second type of non-integral-citation is identification of an agent within the sentence it refers to. An example of this type is:
Similar findings are reported by two further studies (Nounopoulos et al., 2006; Vandiver & Worrell, 2002) that investigated perfectionism (Psy.6)

(iii) Reference
This type of citation usually includes the directive “see” to point to sources for further information.
DFID has changed its policy recently with regard to ELT (see DFID, 1998). (TEFL)

(iv) Origin
Origin citations indicate “the origin of the theory, technique or product” (Thompson, 2005) as in the example:
Using Slaney et al.’s multidimensional measure of perfectionism (Slaney, Rice, Mobley, Trippi, & Ashby, 2001), Accordinio et al. (2000) investigated that
discrepancy between performance and expectations ------------------------------- (Psy.6)

2.2.3.3 Petric’s (2007) Framework

Petric (2007) also explored the relationship between the types of citation and high-rated and low-rated master’s theses. Petric (2007) modified the classification of citation by Thompsom and Tribble’s (2001) and identified the rhetorical functions of citation in the high-rated theses and low-rated ones. The framework of Petric’s (2007) consists of nine rhetorical functions as follows:

(i) Attribution
This type of citation is similar to the “source” citation proposed by Thompsom and Tribble’s (2001). “This type of citation merely cites an author’s research and it is the most common and neutral way of citing an author” (Azlan, 2013). An example of the citation for “attribution” is:

In the 1980s, there were two points of view towards language learning strategies according to Rigney (1978). (Eng.4)

(ii) Exemplification
This type of citation is often preceded by “for example; e.g.” (Petric, 2007, p. 243), “such as” or “like” (Hyland, 2007, p. 270). For example:

Many authors such as Hemingway (1899-1961), Greene (1914-1991), Ursula Bloom (1892-1984), Watts (1817-1904), Christie and W.H. Audnen (1907-1973) praised his writings. (Eng.5)

(iii) Further reference
This type of citation is usually preceded by “see” (Petric, 2007, 244). By this type of citation, the readers are usually directed to more information on the research of the cited author as in the following:

DFID has changed its policy recently with regard to ELT (see DFID, 1998). (TEFL)

(iv) Statement of use
This type of citation states “authors’ works that are used in the thesis and the purpose of those works” (Petric, 2007, p.244).

Data collection and analysis are done by applying taxonomy of cohesion proposed by Halliday and Hasan (1976) and Topical Structure Analysis provided by Schneider and Connor (1991). (Eng.6)

(v) Application
This type of citation “makes connections between the cited and the writer’s work in order to use the argument, concept, terminology or procedures from the cited work for the writer’s own purposes” (Petric, 2007, p. 244) as in the following:

This textual metafunction, the third and final strand of meaning made in the clause, is described by Halliday as the "relevance" or the "enabling" metafunction (Eggins, 2004 298) and it is also stated that this metafunction is concerned with the potential the clause offers for its constituents to be organized differently, to achieve different purposes.” (Eng. 5)
(vi) Evaluation
In this type of citation, the writer evaluates or criticizes the works of other authors as in the following example:
Although an inexpensive and useful bird book, titled Birds of Myanmar (Kyaw Nyunt Lwin and Khin Ma Ma Thwin, 2003) was recently published in English and Myanmar, it is focused on common birds and is not an exhaustive field guide (Thwin et. al., 2011). (ZooL.5)

(vii) Establishing links between sources
This type of citation describes the links or connections between or among different sources used. For example:
Neurotic perfectionists strive for unrealistic goals and consistently feel dissatisfied when they cannot reach them (Hamachek, 1978; Rice, Ashby. & Slaney, 1998; Stumpf & Parker, 2000; Terry-Short, Owens. Slade & Dewey, 1995). (Psy.6)

(viii) Comparison of one’s own findings or interpretation with other sources
In this type of citation, the writers compare or contrast their work with the works of other researchers. For example:
e.g. (i) The results for the two (2) content lessons and the lecturer-facilitated lesson together, obviously showed that the lesson content had more lecturer code-switching. The same result of a similar study was found by Then and Ting (2009) as they mentioned that “when the teachers needed to provide a lot of explanation, they could not do without Bahasa Malaysia for reiteration and message qualification. (TESL 3, cited in Azlan, 2013).
e.g. (ii) the results of the interviews conducted in the present study are also in line with the findings of Derahaki’s (2008) study --------------- (cited in Gol et al., 2014)

(ix) Other
This type of citation is used “when the relation between the citing and cited document is not obvious” (Gol et al., 2014, p.158) and when there are “overlaps between some of the categories in the taxonomy” (Petrić, 2007, p. 246). “It possibly means a mix of rhetorical functions in one citation” (Azlan, 2013). For example:
e.g. (i) What are the central research questions about women inmates, and what are the appropriate methods to be used in answering these questions?” (Steward, 1994, cited in Petric, 2007, p.246)
e.g. (ii) Malik (1994) stresses the fact that code-switching often occurs in discourse markers. In Sample 14 and 15, the child repeatedly code-switches the discourse marker ‘pastu’ which in English means ‘after that’ or ‘and then’. (TESL 1, cited in Azlan, 2013)

The rhetorical functions ‘attribution’ and ‘application’ are mixed in this citation. “While the student is citing an author’s research, she is also using the author’s work as a basis to analyse her findings” (Azlan, 2013).

Data Analysis
In this study, the introduction sections of the doctoral theses from arts and science disciplines were analysed basing on the frameworks of Thompson and Tribble (2001) and Petric (2007). First the word count was run to know the number of words or length of each introduction section. After that the citations were identified and
calculated the number and percentage of the citations. Then the functions of the citations were classified according to the two frameworks. The numbers of citations per 1000 words employed by different disciplines, types of citation according to the framework of Thompson and Tribble (2001) and different functions of citation based on the framework of Petric (2007) were shown in tables. As the contextual nature of the citations was also explored to identify the citations according to the two frameworks, it can be said that this analysis is both quantitative and qualitative.

**Results**

In this study, the frequency of the citations employed in different disciplines was counted first and calculated the number of citations per 1000 words. The result of this is shown in Table 1.

*Table 1*

**Rank order of citations by discipline per 1,000 words**

<table>
<thead>
<tr>
<th>Arts disciplines</th>
<th>Per 1,000 words</th>
<th>Science disciplines</th>
<th>Per 1,000 words</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychology</td>
<td>11.00</td>
<td>Botany</td>
<td>13.58</td>
</tr>
<tr>
<td>English</td>
<td>3.80</td>
<td>Zoology</td>
<td>12.12</td>
</tr>
<tr>
<td>Philosophy</td>
<td>3.43</td>
<td>Chemistry</td>
<td>0.17</td>
</tr>
<tr>
<td>Geography</td>
<td>2.72</td>
<td>Mathematics</td>
<td>0</td>
</tr>
</tbody>
</table>

As shown in Table 1, citation practice was found in all the Arts disciplines with the highest frequency (11.00 per 1000 words) in Psychology. Except Mathematics, all science disciplines also employed citation with the highest frequency in Botany (13.58 per 1000 words).

Types of citation are also analysed in this study according to the framework of Thompson and Tribble (2001) who further classified Swales’ (1990) integral citation into three categories and non-integral citation, into four categories of which the researchers employed “non-integral source” most. The percentage of types of citation found in different disciplines is shown in Table 2.
According to Table 2, in the selected Myanmar doctoral thesis introduction sections, there is not much difference between the integral citation and non-integral citation. The density of “non-integral source” citation is the highest (48.49%) and there is no “reference” citation. Second to “source” citation is “integral verb controlling” (21.83%) and the use of “naming” (5.66%), “non-citation” (15.96%), “identification” (0.51%) and “origin” (2.16%) were also identified in the selected Myanmar doctoral thesis introduction sections.

Then functions of citation were identified basing on the typology of Petric (2007) who proposed 9 different functions of citations. Different frequency of citation functions can be seen in Table 3.

<table>
<thead>
<tr>
<th>Disciplines</th>
<th>Integral</th>
<th>Non Integral</th>
<th>Total citation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Verb controlling</td>
<td>Naming</td>
<td>Source</td>
</tr>
<tr>
<td>English</td>
<td>58.7%</td>
<td>21.74%</td>
<td>4.35%</td>
</tr>
<tr>
<td>Geography</td>
<td>31.2%</td>
<td>12.50%</td>
<td>25.00%</td>
</tr>
<tr>
<td>Philosophy</td>
<td>5.26%</td>
<td>0%</td>
<td>94.7%</td>
</tr>
<tr>
<td>Psychology</td>
<td>22.0%</td>
<td>3.90%</td>
<td>1.30%</td>
</tr>
<tr>
<td>Chemistry</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Mathematic</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Zoology</td>
<td>8.49%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Botany</td>
<td>48.8%</td>
<td>1.50%</td>
<td>2.26%</td>
</tr>
<tr>
<td>Average</td>
<td>48.84%</td>
<td>51.16%</td>
<td></td>
</tr>
</tbody>
</table>

According to Table 2, in the selected Myanmar doctoral thesis introduction sections, there is not much difference between the integral citation and non-integral citation. The density of “non-integral source” citation is the highest (48.49%) and there is no “reference” citation. Second to “source” citation is “integral verb controlling” (21.83%) and the use of “naming” (5.66%), “non-citation” (15.96%), “identification” (0.51%) and “origin” (2.16%) were also identified in the selected Myanmar doctoral thesis introduction sections.

Then functions of citation were identified basing on the typology of Petric (2007) who proposed 9 different functions of citations. Different frequency of citation functions can be seen in Table 3.

F1 = Attribution
F2 = Exemplification
F3 = Further reference
F4 = Statement of use
F5 = Application
F6 = Evaluation
F7 = Establishing links between sources
F8 = Comparison of one’s own findings or interpretation with other sources
F9 = Other
### Table 3
Functions of citation in the doctoral thesis introduction sections from different disciplines

<table>
<thead>
<tr>
<th>Thesis</th>
<th>F1</th>
<th>F2</th>
<th>F3</th>
<th>F4</th>
<th>F5</th>
<th>F6</th>
<th>F7</th>
<th>F8</th>
<th>F9</th>
<th>Total citations</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>48.00%</td>
<td>30.00%</td>
<td>0%</td>
<td>10.00%</td>
<td>12.00%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Geography</td>
<td>87.50%</td>
<td>0%</td>
<td>0%</td>
<td>12.50%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Philosophy</td>
<td>92.31%</td>
<td>2.56%</td>
<td>0%</td>
<td>0%</td>
<td>5.13%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Psychology</td>
<td>78.57%</td>
<td>3.57%</td>
<td>0%</td>
<td>3.57%</td>
<td>1.14%</td>
<td>0%</td>
<td>13.10%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Chemistry</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Mathematics</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Zoology</td>
<td>86.92%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0.94%</td>
<td>11.32%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Botany</td>
<td>71.64%</td>
<td>0%</td>
<td>1.49%</td>
<td>0%</td>
<td>26.87%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Average</td>
<td>80.71%</td>
<td>5.17%</td>
<td>0%</td>
<td>3.73%</td>
<td>2.82%</td>
<td>0.13%</td>
<td>7.33%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
</tbody>
</table>

According to Table 3, in the introduction sections of Myanmar doctoral theses, “attribution” citation was found to be 80.71%, “exemplification” citation was 5.17%, “statement of use” was 3.73%, “application” was 2.82%, “evaluation” was 0.13% and “establishing links between sources” was 7.33%.

The percentage of the citation types found in the doctoral thesis introduction sections were shown in the following pie chart.
According to figure 1, the authors of Myanmar doctoral thesis introduction sections employed all types of citation except “Non-integral Reference”. Among them, “Non-integral Source” citation was found to be the highest (48.49%) and the second highest density of citation is “Integral Verb Controlling” (28.52%) which is the most commonly used citation. The third highest density of citation was “Integral Non-citation” (14.66%) in which the cited author’s name is expressed without mentioning the year. The authors also utilized “Integral Naming” (5.66%) where the citation is a noun phrase or a part of a noun phrase. The percentage of the occurrence of “Non-integral Origin”, which indicates the originator of a concept or a product, was 2.06%. “Non-integral Identification”, which identifies an agent within the sentence it refers to, was found to be the the least (0.51%). “Non-integral Reference” was found in none of the thesis introduction sections.

The percentage of the citation functions found in the doctoral thesis introduction sections were shown in the following pie chart.
Figure 2: The occurrence of the functions of citation in the doctoral thesis introduction sections for different functions

According to Figure 12, the rhetorical citation function “Attribution”, which merely cites an author’s research, was employed most frequently (78.21%) in Myanmar doctoral thesis introduction sections. However, the functions for “Further references”, “Comparison of one’s own findings or interpretation with other sources” and “Other” were not found in the introduction sections. The occurrence of citation function of “Exemplification” is 5.17%. The percentage of citation function of “Statement of use” is 3.73%. “Application” function was found to be 2.82%. “Evaluation” function was the least in frequency (0.13%) which was used by only one thesis introduction (Zool. 5). The citation function “Establishing links between sources” was found to be the second highest in frequency (7.33%) in Myanmar doctoral thesis introduction sections.

Discussion

Citation Frequency in Different Disciplines

In this study, the frequency of the citations exploited in different disciplines was analysed first. When compared with soft disciplines, science disciplines employed fewer citations. According to the nature of science, problems usually come from the earlier researches which leave further questions to be answered by later researchers. In other words, the researcher and the readers shared the same context. So the researchers do not have to refer to the previous research as Hyland (2009, p.10) said, “Problems tend to emerge on the back of earlier problems as results throw up further questions to be followed up with further research so writers do not need to report research with extensive referencing”. On the other hand, in soft disciplines, literature is widespread and a variety of readers may not have the shared context with
the researcher. Thus the researcher has to refer to the earlier sources. “In the humanities and social sciences, on the other hand, the literature is more dispersed and the readership more heterogeneous, so writers cannot presuppose a shared context but have to build one far more through citation” (Hyland, 2009, p.11). However, unlike other science disciplines, Zoology and Botany researchers has the highest frequency of citation practices. It is in line with Hyland (2009, p.11) who found out that “biology has the highest citation count per 1000 words”. The high frequency of citation practices by Zoology researchers and Botany researchers is because they not only showed that their research was built on the work of others but also described the previous researches which have studied the same species in different fields.

**Types of Citation**

Next, the types of citations used in Myanmar doctoral thesis introduction sections were analysed using the framework of Thompson and Tribble (2001) in which there are three types of integral citations; “verb controlling”, “naming” and “non-citation”. Non-integral citation is also classified into four categories; “source”, “identification”, “reference” and “origin”.

Among all, density of the use of “non-integral source citations” (48.49 %) is highest especially in science disciplines. The highest density of non-integral citations by the researchers from science disciplines shows that they want to focus on the information rather than on the authors as Charles (2006,a) states that “non-integral citations are prevalent in hard disciplines in order to foreground the research and give less prominence to the researchers, while the use of integral citations in soft disciplines provides the writer with a pronounced role, allowing evaluation on their part” (cited in Bahadorfar and Gholami, 2017, p. 38).

The second most frequently used citation type was “integral verb controlling” (21.83%). This may be because the writers found “verb controlling” easier and more obvious to use in citing other texts as Jalilifar and Dabbi (2012, p.99) claim “Verb controlling citations are in some ways the easiest and most obvious ways of incorporating citations into text”. On the other hand, it may be because of citation convention or disciplinary variation. However, it can also be because of the rhetorical purpose. By the preference of “verb controlling”, the writers give more prominence to the researchers, “establishing a strong support for their claims within the text by placing the citation within the sentence and emphasizing the researcher rather than the information” (Jalilifar and Dabbi, 2012, p.99).

The third most frequency of citation is “integral non-citation” (15.96%) especially by researchers from Philosophy. “Non-citation” is usually used “when the reference has been supplied earlier in the text and the writer does not want to repeat it” (Thompson and Tribble, 2001). However, the writers of doctoral theses practiced “non-citation”, citing the others’ texts without previously referring them. Even if the year is mentioned with the name of the reference, certain researchers do not want to accept “non-citation” as proper citation as Shoostari and Jalilifar (2010) said “certain academic societies refuse to accept non-citation and they regard it as unconventional because there is no year mentioned but only the name of the researcher even though the year is indicated in the earlier text” (cited in Manan, 2015). The prominent use of “non-citation” by the researchers may be because of the disciplinary convention.
The least frequency of citation type was “non-integral identifying” (0.51%) and no citation type of “reference” was found in any of the doctoral theses introduction sections.

Functions of Citation

When analyzing the functions of citation in the introduction sections of the doctoral theses using the framework of Petric (2007), it was found that all the thesis introduction sections from different disciplines in Myanmar employed citations mostly for the “attribution” function, the average of them being 80.71%. This is in line with Gol et al. (2014) who report that “attribution” is the most commonly used rhetorical function of citations from Petric’s (2007) framework. By using this type of functions, writers just attribute the authors and there is no special rhetorical function in doing so. “There is no need for a special creativity on behalf of the writers” (Gol et al., 2014, p. 163). There are no noticeable features in “attribution” and it is commonly used and has the simplest rhetorical function (Petric, 2007, cited in Gol et al., 2014). This type of citation is “the most common and neutral way of citing an author” as Azlan, N.M.N.I (2013) reported.

The function of “establishing links between sources” was found to be the second most realised one. This is because the researchers of these fields connect their study with the work of other researchers in their fields and thus establish the territory their research rhetorically.

“Exemplification” was found to be the third highest density of citation function especially in English doctoral thesis introduction sections. Philosophy and Psychology researchers also utilized citations for the function “exemplification”. These researchers can be said to be aware of this function of citation and made effective use of it in their research to support their arguments. By the use of “exemplification”, writers can have evidence or support their statement with the information from other sources (Azlan, 2013).

The function of “statement of use” was found to be 3.73% in the doctoral thesis introduction sections. This type of citation is also essential in introduction section of a research as writers have to describe the work of others that are employed as a framework in their research. This type of citation states “authors’ works that are used in the thesis and the purposes of those works” (Petric, 2007, p. 144, as cited in Azlan, 2013). The researchers can be said to employ this function properly in their thesis introduction sections.

The researchers also employed citations for “application” using the concepts and terminology from the work of others as this type of citation “makes connections between the cited and the writer’s work in order to use the arguments, concepts, terminology or procedures from the cited work for their own purposes” (Petric, 2007, p. 144, as cited in Azlan, 2013).

Among all selected doctoral thesis introduction sections, only one which is Zoo. 5 practiced the “evaluation” function. In introduction sections, the writer tries to “establish a niche” (Swales, 2004) by indicating a gap or weaknesses of the previous researches. In doing so, they have to evaluate the work of others. So “evaluation” is essential in writing a research introduction so that it can be more critical and argumentative.

The functions of “further references”, “comparison of one’s own findings or interpretation with other sources”, “other” were not practiced by any of the selected
doctoral thesis introduction sections in Myanmar. The ground of not practicing the function “comparison of one’s own findings or interpretation with other sources” by any of the selected doctoral thesis introduction sections is that it is the function that is usually used in “Discussion” section of a research. As thesis introduction sections serve a variety of purposes such as “establishing a territory” and “presenting positive justification” (Swales, 2004), writing a research introduction “entails the use a variety of rhetorical functions of citation” (Gol et al., 2014). It was found that, in general, though not very high in density, a wide variety of rhetorical functions of citation except “further references”, “comparison of one’s own findings or interpretation with other sources”, “other” was practiced in the selected doctoral thesis introduction sections in Myanmar. By the appropriate use of citations the researchers can avoid plagiarism as Jalilifar and Dabbi (2012, p. 101) believe “accurate use of citation can be considered as one important way to prevent plagiarism” and they can also show “a good knowledge of the literature and demonstrating analytic ability” (Gol et al., 2014) and thus support their stance as Petric (2007, p. 251) believes “effective use of citation may help highlight the knowledge and abilities highly valued by thesis graders and may thus contribute to students’ academic success” as cited in Gol et al. (2014). Basing on this study, it can be implied that although the researchers employed citations, they are not fully recognized different rhetorical citation functions. Not having proficient understanding of citation can lead to plagiarism as “To understand the importance of citation in the academic setting it would be enough to say that citation, if used properly, would be against literacy piracy” (Jalilifar, A. and Dabbi, R. 2012).

**Recommendations**

It is hoped that, this study will contribute to raising the researchers’ as well as the students’ awareness or understanding of different types and rhetorical functions of citation in Myanmar academic community as not much attention was paid to different types and functions of citation in genre analysis or in using citations in an appropriate way in their research. Using the typology of rhetorical functions of citation by Petric (2007), the teachers of research paper writing in Myanmar can make their students find out the different citation functions in academic texts and researches or ask them to match the given clear instances of citation with the categories of citation functions. Doing exercises like this, students will be able to refer to previous literature in an appropriate way making their writing or thesis effective and rhetorical and thus improve their writing skill. Further researches should be carried out on comparison between the citation types and functions of citation found in Myanmar researches and those found in internal researches. As this study analysed only APA style of writing, different styles of writing can also be conducted by further researches.
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Research Students' Perceptions on Reasons to Participate in Professional Conferences

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Abstract

Students attend professional conferences for a variety of reasons, including for educational and networking purposes. The students visit panels, discuss key issues and vocational practices, and have the chance to meet with industry luminaries. Students also attend conferences to learn about scholarship and grant opportunities that might fund their continuing education. Research can be extremely demanding and, depending on their subject, quite isolating. Attending events where they merely listen to other people’s speeches – which they may or may not understand or agree with, does not always seem to be the best time management strategy. Conferences are venues for established scholars and researchers to flaunt their ideas. By attending conferences, research students will gain a unique learning experience along with the added benefits of career building options, and opportunities to become research-active as well as meet researchers from around the world. With the constantly evolving technology and high level of competition, it has become essential for academics to publish in conference proceedings and journals. Research students will also gain the confidence to present their findings when they get exposure to the right audience at the conference. Thus, we explore the research students' perception on motivators that lead to conference attendance program and reasons to participate in professional conferences. To capture student views of the conference we adopted a mixed-methods approach, consisting of questionnaires, on-the-day short interviews and longer structured interviews after the conference. We received 75, 41 and 12 responses to the questionnaires, on-the-day short interviews and longer structured interviews respectively, giving a total of 128 responses. Research students often report activities and opportunities, networking and convenience of conference as famous motivators that lead to conference attendance and winning research scholarships and collaboration, getting into the right network and keeping pace with the constantly changing world as their reasons to participate in professional conferences.

Keywords: Research Students' Perception, Reasons, Professional Conferences

Introduction

Five motivators that lead to conference attendance

The literature shows that students generally go to conferences for the same reasons that their professional counterparts do. Research by Severt, Wang, Chen, and Brieter (2007) indicates five motivators that lead to conference attendance: 1:
Activities and opportunities 2: Networking 3: Convenience of conference 4: Education benefits 5: Products and deals.

Reasons to Participate in Professional Conferences

(i) Getting into the right network

Universities are keen to give academics a platform for sharing their knowledge across several different domains (i.e., Business, Social Science, ICT and Education). Their specialties lie in providing training in research epistemology, publishing academic journals and in strategizing and executing small- to medium-sized international academic conferences in Business, Social Science, ICT and Education. Supporting research students and researchers in boosting their project outcomes is a crucial part of conferences as it enhances knowledge dissemination. The motive is to have a single interdisciplinary academic vocation by blending all these domains together. The focal point of our conference will extend to various areas of benchmark research.

(ii) Winning research scholarships and collaboration

Are there any other benefits they will get from attending an international conference? Well, they will have a plethora of advantages including a chance to win a scholarship for the best paper. Students can enter the competition by submitting their high-quality full paper presentation. If they are one of the winners, they may be exempted from paying the fee of the conference. Winners will be chosen from the registered participants only. When their presentation attracts a substantial amount of attention in the conference this way, their research project will also benefit from wider attention.

(iii) Sharing knowledge

For academic success, it is very important to sharpen one’s knowledge. Knowledge-sharing is one of the most significant practices among highly effective people. Just as a blunt axe cannot cut a tree, a dull mind never curates a brilliant idea. By taking a break from class to attend the conferences, students have the chance to enhance their knowledge and learn from like-minded people.

(iv) Keeping pace with the constantly changing world

The only constant thing in today’s academic research is ‘change’. It’s interesting how knowledge can keep growing. The internet undoubtedly helps them keep up with all the changes going on around us, but participation in the conferences will better inform them of the latest progress and other details with insider views of the contemporary research in their area of expertise.

(v) Strengthening professional ties

Conferences are not ‘all work and no play’. They bring together academics from a number of countries and give the students a chance to socialize – with opportunities to grow their professional networks and strengthen their ties. The coffee / tea and lunch breaks offer them the ideal way to meet a prospective mentor or even a research associate. Being a part of our community means investing in your own growth with a knowledge bank to back them up.

(vi) Having free journal publication

Conferences primarily deal with four of the important contemporary subjects: Business, Social Science, ICT and Education. Hence, publishing in journals plays a crucial part in enhancing academic research career and in helping students to reach a wider academic audience.
(vii) Meeting challenges and growing the reputation
There is a saying that meeting challenges bring out the best in us. By attending conferences, students will develop themselves and grow the reputation of their academic institution. When they submit their abstract, they will be on the way to developing their career within a globally recognized academic environment.

(viii) Taking home constructive feedback
Receiving critiques and constructive feedback is invaluable in helping students to recognize and overcome their own weaknesses. Paying attention to any criticisms and suggestions is also beneficial for improving the quality of further research.

Methodology
Conferences provide professionals and students with opportunities for education and networking by bringing together industry people from all age groups and experience levels. The benefits gained from attending are manifest, but conferences can and should do more to encourage students to participate by attending to their specific needs. This requires more communication, better partnerships with the student community, and targeted programming. Students want to attend conferences to improve themselves; conferences should make that goal easier to achieve. To capture student views of the conference we adopted a mixed-methods approach, consisting of questionnaires, on-the-day short interviews and longer structured interviews after the conference. We received 75, 41 and 12 responses to the questionnaires, on-the-day short interviews and longer structured interviews respectively, giving a total of 128 responses.

Five motivators that lead to conference attendance
Question Item 1: Why are you attending academic conferences? / Why do you attend conferences?
For activities and opportunities?
For networking?
For convenience of conference?
For education benefits
Or for products and deals?
### Table 1
Responses of the research students towards question item 1 on motivators that lead to conference attendance program (Source: Severt, Wang, Chen, and Brieter, 2007)

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Question Item 1: Why do you attend conferences?</th>
<th>Responses of the research students towards question item 1</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Activities and opportunities</td>
<td>Strongly disagree 1%</td>
<td>5%</td>
<td>1%</td>
</tr>
<tr>
<td>2</td>
<td>Convenience of conference</td>
<td>Strongly disagree 1%</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>3</td>
<td>Products and deals</td>
<td>Strongly disagree 1%</td>
<td>23%</td>
<td>7%</td>
</tr>
<tr>
<td>4</td>
<td>Networking</td>
<td>Strongly disagree 4%</td>
<td>5%</td>
<td>3%</td>
</tr>
<tr>
<td>5</td>
<td>Education benefits</td>
<td>Strongly disagree 14%</td>
<td>6%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Conferences are always heavily attended by the professionals for those reasons, but student participation and satisfaction have been limited. In order to discover why this is so, this research examined student participants. The results indicate that conferences provide with information regarding better and more effective ways to encourage students.

**Reasons to Participate in Professional Conferences**

**Question Item 2:** What are your reasons to participate in professional conferences?

- For getting into the right network?
- For winning research scholarships and collaboration?
- For keeping pace with the constantly changing world?
- For strengthening professional ties?
- For having free journal publication?
- For meeting challenges and growing the reputation?
- Or for taking home constructive feedback?

### Table 2
Reasons to participate in professional conferences

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Reasons to participate in professional conferences</th>
<th>Agree</th>
<th>Not sure</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Getting into the right network</td>
<td>76%</td>
<td>1%</td>
<td>23%</td>
</tr>
<tr>
<td>2</td>
<td>Winning research scholarships and collaboration</td>
<td>82%</td>
<td>5%</td>
<td>13%</td>
</tr>
<tr>
<td>3</td>
<td>Sharing knowledge</td>
<td>57%</td>
<td>3%</td>
<td>40%</td>
</tr>
<tr>
<td>4</td>
<td>Keeping pace with the constantly changing world</td>
<td>68%</td>
<td>16%</td>
<td>16%</td>
</tr>
<tr>
<td>5</td>
<td>Strengthening professional ties</td>
<td>65%</td>
<td>7%</td>
<td>28%</td>
</tr>
<tr>
<td>6</td>
<td>Having free journal publication</td>
<td>59%</td>
<td>-</td>
<td>41%</td>
</tr>
<tr>
<td>7</td>
<td>Meeting challenges and growing the reputation</td>
<td>51%</td>
<td>9%</td>
<td>40%</td>
</tr>
<tr>
<td>8</td>
<td>Taking home constructive feedback</td>
<td>44%</td>
<td>18%</td>
<td>38%</td>
</tr>
</tbody>
</table>

(i) Getting into the right network 2 (76%)
In their feedback, participants from the past conferences state that these events are rewarding experiences. They learned a lot about the current research in their respective fields. The participants also mention that publication in the conference proceedings and journals helped them to remain research-active.

(ii) Winning research scholarships and collaboration 1 (82%)
Conferences usually are associated with institutes across the globe. It means a large pool of knowledge is available at the conferences for everyone present to take advantage of – they can explore further sponsorships and funding opportunities to accomplish their research objective and move towards their career goals. If their project sounds interesting, a sponsor might wish to invest in their venture.

(iii) Sharing knowledge 3 (57%)
Reading a published paper online or anywhere else does not familiarize students with the actual process or research involved. By exchanging knowledge through conferences, participants gain deeper insights as well as meeting people. These events bring them more opportunities and broader viewpoints on business and science.

(iv) Keeping pace with the constantly changing world 1 (68%)
Showcasing the best research material, compact-sized and well-organized conferences can show the students a new approach, an easy explanation, and a solution to complex problems. Even though the information may already be available on the internet, delivering it to the world and presenting it in a well-planned structure is hard to accomplish and less effective in an online summit.

(v) Strengthening professional ties 2 (65%)
As a conference participant, students will have the opportunity to publish their full-paper in one of our online journals free of charge. Fully open-access (OA) journals will allow them to share their research findings with the wider academic community in the area of expertise. This initiative enables academics to publish their full-papers.

(vi) Having free journal publication 4 (59%)
As a conference participant, students will have the opportunity to publish their full-paper in one of online journals free of charge. Fully open-access (OA) journals will allow them to share their research findings with the wider academic community in their area of expertise. This initiative enables academics to publish their full-papers.

(vii) Meeting challenges and growing the reputation 2 (51%)
Networking gives students a new perspective on things that are vital for their research. At the conference, students can have academic collaboration with fellow researchers and experts from different countries.

(viii) Taking home constructive feedback 1 (44%)
Attending conferences will enhance students’ own development as well as creating a new benchmark for others. Acknowledging any deficiencies and considering any advice can strengthen them as an academic and aid their progress, earning them the reputation of an active member in academia. The value of their work can only be estimated when one of the papers is evaluated by experts. Conferences provide them with that opportunity. They will return home with more confidence and with some new ideas on how to carry their work forward. Students can enrich their
subject knowledge by engaging with other presenters and asking questions about their presentations.

Findings

**Five motivators that lead to conference attendance**

The five motivators are listed in rank order according to importance. Activities and opportunities include not only on-site activities designed to interest participants, like lunches and social gatherings, but also off-site cultural activities and the opportunity to travel to interesting places. Networking opportunities ranked second in importance, followed closely by convenience of the conference; this motivator includes factors such as travel time, scheduling, and cost. Educational benefits takes into account classes, interesting programming, and opportunities for career enhancement. Finally, survey respondents reported that accessibility of products and deals, including those available for purchase at exhibits, were a motivating factor.

![Figure 1: Responses of the research students towards question item 1 on motivators that lead to conference attendance program](image)

**Reasons to Participate in Professional Conferences**

(i) **Getting into the right network**

Being a part of these conferences helps students to grow their professional network with the right people, boost their knowledge base and enhance their research career. They believe in encouraging the quest for knowledge as much as possible – through seminars, paper reviews and conferences to assist academics throughout their professional journey. Through a platform that connects them with scholars and associates across the globe, students will raise their chances of accomplishing academic goals.

(ii) **Winning research scholarships and collaboration**

Universities are keen to build research collaboration with academics of proven research backgrounds. They welcome those who have already published in top-ranked journals to submit their research proposals (500 words maximum) for
further consideration. Ideally, they should mention research problem(s) and methodology as well as theoretical and practical contributions in the proposal. Universities are looking forward to receiving research proposals from top-notch researchers.

(iii) Sharing knowledge
Through conferences, students motivate and enable participants to move forward and acquaint themselves with other research scholars in their niche. Whatever industry background they belong to, they are sure to learn something new in conferences.

(iv) Keeping pace with the constantly changing world
Through the conferences, however, students can learn more easily and thoroughly about new and trending areas of research to widen their scope in the future.

(v) Strengthening professional ties
Participants can also enhance their research career by taking advantage of the rich knowledge pool from their past conferences. They can get to know people with diverse cultural backgrounds from across the globe who can help them to develop further professionally. As achieving academic success and reaching out to knowledgeable persons in their field are the main purposes of any scholar, universities provide a place for their research work on an international platform.

(vi) Having free journal publication
Publication in one of the journals will also assist students to take their academic career further. In addition, journals are indexed with several useful well-known databases.

(vii) Meeting challenges and growing the reputation
Success greatly depends on mindset while participating in a stimulating conference. There is no greater satisfaction than receiving appreciation and encouragement for work. Presenting a research paper in a room full of scholars is quite different from giving a presentation in front of regular peer group, and can have a much stronger impact. Participating in a world-class conference can present some tough challenges but if they adopt a positive attitude, it can mean a leap forward in their research work.

(viii) Taking home constructive feedback
Receiving critiques and constructive feedback is invaluable in helping students to recognize and overcome their own weaknesses. Paying attention to any criticisms and suggestions is also beneficial for improving the quality of further research. Attending a conference will enhance own development as well as creating a new benchmark for others. Acknowledging any deficiencies and considering any advice can strengthen them as an academic and aid their progress, earning the reputation of an active member in academia.
Discussion

It has been found that many research students attending conferences to explore potential collaborations, to travel and to improve their résumés; effectively embracing many of the elements that make up a professional conference experience. It is important that conferences are dynamic, enriching and beneficial experiences, providing opportunities for the majority, if not all, participants to present their research, rather than simply attending. There is likely to be a continuum of personal skills development, a confidence continuum, based on the level of active participation in a conference. There are so many reasons why conferences are extremely vital for students.

(i) Meeting peers

At conferences students get to meet like-minded people who share their passion and interest. How awesome is that?! Many research students tend to spend their time at the library and the lab – alone, but at conferences they get to see who else is researching in their field, they can network and even make new friends.

(ii) Meeting professionals in the field

Attending a conference means that they can meet more advanced researchers, as well as established senior professionals and scholars. Listening to talks and presentations can open up new ways of thinking about a specific topic or even give you a new idea, one that they had previously not thought about. Also, as most post-conference events are usually informal, they can get the chance to speak to the presenters in person, ask for their opinion and (if they are lucky) even get their advice or contact information for further discussions.
(iii) **Getting to ask questions**

Most talks are followed by Q&A sessions, which give them the opportunity to ask all the questions they may have on a topic, and they usually get really useful and stimulating answers.

(iv) **Having innovative ideas**

Conferences are places where many academics and researchers ‘test’ their ideas, put them out there for the audience, in order to receive critical responses. This means that students will get to hear groundbreaking ideas, discoveries and theories on a subject, which they are unlikely to find in an existing publication.

(v) **Having practical advice**

Some conferences do not just offer discussions about new (and sometimes abstract) ideas, but they also offer practical advice on more hands-on issues such as getting your research published, or on audience engagement and impact.

(vi) **Attending Workshops**

Conferences often offer practical advice which is then followed by practical workshops. These are really useful as students get to test out the new information and ideas that they have been offered with their peers in an environment where they can freely and informally ask any questions they might have.

(vii) **Overcoming fears**

Established scholars as well as early career researchers have something in common: fear of talking to new people, anxiety about presenting ideas or asking questions. Now this does not necessarily apply to everyone, but many people sometimes feel that way. Conferences are the ideal environment to overcome these fears. It is important to keep in mind that we are all here for the same reason. Participants are all interested in the same subject and they are here to share ideas, rub minds, meet new people and generate new thoughts.

**Conclusion**

Conferences help students broaden their academic and professional circles. Students continuously strive to publish scholarly works across the globe that can bring the most advanced innovation and meet the highest ethical standards. In addition, students will have the opportunity to obtain professional career advice at the conference as well as learning about other topics beyond their own field of work, enabling them to gain insights into other disciplines. At the same time, the research presentations from fellow scholars give them a deeper knowledge of their niche. Further, as a particular piece of research extends beyond its primary focus, the ‘why, how and if’ involved broadens the horizons more. Knowing a large pool of scholars brings innumerable benefits. There might be an open position in their organization they have been looking to fill with the right candidate, for example, and they will have a good chance of finding the talent they have been looking for. So, students should not miss out on the benefits of attending our conferences.
References


Group Discussion in Chemistry Teaching for Undergraduate Students

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Abstract

According to 21st century teaching strategies, Myanmar need to change the teaching learning surrounding for next generation. The research deals with the transformation from traditional teaching to group discussion in undergraduate students of higher education. At first, the change of students and the teacher is difficult to collaborate and participate in group discussion. When the process was done repeatedly, it is found that the group discussion and brainstorming practice of students were used to learning of the topic in Chemistry teaching. By the current work, ‘one minute paper’ method and writing ‘muddiest /clearest point’ is more effective for learners and some undergraduate students has less effort on writing a ‘daily journal’. In addition, the students got easily understand the relationship of Environmental chemistry subject and daily uses.

Keywords: group discussion, brainstorming, one minute paper, muddiest /clearest point, daily journal

Introduction

Education for sustainable development (ESD) was a United Nation program that defined as education that encourages changes in knowledge, skill, values and attitudes to enables a more sustainable and just society for all. ESD aims to empower and equip current and future generation to meet their need using a balanced and integrated approach to economic, social and environmental dimensions of sustainable development (http://www.en.m.wikipedia.org). Among the 17 global goals for sustainable developments, United Nations General Assembly set that education must be implemented for equality globally in 2015 for the year 2030. According to globally action, although Myanmar is an under development country, this implementation were performed. In recent year, Myanmar intended to develop its education system from teacher centred to student centred approach system.

By the review of past, the education journey of Myanmar can be reviewed roughly into 6 main categories according to periods in which it passed. At the early era, boys were traditionally taught at monastery school, where they would learn Burmese and basic arithmetic skills. Modern education began under King Mindon (1853-1878), it was shift a Westernised education system, Christian missionary
schools as preparatory school for upper classes. Under British Colonial era, secular education spread and the country achieved a relatively high education and educational access for women improved tremendously. In the 1950s, Myanmar was not only one of the richest countries but also it has high literacy rate. From this time to 1990s, the new education system was gradually weak as government faced crisis to Universities (http://www.en.m.wikipedia.org). In near recent year, a complementary approach in education is to develop a healthy moral mind in a healthy active body. In the past learning systems, the teacher is a leader of classroom and she/he explained the lecture first. Some students are good listeners and they followed the trend of teacher’s guideline. The passive learning (teacher leading system) is absolutely dependent on the teacher and the teacher cannot evaluate easily if the student understands the lecture when the topic has been finished. In other words, although the students were be tested / examined at the end of semester, there were no taking students’ feedback after the lecture period. There was necessary the changing to obtain critical thinking, collaboration and communication to all students the next generation of country.

In modern education age, learners need to achieve in their professional work and to fulfill the 21st century skills: critical thinking, creativity, collaboration, communication, information literacy, media literacy, technology literacy, flexibility, leadership, imitative, productivity and social skills (http://www.aeseducation.com). In the 21st century learning style, teaching learning environment is intended to student-oriented format and is necessary to get the feedback from students. And then, the students’ learning could be evaluated by various types of assessments including short questions and writing assignments, etc. Both of learning Chemistry and control the large population of students with group discussion technique are complex. In learner-centered class, teachers become facilitators, who need to know how to control the large class-room size and how to prompt the students’ enthusiasm (Aghaebrahim and Mirshahjafari, 2014).

Objectives

1. To improve student’s understanding on Environmental Chemistry
2. To obtain the effective teaching learning for all teachers and students

Methodology

There was a change from traditional teaching style or the past teaching format to a group discussion learning format associated with undergraduate teaching course that was designated as “Environmental Chemistry”. It is an elective course for third year undergraduate / BSc degree as Chem-3111. The current teaching and learning approach was found to be suited for 30 students in one classroom, who were 19 female and 11 male students. One topic of the module, “The basic concept of Pollution and water pollution” were given to students to discuss each other as well as teacher within two or three lecture time (55 minute per lecture time). The total number of students (30) are separated into suitable groups and asked to discuss about topics within each group and sharing knowledge among groups during the learning period. There are divided into three groups among 30 students such as 'Group A', 'Group B' and 'Group C'. The teacher wrote the questions which it should be known by the student on white board. The student thought and discussed based on their own
opinion to get true answer within given interval. After the completion of the time limit, they had given the answer to the teacher and other groups.

Figure 1: Chemistry teaching in group discussion

The students’ understanding was checked by the one-minute paper, (Stead, 2005) which is a highly effective technique both for awareness the course and relation between theory and daily life’s chemistry. In this way, students have to answer the proposed questions on a blank sheet of paper in a period of one minute. Example questions were:

What is meant by “Environmental Chemistry”?  
Do you know how many types of pollution are there?  
What is water pollution?  
Do you know why do water need to clean for life?

Another method is one in which the instructor or tutor give questions to answer for the students in the form of the muddiest / clearest point (Paulson and Faust, 2018) that takes slightly longer than one minute as well as it has a slightly difference when compared with one-minute paper. The specimen patterns were:

What was the muddiest or clearest point in the topic?  
Describe some organic and inorganic pollutants of water and their sources.  
What is the best method for the control of water pollution?  
What is the easiest way to reduce the pollutants from water?  
How can we get the clean water at home or for domestic uses?

In addition, writing “Daily journal” is similar to clearest point, though the student must report their opinion on some topic in the course. This technique is blended the previous techniques, that has more effective as possible to obtain the benefit and admit for study in depth or a deep discussion of a course material (Paulson and Faust, 2018). Whether in lecture, discussion sections, laboratories, or individual encounters, questioning is an important part of guiding students’ learning (Arrow smith, 1997). The discussion of student in pairs or groups could give many advantages and have the opportunity to share their own views, to listen to others, to make sharp their argumentative skill and thinking deeply and quickly.
Results

As the working into group, the students got more collaborative each other and gained critical thinking skills on subject matter. By checking ‘one minute paper’ and ‘muddiest/clearest point’ gave quick response within one lecture time in 30 students. Writing ‘daily journal’ or as an assignment for home-work was one which some students copied from textbook. To collect the feedback on the topic, evaluation forms were given to students to evaluate the teaching by students, it was collected by attempting to answer in rating and ranking levels of their satisfaction scale. Some examples of student feedback on lecture are as follows.

✓ "I like group discussion because to discuss water pollution, I searched the meaning of new terms that related to topic from dictionary or google."
✓ "It is good to get new ideas. But sometime we found hard to agree with classmates."
✓ "We can get the knowledge of water pollution not only from text book but also internet website. And we can apply the method to get pure water and how to prevent water pollution in our environment."
✓ “I know well the method made to improve our reading skill.”
✓ “We got new ideas to improve our learning skill and knew thinking ideas and general knowledge.”
✓ “I’m afraid of group discussion because I can’t quickly think the answer like others. But water pollution is interesting topic. We know how important clean water is.”
✓ “I like the group discussion but it’s difficult to me, so I have many challenges.”

The evaluation comments showed that the students found the group discussions both challenging and enjoyable. The in-class assessments gave the teacher information about what the students had been learnt well and which points needed reinforcing.

Table 1
Percent of students’ feedback at the end of lecture

<table>
<thead>
<tr>
<th>Group</th>
<th>No. of students</th>
<th>Positive feedback</th>
<th>Negative feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>10</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>10</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>10</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Total percent</td>
<td>63.33%</td>
<td>36.67%</td>
<td></td>
</tr>
</tbody>
</table>
Discussion

The reform of former learning style was implemented by the active, practical and functional schedule for the students. There are many pros and cons by doing group discussion activity. The group that gave the correct answer got the marks and that gave wrong answer got no marks, then the group with highest marks was awarded by the teacher. The prizes were note-books or ball-point pen or other stationeries. They got tangible objectives as well as critical thinking approach and improve their problem solving skills by group work on learning. They can find a way how to solve a problem that related with teachers should prepare the questions for their thinking and design the learning strategies by using games. In this way, teacher needs to guide how to study the causes of water pollution and/or sources and prevention of water pollution. By the end of the semester it was clear that teaching and learning in group discussion had provided good understanding of the topics and also nurtured the self-confidence of students.

However, there were some challenges in changing of teaching learning style. At first, students found it difficult to change to the active group discussion method. Among thirty students, only one or two students answered the questionnaires that teacher prepared for the topic: water pollution. Most of female students were too shy to answer or participate due to Myanmar's culture. Moreover, they could not think quickly the answer and they worried about giving the wrong answer. Therefore, in Myanmar's teaching system, the teacher could not receive true comments on lecture and herself/ himself because there is a weakness in taking feedback when the lecture has been finished. However, after practising about three lecture times, more and more students started to cooperate in the group discussion. In addition, the teacher/tutor tried to encourage this type of discussion by giving awards when they found out true answer. Group discussion would be difficult for teacher to set up an appropriate situation and probably too time-consuming to participate the students.

Among the above three methods, answering short questions such as one minute paper and muddiest/clearest point were easily engaged. Sometime, even though “daily journal”, one of check points is more suitable for explore the findings.
and discuss reports of natural science subjects in more recently current topic, such as environmental studies, climate change, greenhouse effect on our planet and so forth, it is weak in student participation.

Recommendations

To conclude this effort, the learning format, group discussion on Chem-3111 (elective subject for third year BSc students), was finally achieved effective teaching style rather than the former. Most of students’ participation was really satisfied and some were need to be patient for teachers. In finally, the methods of feedback were easy to use and affordable for a teacher or a facilitator. Although, chemistry teaching with group discussion could not carried out end of every topic as a time-consuming method, more advantages were found at students’ awareness. Moreover, other teachers need to practice the group discussion at their lecture to make more interesting by performing this research. In the realistic point of view, students obtained the engagement in group discussion, motivation of self-study as well as self-confidence and understanding the importance of chemistry in their environment.

References


Factors Influence on Online Readiness of Distance Education Students' and Teachers' in Myanmar

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Abstract

The rise of distance education has created a need to understand students’ and teachers' readiness for online learning and to predict their success. The objectives of this study are to explore the factors influences on online readiness of distance education students' and teachers' in Myanmar and to identify the level of online readiness. The quantitative research method was used in the study. Online Learning Readiness Scale which was developed by McVay (2000), Smith (2003) and Hung et al. (2010) has been used as a questionnaire. The questionnaires were applied to 104 students who attend in Mandalay University of Distance Education and 66 Distance Education teachers. The research instrument has four factors which are self-directed learning, self-efficacy, ICT engagement and motivation. The result showed that the participants had significantly highest level of online readiness.

Keywords: online readiness, distance education, distance education students and teachers

Introduction

Online learning can be defined as the transformation of teaching-learning processes through learner centered approaches with the support of information and communication technologies (ICT) (Aoki, 2010). In parallel with this definition, online readiness is defined as the measure of the degree to which a community may be eager and prepared to make benefit of using ICT (Dada, 2006).

Readiness, which is extremely important in the education-instruction process, is a significant input for learning-teaching system (Bloom, 1995). Today, both learning and teaching could be conducted in online media as well. These settings are different from the ones where education is conducted face to face for both the students and teachers. The factor of readiness to teach for the teacher and to learn for the learner should not be ignored in this different medium. Thus, readiness for online learning is expressed as time management, self-guidance skill, which is in the nature of online learning, adopting the internal resources of motivation, recognition of personal learning style, and experiences (Smith, Murphy, & Mahoney, 2003).

Hung et al. (2010) developed a Readiness for Online Learning Scale that includes sub-dimensions of “self-directed learning, learner control, motivation, computer/internet self-efficacy towards learning and online communications self-efficacy” by considering that five different sub-dimensions should be taken into account while measuring online learning readiness.

Knowles (1975), defined self-directed learning as a process that includes the states of understanding the learning needs of individuals, creating learning objectives,
defining material resources for learning, selecting and implementing appropriate learning strategies, and using the choices in evaluation of learning output. This conception of self-directed learning focuses on the skills and abilities of a learner to engage in the learning process (Zhoc & Chen, 2016). In self-directed learning process, learners are active in the process of determination of learning objectives, activities, needs and efficacy levels and they take more responsibility for self-learning (Oh, 2006).

Self-efficacy may be defined as an individual’s beliefs and expectations in his/her capability to perform a task (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996). If the belief an individual has in himself or herself in using computers is computer self-efficacy (Rex & Roth, 1998), then Internet self-efficacy is defined as the trust Internet users have in them while using Internet. Internet self-efficacy could influence the strategies of students in accessing information and could facilitate their use of these strategies in Internet-based learning settings (Tsai & Tsai, 2003).

Moreover, studies about e-readiness in higher education are also limited (Darab & Montazer, 2011). It is observed that ICT competencies and access to technology and resources are among the factors that should be considered for e-readiness (Stephen, Mutula & Brakel, 2006; Dada, 2006; Hanafizadeh, Hanafizadeh & Khodabakshi, 2009).

Significance of motivation in education and on the achievements of the students is a well-known issue. Since the structure of online education programs is substantially self-directed, motivation is an important part of learning process in distance learning process as it is in conventional education (Khan, 2009) and it is a requirement for successful online learning (Lim, 2004).

Current situation in Myanmar, Distance Education is now transforming to Open Education System with the collaborative of Transformation by Innovation in Distance Education (TIDE) project. TIDE is bringing together universities in the UK and Myanmar to improve the quality of distance learning in higher education, with the ambition of benefitting more than 500,000 students and resulting in more employable graduates. In this way, it aims to become a catalyst for further improvements across the higher education system, helping to support strategy and leadership for the future of the sector in Myanmar.

TIDE is strengthening and supporting innovations in Myanmar’s extensive distance education system, both at the institutional levels and in the design and delivery of learning, making use of the country’s rapidly emerging ICT infrastructure. It is also developing teaching approaches, media production skills and ICT and library support capacity for distance learning courses, and will create plans for the institutional framework for open and distance education.

Objectives

The objectives of this research are to explore the factors influences on online readiness and to identify the level of online readiness for distance education students and teachers who attend distance education.
Research Methodology

Research Design
This research is designed as a quantitative method. An online readiness scale was administered to the participants, acting as quantitative measures.

Sample
The samples were composed of 104 distance education students and 66 teachers of distance education in Myanmar.

Research Instruments
As a research instrument, questionnaire-based survey was used. Online Learning Readiness Scale which was developed by McVay (2000), Smith (2003) and Hung et al. (2010) has been used as a questionnaire. A questionnaire was developed electronically and teachers and students were asked to go to the survey hosting Google Form and complete it.

Data Collection
The online readiness scale was used to identify the participants' level of readiness for online learning. This scale has been designed as a 4-point Likert-type scale and involves 15 items. The scale has four factors which are self-directed learning, self-efficacy, ICT engagement and motivation.

Data Analysis
Microsoft Excel was used for quantitative data analysis. From gathering these responses, a process of coding was conducted.

Research Results
Finding about DE Students' Online Readiness

Students who study in Distance Education were asked about the level of online readiness. The following figure shows that the percentage of online readiness according to factors.
As a result, most of the DE students have the highest level in ICT engagement. It can say that they all are familiar with ICT because most of the participants agree with the statements of "I am able to use email, internet, facebook and documents for learning purpose". And they possess the second highest level in self-directed learning and most of them agree with the statement "I would classify myself as someone who is self-disciplined to get things done on time". Moreover their motivation level is 77% on online learning. And they have only 73% in self-efficacy of online readiness.

Finding about DE Teachers' Online Readiness

Teachers who work in Distance Education were asked about the level of online readiness. The following figure interprets that the percentage of online readiness according to factors.
According to Lim (2004), Motivation is one of the requirements for successful online learning. The higher the motivation is, the more effective teaching that the teachers would have. The distance education teachers possess the highest level of motivation. The second highest level is self-directed learning. And they use ICT for practice, interaction and collaboration with each other or with students so it possesses the third highest level in ICT engagement. And they have only 67% in self-efficacy of online readiness.

**Figure 2: The level of four factors on Online Readiness of Distance Education teachers**

According to Lim (2004), Motivation is one of the requirements for successful online learning. The higher the motivation is, the more effective teaching that the teachers would have. The distance education teachers possess the highest level of motivation. The second highest level is self-directed learning. And they use ICT for practice, interaction and collaboration with each other or with students so it possesses the third highest level in ICT engagement. And they have only 67% in self-efficacy of online readiness.

**Research Discussions and Conclusion**

The present study aimed to identify the level of online readiness for distance education students' and teachers' in Myanmar. There are four factors which are self-directed learning, self-efficacy, ICT engagement and motivation in this research.

In addition to appropriate network-related skills and attitudes, online learning environments that are not highly teacher-centered require students to take a more active role in their learning. In particular, students have to realize their responsibility for guiding and directing their own learning (Hartley & Bendixen, 2001; Hsu & Shue, 2005), for time-management (Hill, 2002; Roper, 2007), for keeping up with the class, for completing the work on time (Discenza, Howard, & Schenk, 2002), and for being active contributors to instruction (Garrison, Cleveland-Innes, & Fung, 2004). The result shows that all the participants have the high level in self-directed learning because they all supposed to agree with the statements of self-directed learning. For example, "I would classify myself as someone who is self-disciplined to get things done on time." And "I am able to work independently".

According to Bandura, Barbaranelli, Caprara, & Pastorelli, 1996, self-efficacy may be defined as an individual’s beliefs and expectations in his/her capability to perform
a task. Most of the participants have the strongest beliefs and expectations on their task concerns with online course. For example, "I am capable of learning new skills for an online course".

Moreover, ICT are a potentially powerful tool for extending educational opportunities, formal and non-formal. Haddad and Draxler (2002) identify at least five levels of technology use in education: presentation, demonstration, drill and practice, interaction, and collaboration. Most of the participants of this research use ICT in teaching or learning purpose and they all are able to use email, internet, facebook and documents. Not only these but also they are able to actively communicate online via email or discussion.

Unlike traditional face-to-face classroom, online learning is using Information Communication Technology (ICT) as the only medium to deliver teaching materials, interact, collaborate, and engage with other learners. The online learning alters the face-to-face interaction, reduce social interaction, hence causing the learners to feel isolated (Bolliger, Supnakorn, & Boggs, 2010; Shaw & Polovina, 1999). According to Lim (2004), Motivation is one of the requirements for successful online learning. The higher the learners’ motivation is, the more effective learning that the learners would have. As a result, all of the participants have the highest motivation in online learning and they all are able to receive constructive feedback from others when they learn or teach online course. Although students and teachers did not have the experience with taking online course, they all have the highest level of online readiness.

**Recommendation**

While learning or teaching via distance education, some challenges may be faced by the distance students and teachers. Some recommendations are addressed in this research.

Due to the nature of distance education, which allows of flexibility in time and location, students may experience a lack of face-to-face interaction; however, technological improvements and provide more interactive sessions via videoconference.

Distance Education teachers must be aware of the theories of distance learning and they should also be sensitive to the individual differences and needs of the students.

**References**


Challenges of Conducting Academic Research Project at Postgraduate Level

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Abstract

As universities and governments seek to strengthen and grow their research base, higher education research is receiving particular attention. There is no doubt that postgraduate research affects a country’s research output which in turn affects the community. However, postgraduate research students often experience various challenges during the course of their programmes which hamper the timely completion of the postgraduate programmes. This study was conducted to assess the challenges to research of the students at the selected Universities in Myanmar. A survey of 110 postgraduate students, 60 supervisors was carried out using a semi-structured self-administered questionnaire to obtain data from respondents in the various faculties of the universities. Data were analyzed and presented in tables and percentages. The identified barriers were ranked in order. The major challenges identified by the students were lack of students’ knowledge, lack of experience, irregular meeting with supervisors, excess workload, commitment in thesis works, time constraint and lack of fund. In terms of opinions on the challenges related with the institutes by postgraduate students, the identified barriers included inadequate guidance by my institute, not having adequate resources (Adequate dedicated faculties, IT lab / library, fund), any specific research project / cell / council, lack of cooperation of the university and inadequate formats and examples of thesis writing. Research students at the Universities face numerous obstacles, which hinder their ability to successfully conduct research. Thus, appropriate courses and training workshops should be organized to address the identified challenges. Additionally, financial and infrastructural support should be provided for postgraduate research.

Keywords: challenges, academic research project, postgraduate level

Introduction

Research means scientific and systematic investigation of a new problem or a phenomenon. In the present context, research is essential for developing the field of education. In the area of teacher education researches are conducted to find out solutions to various educational problems, related to students, teachers, teaching practices and curriculum. To provide solutions to such problems a teacher should have research knowledge and skills. Many educationists have reported concerns about the poor quality of research conducted at Master's level in the Universities that offer
the postgraduate course. This shows that quality of researches done is deteriorating day by day. There is a need to think about factors that contribute to the poor quality of research. These factors may be personal i.e. students’ knowledge, experience, commitment, socioeconomic condition, communication skill, stress, time management etc. (Bocar 2009), institutional i.e. cooperation, guidance, fund, physical facilities etc. (Safari et al 2015). We also need to consider the problems faced by student-teachers and the research guides during the process of conducting research. This paper focuses on issues and challenges faced by teacher educators and student-teachers during the process of the research and suggest guidelines to overcome them and improve the quality of research.

**Objectives**

The aim of the present research was to investigate the challenges to research of the students at the selected Universities in Myanmar. The objectives of carrying out this research were:

1. To determine the most challenging facts in conducting research and
2. To suggest guidelines to overcome the problems and improve the quality of research.

**Methodology**

The study was conducted with various faculties, namely: Arts, Education, Law, Pharmacy, Sciences, Social Sciences, Technology and Engineering, and Veterinary Medicine. There were a number of universities which offer postgraduate programmes.

This study was conducted to determine the problems faced by graduate students when conducting scientific research and to make suggestions for solving these problems. Questionnaire survey was conducted with participants with questions about the challenges encountered during scientific research in graduate education, recommendations for solutions to these problems, and participants’ experiences in terms of their scientific research knowledge and skills.

Conduction of a research project by the students is one of their major academic activities. Research quality and acquired experiences are highly dependent on the supervision. Our study is aimed at identifying the challenges from both students and faculty members’ point of view.

A total of 110 postgraduate students, 60 supervisors participated in the study. Purposive sampling technique was used. Two semi-structured questionnaire were used (one for students and one for supervisors) to collect data.
Table 1
Opinions on the challenges in general during thesis works by postgraduate students (n=110)

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Challenges</th>
<th>Responses by postgraduate students</th>
<th>Agree</th>
<th>Not Sure</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lack of my adequate knowledge on assigned task.</td>
<td></td>
<td>79</td>
<td>28</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>Lack of my adequate experience on assigned task.</td>
<td></td>
<td>71</td>
<td>28</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>Lack of my commitment / interest to the assigned task.</td>
<td></td>
<td>44</td>
<td>23</td>
<td>43</td>
</tr>
<tr>
<td>4</td>
<td>I did not get enough time to complete the assigned task</td>
<td></td>
<td>21</td>
<td>23</td>
<td>66</td>
</tr>
<tr>
<td>5</td>
<td>I was overburdened with the assigned task.</td>
<td></td>
<td>69</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>6</td>
<td>I did not have enough fund.</td>
<td></td>
<td>5</td>
<td>23</td>
<td>82</td>
</tr>
<tr>
<td>7</td>
<td>I had inadequate discussion with my supervisor at regular interval.</td>
<td></td>
<td>70</td>
<td>13</td>
<td>27</td>
</tr>
</tbody>
</table>

Table 1 shows the respondents’ ranking of challenges to successful conduct of postgraduate research. The identified barriers were ranked in order. The major challenges identified by the respondents were lack of students’ knowledge (72%), lack of experience (64%), irregular meeting with supervisors (64%), excess workload (63%), commitment in thesis works (40%), time constraint (19%), and lack of fund (5%).

The major point mentioned by participants was lack of discussion with supervisors at regular interval for conducting and managing and lack or insufficient appropriate feedback to students during writing process. Not allocating appropriate time by the supervisor for guiding the student was mentioned as an important problem by some students.

Once the problems are identified, we can find ways and means to solve those problems as much as possible. Thus the students will be benefitted from the results of this study and the supervisors will gain insights and will be able to lighten the problems.
Table 2
Supervisors' opinions on the challenges in general related to the student during thesis works (n=60)

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Challenges</th>
<th>Responses by supervisors</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Agree</td>
<td>Not Sure</td>
</tr>
<tr>
<td>1</td>
<td>Lack of student's adequate knowledge on assigned task.</td>
<td>56</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Lack of student's adequate experience on assigned task.</td>
<td>58</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Lack of student's commitment / interest to the assigned task.</td>
<td>33</td>
<td>22</td>
</tr>
<tr>
<td>4</td>
<td>Students did not get enough time to complete the assigned task.</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>Students are overburdened with the assigned task.</td>
<td>39</td>
<td>17</td>
</tr>
<tr>
<td>6</td>
<td>Students do not have enough fund.</td>
<td>6</td>
<td>47</td>
</tr>
<tr>
<td>7</td>
<td>Inadequate discussion with supervisor at regular interval.</td>
<td>35</td>
<td>5</td>
</tr>
</tbody>
</table>

The problems in general identified by the supervisors were lack of students' experience (97%), knowledge (93%), excess workload (65%), irregular meeting with supervisors (58%), commitment in thesis works (55%), time constraint (20%), and lack of fund (10%).

Table 3
Opinions on the challenges related with the institutes by postgraduate students (n=110)

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Challenges</th>
<th>Responses by postgraduate students</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Agree</td>
<td>Not Sure</td>
</tr>
<tr>
<td>1</td>
<td>I did not get adequate guidance by my institute.</td>
<td>62</td>
<td>45</td>
</tr>
<tr>
<td>2</td>
<td>My institute did not have any specific research project / cell / council.</td>
<td>71</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>I did not have adequate resources (Adequate dedicated faculties, IT lab / library, fund).</td>
<td>86</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>I did not get adequate formats and examples of thesis writing.</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>I did not get cooperation from my own institute.</td>
<td>58</td>
<td>28</td>
</tr>
</tbody>
</table>

According to the data, institute related problems were inadequate guidance (56%) and resources of the institute (78%), absence of research cell (64%), inadequate cooperation from the institute (53%) and formats of thesis writing in the institute (6%). Lack of cooperation of the university to get adequate guidance and not having
adequate resources (Adequate dedicated faculties, IT lab / library, fund) were the other problems mentioned by most participants.

Table 4
Supervisors’ opinions on the challenges related with the institute (n=60)

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Challenges</th>
<th>Responses by postgraduate students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>1.</td>
<td>Students do not get adequate guidance by my institute.</td>
<td>11</td>
</tr>
<tr>
<td>2.</td>
<td>Many institutes do not have any specific research project / cell / council.</td>
<td>42</td>
</tr>
<tr>
<td>3.</td>
<td>Many institutes do not have adequate resources.</td>
<td>53</td>
</tr>
<tr>
<td>4.</td>
<td>Many institutes do not have adequate formats and examples of thesis writing.</td>
<td>12</td>
</tr>
<tr>
<td>5.</td>
<td>Many students do not get cooperation from my own institute.</td>
<td>20</td>
</tr>
</tbody>
</table>

Table (4) shows that the problems in general identified by the supervisors were (18%) inadequate guidance. (70%) did not have any specific research project/cell/council. The institutes were insufficient resources (88%) and (20%) of supervisors agreed that many institutes did not have adequate formats and examples of thesis writing. (33%) of supervisors agreed that many students do not get cooperation from my own institute.

Results
The present research focused on the problems or challenges faced by graduate students when conducting scientific research. To accomplish the research aim, questionnaire survey concerning the challenges faced by postgraduate students during their research was formulated. The following chart shows the opinions on the challenges in general during thesis works by postgraduate students and supervisors.
Here in figure (1), we clearly find that the different percentages of challenges in thesis supervision area in the view of students and faculty members at the selected Universities in Myanmar. According to students’ point of view, the major challenges faced by postgraduate students were lack of student’s knowledge, lack of experience and irregular meeting with supervisors. In accordance with the data, the important problems by supervisors were lack of students’ experience, lack of knowledge and excess work load. For both students and supervisors, the minor problems were time constraint and lack of fund.

*Figure 1: The different percentages between supervisors’ and postgraduates’ opinions on the challenges during thesis works*
As shown in figure 2, opinions on the challenges related with the institutes by postgraduate students and supervisors were a bit different. From the perspectives of students, the most common challenges related with the institutes were inadequate resources of the institute, absence of research cell. For supervisors, these two facts were the most important challenges faced by students and inadequate guidance by institute was the least common challenge related with the institutes. As a result, the minor problem by postgraduate students was inadequate formats of thesis writing. In this research, overall, 110 postgraduate students and 60 faculty members took part in the study. Findings of this study imply that supervisory skill and knowledge require attention by university policy makers and planners. Hence, development, planning and management for promoting quality and quantity of training skills related to supervision, including communication skills, project management, research methodology for faculty members could be considered which is achievable through providing educational packages for thesis design and implementation. It could lead to research enrichment, validity and reduce problems. Current study showed that despite of promoting in research filed at universities, there are some challenges in research field yet. Following strategies are suggested for problem solving and increasing the quality of research:

- Reviewing, revising and developing by laws
- Developing evaluation mechanism to monitor the implementation of bylaws and regulations and establishing supervisory committee.
- Developing, planning and management in order to improve the quantity and quality of supervisory skills training. Planning for improvement of scientific and research climate.
Discussion

This research was conducted to assess the challenges to research of the students at the selected Universities in Myanmar. According to the data, the most challenges, from the perceptive of students, were lack of their knowledge and experience. This finding showed that students did not have adequate knowledge and experience on their assigned task. Moreover, excess workload and irregular meeting with supervisors were also the problems that should be considered. From the point of view of supervisors, the most challenges for students in conducting research were lack of students’ experience and knowledge. This finding suggested that most supervisors agreed that students did not have adequate knowledge and experience on assigned task. This was also similar to Manchishi et al. (2015) which showed that students did not understand their own topic because they did not read properly.

In accordance with the data, opinions on the challenges related with the institutes by postgraduate students were insufficient resources of institute and absence of research cells. The important problems related with the institutes by supervisors were also insufficient resources of institute and absence of research cells. From this finding, it is concluded that these two facts were the most challenging factors that students faced in conducting their academic research. According to objective two, some strategies for problem solving and increasing the quality of research were mentioned.

Recommendations

The present study revealed that lack of knowledge, lack of experience, lack of fund and lack of regular meetings with supervisor were found the most important general problems. Lack of research project and lack of resource were found the most common problems related to the institute. The recommendations made were research methodology and biostatistics should be incorporated in undergraduate and postgraduate curriculum, regular practical workshops on research methodology and biostatistics for the students and the supervisors, provision of adequate fund for academic thesis works, arrangement of adequate research facilities and resources in all institutes / universities conducting postgraduate courses, introduction of checklist and meeting schedule to be used both by supervisors and students during thesis works.

References


Teachers’ Perceptions on the Use of Digital Tools in Teaching Poetry

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Abstract

Today is a digital age and modern society becomes complex and information becomes available. Digital technology can help drive progress for sustainable development goals to develop quality teaching. Digital age can also be leveraged to provide learners with blended learning. Tools of digitalization are computer, internet, smart phone, scanner, digital camera, projectors and printers. This study aims to examine teachers’ perceptions on the use of digital tools in a poetry classroom. The objectives are to investigate how teachers use technology in the classroom and to devise activities in teaching poetry by using tools of digitalization. Extrinsic and intrinsic approaches adopted by Moody (1983) are also used in devising these activities. The material used in this research is a poem ‘I Meant to Do My Work Today’ by Richard Le Gallienne. Data for teachers’ perceptions on the use of digital technology are collected from 15 teachers of English Department at Yenanchaung Degree College, who have experience of teaching poems. A set of questionnaires proposed by Abrami and Wade (2006) was adapted in this research. Teachers’ views on the use of digital technology, their experience and process of integration in teaching poetry are investigated in this research.

Keywords: digitalization, extrinsic and intrinsic approaches, blended learning, teachers’ perceptions

Introduction

The world is moving towards digital education which addresses all the issues and challenges of traditional education. Digital Education can be defined as the use of a combination of technology, digital content and instruction in the education system to make it more effective and efficient than the traditional education system (Dua, Wadhawan and Gupta, 2016). Quality education is one of the sustainable goals. Moreover, investments in infrastructure information and communication technology – are crucial to achieving sustainable development. To develop quality teaching in a digital age, digital technology must be used.

Blended Learning

Digital and social media become more and more prevalent in the life of learners. Most of the University students have mobile phones and can use free Wi-Fi in their classrooms. Therefore, blended learning that integrates online with traditional face-to-face class activities can be done. The term blended learning was used as early as 1999 (Friesen cited in Bryan and Volchenkova, 2016) but the concept of blended learning has been around since the 1960s (Crockett, 2018). Blended learning is not just for students. Teachers still work with students and group closely because they
lead lively class discussions to enhance the digital interaction that is happening. In a blended learning environment, they circulate, collaborate, and mediate. In doing so, they learn a lot themselves (Crockett, 2018).

This study focuses on teachers’ perception on the use of digital tools and how digital technology is integrated into teaching poetry. Teaching poems to students is a challenging task. Without knowing historical and literary background, it is difficult for students to appreciate a poem. Therefore, extrinsic and intrinsic approaches are used in devising activities.

Extrinsic and Intrinsic Approaches

According to Moody (1983: 23-25), the extrinsic approach is concerned with what the readers brings to the interpretation of a text and the intrinsic approach extricates the fresh information he discovers in it. Moody highlights Wellek and Warren’s discussion about the distinction between the Extrinsic and the Intrinsic.

In various ways any text can be seen as determined by external factors which account for its existence or its special features. The extrinsic approach consists of four levels.

1. The biographical. Every text has been produced by a particular writer, living at a particular time in a particular place, and at a particular point in his own career, for particular needs. It is certainly relevant at a certain stage to know these facts and to be aware of how they influence the content and form of a particular text.

2. The historical. Every text has been created at a particular point in historical time, and may bear the evidence of historical processes, whether economic, social, political, or ideological. If it is assumed that history continues right up to the moment of a text’s creation, this approach can be taken also to include the sociological, in which the text is seen to reflect various aspects of the social context in which it has been produced.

3. The aesthetic. This level is concerned with the ways in which a particular text can be seen to reflect various theoretical or practical movements, related to the processes of artistic creation, general problems of form, structure, uses of language, prosody, genres, etc.

4. The philosophical. At this level, texts can be seen to illustrate topics typically belonging to other disciplines such as, for example, ethics, metaphysics, psychology, theology, perhaps even science or mathematics.

The intrinsic approach consists of all the processes which are carried out, more or less consciously, in their various sequences and at their various levels, in the course of a complete reading. The main levels are as follows:

1. The grammatical. The organization of units of expression both within the sentence, and between sentences.

2. The lexical. This includes not only the denotations and connotations of words, and lexical groups, but also questions of register, style, figurative language, etc.

3. The structural. In this level, we think not of sentence structure, but of the ‘analysis of discourse’ the organization of complete texts of whatever kind, whether expository, narrative, argumentative or symbolic. This will include effects of patterning, rhythm, etc.
4. The cultural. It is the semantic level that is concerned with the content, the ‘message’, what is presented, or stated, or implied, and its value in relation to the cultural context.

Students can get available resources about a poem via internet without depending on their teacher too much. Digital tools help students develop better understanding of poems. Tools of digitalization are computer, internet, smart phone, scanner, digital camera, projectors and printers.

This study aims to examine teachers’ perceptions on the use of digital tools in a poetry classroom. The objectives are to investigate how frequently teachers use technology in the classroom and to devise activities in teaching poetry by using tools of digitalization. With the help of digital tools, student will possess the skills to acquire information, process this knowledge, identify and solve problems. Moreover, group work activities will help students work with collaboration and cooperation.

Methodology

In this paper, the poem ‘I Meant to Do My Work Today’ by Richard Le Gallienne (1866-1947) is used as a material. This poem is included in the module ‘English Literature-1’ which has been prescribed for first year English specialization students. In this poem, the poet meant to do his work that day but he puts off work due to some attractions of nature. Having experienced the happiness given by the simple things of nature, the poet remarked that there was nothing he could do but laugh, leave the work and enjoy himself.

At first, data are collected from 15 teachers of English Department at Yenanchaung Degree College, who have experience of teaching poems. A set of questionnaire proposed by Abrami and Wade (2006) was adapted and used in this research. Then data are analyzed and interpreted. Finally, activities that enhance blended learning are devised in terms of extrinsic and intrinsic approaches. In making extrinsic and intrinsic approaches, Moody’s theory is applied.

The questionnaire consists of 44 items which are divided into 4 sections: Section I is about teachers’ views on digital technology and it has 23 items. Section II is the background, teaching style and resources available to teachers. It includes 5 statements (24-28). Section III has 2 statements (29 and 30) concerning the experience of teachers with computer technologies. The last section IV is the process of integration in teaching poetry and it has 14 statements (31-44). In section I, there are 23 items. Six points Likert scale from ‘strongly disagree’ to ‘strongly agree’ is used. According to www.researchgate.net, levels of mean score are regarded as follow:

- mean score from 0.01 to 1.00 is Strongly disagree,
- mean score from 1.01 to 2.00 is Moderately disagree,
- mean score from 2.01 to 3.00 is Slightly disagree,
- mean score from 3.01 to 4.00 is Moderately agree,
- mean score from 4.01 to 5.00 is Strongly agree.
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<td>Improves student learning of critical concepts and ideas</td>
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<td>Moderately Agree E</td>
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According to Table 1, mean score of statement 1 is 5.07. This result shows that the teachers strongly agree with the statement ‘The use of digital technology in poetry classroom increases academic achievement (e.g. grades). Moreover, mean score of statement 2 is 4. Therefore, the teachers slightly agree that students neglect important traditional learning resources (e.g. library books) by using digital technology. Furthermore, mean score of statement 3 is 4.87. Therefore, the teachers moderately agree that the use of digital technology is effective because they believe they can implement it successfully. In addition, mean score of statement 4 is 5, which reflects that the teachers moderately agree that the use of digital technology promotes student collaboration in the class. And mean score of statement 5 is 3.6, indicating that teachers slightly agree that the use of digital technology in the classroom makes classroom management more difficult. For statement 6, mean score is 5.27. It indicates that the teachers strongly agree that the use of digital technology promotes the development of communication skills (e.g. writing and presentation skills).

Mean score of statement 7 is 4.87. It means that the teachers moderately agree that the use of digital technology is a valuable instructional tool. Mean score of statement 8 is 3.8. It assumes that the teachers slightly agree that the use of digital technology will be too costly in terms of resources, time and effort if it is used in the classroom. Furthermore, mean score of statement 9 is 3.13. Hence, the teachers slightly agree that it is successful only if teachers have access to computer at home. In addition, mean score of statement 10 is 4.6, which means that the teachers moderately agree that using digital technology makes them feel more competent as educators. For statement 11, mean score is 3.47. This result reflects that the teachers slightly agree that it is successful only if there is adequate teacher training in the use of digital technology for learning. Furthermore, mean score of statement 12 is 4.67. It illustrates that the teachers moderately agree that using digital technology in the class gives teachers the opportunity to be learning facilitators instead of information providers.

Mean score of statement 13 is 3.2. This shows that the teachers slightly agree that it is successful only if technical staff regularly maintains computers. And mean score of statement 14 is 3.73. This means that the teachers slightly agree that the use of digital technology in the classroom demands that too much time be spent on technical problems. Moreover, mean score of statement 15 is 5. This result reflects that the teachers moderately agree that it is an effective tool for students of all levels. For statement 16, mean score is 5. Therefore, the teachers moderately agree that using digital technology enhances their professional development. As mean score of statement 17 is 4.27, the teachers moderately agree that they ease the pressure as a teacher by using digital technology. In addition, mean score of statement 18 is 4.4. As a result, the teachers moderately agree that it is effective if teachers participate in the selection of computer technologies to be integrated. As mean score of statement 19 is 4.87, the teachers moderately agree that the use of digital technology helps accommodate students’ personal learning styles. Mean score of statement 20 is 5.27. Therefore, the teachers strongly agree that the use of digital technology motivates...
students to get more involved in learning activities. For statement 21, mean score is 5.3. Thus, the teachers strongly agree that the development of students’ interpersonal skills (e.g. ability to relate or work with others) and literary skills is promoted. As mean score of statement 22 is 3.2, the teachers slightly agree that the amount of stress and anxiety students experience will be increased. Furthermore, mean score of statement 23 is 4.67. Thus, the teachers moderately agree that the use of digital technology in the classroom improves student learning of critical concepts and ideas. As the average mean score is 4.40, teachers moderately agree on the use of digital technology in the classroom.

Section II indicates the background, teaching style and resources available to Teachers. It has 5 items. All the teachers from the department are Female teachers. Their years of teaching are mostly found within 5 years and within 11 and 15 years. Two teachers each belong to within 6 -10 years and within 21-25 years. Their preferred teaching methodology is Even balance between teacher-directed and student-centred activities as well as more student-centred than teacher-directed. The average class size that they teach is more than 50 students. And, the primary language that they teach is in English.

Section III shows the experience of teachers with computer technologies. Most of them occasionally integrate computer technologies in teaching activities. And, the hours per week teachers spend using a computer for personal use outside of teaching activities are mostly found to be 4 hours or more but less than 6 hours and 6 hours or more, but less than 8 hours.

Section IV focuses on the process of integration in teaching poetry. This section indicates how frequently teachers use computer technologies for each of the activities. It has 5 main parts. They are Instructional, Communicative, Organizational, Evaluative and Informative activities. For Instructional activities like Using tutorials for self-training and Having students use tutorials for remediation, teachers mostly chose ‘never’ and ‘practically never’. Therefore, they rarely use computer technologies for instructional activities.

For Communicative activities such as Using e-mail to communicate with other teachers and students, Using LCD projector in class and Creating PowerPoint presentations to use in class, the responses Fairly Often and Very Often are mostly chosen. Moreover, it is found that five teachers chose Once in a while for Using e-mail to communicate with students and Creating PowerPoint presentations to use in class. Therefore, most of the teachers fairly often or very often use computer technologies for communicative activities.

For Organizational activities: keeping track of student grades or marks, preparing handouts, tests/quizzes, and homework assignments for students, Fairly Often and Very Often are mostly found and for creating lesson plans, five teachers each chose Very Often and Almost Always. Therefore, teachers use computer technologies for organizational activities to greater extents. However for Evaluative activities: Test or assess student learning and Use digital portfolios, Never is mostly chosen. Therefore, most of the teachers do not use computer technologies for evaluative activities.

For Informative activities: Search the Internet for information for a lesson and Access CD-ROM reference material, Very Often is mostly chosen. The last item of questionnaire indicates the stage that best describes where the teacher is in the
process. The stage that seven teachers describe where they are is *Familiarity*. It highlights gaining a sense of self-confidence in using the computer for specific tasks and feeling comfortable using the computer in the process of integration in teaching poetry. Only one teacher each is in adaptation stage and creative application stage. Therefore, eight activities are devised to be able to use more digital tools in teaching poetry. Activities in Teaching the Poem ‘I Meant to Do My Work Today’

There are altogether eight activities to approach the poem ‘‘I Meant To Do My Work Today’ extrinsically and intrinsically. The former four activities are related to extrinsic approach and the latters are concerned with intrinsic approach.

**Activity 1**  
- Teacher distributes to students the sheet of the poem, including name of the author, author’s year of birth and year of death.  
- Teacher asks students to read the poem aloud. (Teacher can use PowerPoint downloaded from http://slideplayer.com and digital tools such as computer and projector are used)  
- Teacher asks, What do you know about the writer?  
- Teacher asks students to work in groups of 4-5 and browse the net to find information about the author of ‘I Meant To Do My Work Today.’  
- Teacher reminds students to find the biography of the author related to his style and his diction.  
- Teacher asks students to make a poster as a groupwork. Each group presents their posters.  
- Teacher gives feedback and adds more information if necessary.

Activity 1 is concerned with biological factor. By doing this activity, students will know that Gallienne (1866-1947) was born in Liverpool but moved to the United States in his thirties and started work in an accountant's office, but abandoned this to write poetry, literary journalism and translation (cited by www.joycesidman.com). According to the Internet source retrieved from https://mypoeticside.com, he has been described by some critics as a relatively obscure English poet with an ‘excess of romantic sensibility in an age of irony. As he was born in the late 19th century, he was one of the so-called ‘fin-de-siècle esthetes of 1890s’.

**Activity 2**  
- Teacher asks students to search for the century of writing this poem from the biographical factor.  
- Teacher let students browse the Internet to collect the information about the historical background of the poem.  
- Teacher suggests the students to browse timeline of the 19th century.  
- Teacher gives students 5 minutes to write a note about the historical background of the poem.  
- Teacher reminds them to take a note about economic, social, political or ideological processes.  
- Teacher asks the students to illustrate a picture of the eventful 19th century by making posters.  
- Teacher gives feedback and adds more information if necessary.

Activity 2 is concerned with the historical factor. From this activity, students come to know that this poem was written in the late 19th century as it was
written in 1892. In the United States, 1890s were marked by economic depression. The Industrial Revolution began in Great Britain. It was an era of scientific discovery and invention. The Victorian era was notorious for employment of young children in factories and mines. A lot of wars broke out in that century. By the end of the century, the British Empire controlled one quarter of the world’s population. It was an age of irony.

Activity 3
- Teacher asks students to browse aestheticism and discuss it.
- Teacher asks students to search for characteristics of romanticism and discuss it.
- Teacher asks students to take a note for aesthetic approach.
- Teacher gives feedback and adds more information if necessary.

Activity 3 is related to aesthetic factor. From this activity, students will know that the 19th century can be divided into romantic age and Victorian age. According to biological factor, the poet was considered to possess an ‘excess of romantic sensibility’. Although he was born in Victorian age, romanticism can be noted in his poetry. In this poem, romantic escapism is noted because escapism is the tendency to escape from daily reality or routine by indulging in daydreaming, fantasy or entertainment and this poem reveals temporary escapism from work. Love of nature, one of the romantic characteristics can be observed. Aestheticism is the late nineteenth century art movement and art exists for the sake of beauty alone (www.britannica.com). Therefore, beauty of nature is depicted in this poem.

Activity 4
- Teacher writes down the statement “he was one of the so-called fin-de-siecle esthetes of the 1890s.”
- Teacher asks students to search for the meaning of ‘fin-de-siecle via the Internet.’
- Teacher asks students whether they agree with the given statement or not.
- Teacher asks students whether they agree with another statement ‘This poem is an excuse poem’ or not.
- Teacher asks students to take a note for philosophical approach in group.
- Teacher gives feedback and adds more information if necessary.

Activity 4 is concerned with philosophical factor. From this activity students will know definition of ‘fin-de-siecle.’ ‘fin-de-siecle’ is related to, or characteristic of the close of the 19th century and artistic climate of sophistication, escapism, extreme aestheticism, world-weariness, and fashionable despair. Although escapism and aestheticism that is not extreme can be found in this poem, other factors are not found. As regards psychology, this poem seems to be an excuse poem. However, the poet possesses romantic sensibility and he wants to put emphasis on powerful influence of nature. In this philosophical factor, students’ point of view may differ. For example, some may think it is an excuse poem, but others assume that the poet reminds us that one needs play in his or her life, not just work.
Activity 5
Teacher asks,
- How many sentences are there in this poem?
- Are there simple or compound or complex sentences?
- What is the function of these sentences, for example, statement or interrogative?
- Students are asked to write a note in group and post their writing to other group via facebook. Other groups can give comments.
- Teacher gives feedback and adds more information if necessary.
Activity 5 is related to the grammatical level. From this activity students will learn that the poem consists of compound sentences. The last line is interrogative sentence and it presents the poet’s remark to attract the attention of the readers.

Activity 6
- Teacher asks students to analyze the content words, nouns, verbs and adjectives.
- Teacher asks them which words are associated with denotation or connotation.
- Is figurative language found in this poem? What are they?
- Students are asked to write a note in group and post their writing to other group via facebook. Other groups can give comments.
- Teacher gives feedback and adds more information if necessary.
Activity 6 is associated with the lexical level. From this activity, students will learn denotation and connotation. In the first stanza, the leaves are personified and in the second stanza, the wind and a rainbow are personified. The poet uses alliteration /b/in the line ‘But a brown bird sang in the apple tree’. Onomatopoeic word ‘sigh’ is also found in the poem.

Activity 7
- Teacher asks students to think about the structure of this poem, example narrative or argumentative or descriptive writing and discuss it.
- Teacher asks, ‘How many lines are there in each stanza?’
- How many stanzas are there in this poem?
- What types of stanzas are found?
- Teacher asks students to discuss rhyme and rhythm of this poem
- Teacher asks students about the organization of the text.
Activity 7 is concerned with structural level. From this activity, students will learn that the poem is composed of two stanzas with four lines each. Therefore, these stanzas are called quatrains. The poem has a regular rhymes and rhythm. Although the poet relates his experience to the readers, this poem is a descriptive poem.

Activity 8
The teacher asks the following questions.
- What time of year does this poem tell about?
- How do we usually feel in the spring?
- What kind of message does the poet want to convey?
- Students are asked to discuss in group. The teacher gives feedback and adds more information if necessary.
Activity 8 is concerned with cultural aspect. From this activity students will learn that the poem is nature poem and it is written in spring. Romantic poets think that nature is a divine healer. As the poet possesses romantic sensibility, he may find solace in nature. As homework, teacher asks students to write intrinsic approach in Google drive group. The teacher either observes their writing or a peer does and gives feedback from Google drive group.

Results and Discussion

Teachers moderately agree with the use of digital technology in the classroom. Statements 2, 5, 8, 14, 22 are negative views on the use of digital technology. They are ‘results in students neglecting important traditional learning resources, ‘makes classroom management more difficult’, ‘is too costly in terms of resources, time and effort’ ‘demands that too much time be spent on technical problems’ and ‘will increase the amount of stress and anxiety students experience’. Teachers slightly agree with these negative views because some of the teachers are not familiar with digital technology. Although some teachers use digital tools in language classroom, they are not used to apply them in poetry classroom. However, they strongly agree or moderately agree with the benefits of the use of digital technology such as increasing academic achievement and promoting student collaboration.

They slightly agree with the views that the use of digital technology is successful only if teachers have access to a computer at home or only if there is adequate teacher training in the uses of technology for learning or only if technical staff regularly maintains computers. It may be because teachers know that it cannot be successful only if they are computer literates. They must know how to integrate digital technology into poetry classroom and how to guide the students to use the technology. The biggest problem they face is most of the classrooms have more than 50 students. Most students are weak in the knowledge of applying digital tools beneficially.

Most of the teachers occasionally integrate computer technologies in teaching activities. They spend at least four hours when they use a computer for personal use outside of teaching activities. Although they rarely use computer technologies for instructional activities, ‘using tutorials for self-training’ and having students use tutorials for remediation (in class), they fairly often or very often use computer technologies for communicative activities by using e-mail to communicate with other teachers and students, using LCD projector in class and creating PowerPoint presentations to use in class. Teachers use computer technologies for organizational activities to greater extents. They often keep track of student grades or marks, prepare handouts, tests/quizzes, and homework assignments for students and create lesson plans. Most of the teachers very often use computer technologies for evaluative activities by searching the Internet for information for a lesson and accessing CD-ROM reference material.

As regards process of integrating computer technology in teaching activities, teachers are in different stages. Nearly half of the teachers are in familiarity stage. There are few teachers who are in adaptation and creative application. A few teachers are in awareness or learning or understanding stage. To be able to use digital tools more in a poetry class, activities are devised. By using these activities, students will be motivated and increase academic achievement.
Conclusion and Recommendations

Digitalization supports teaching to a high degree and it improves both the teaching style and learning style. There is more of a practical based approach than the traditional style of board and chalk piece. Although such technology in education is not fully used in developing countries, blended teaching can be made to some extent. In this research, some digital tools used in poetry teaching are computer, projector, internet and smart phones. By using their mobile phones, they can share information. Students are more motivated to develop critical thinking. In this paper, teachers’ perceptions on the use of digital tools in poetry classroom are investigated. In this research, it is found that teachers moderately agree with the use of digital technology in poetry classroom and their process of integrating digital technology needs to be improved. Eight activities are devised to be more familiar with digital tools and apply them creatively. Activities will help students work with collaboration and cooperation and to arouse interest and love of reading poems. As regards future research, these activities will be implemented in poetry classrooms and significant impact of digital technology on teaching process will be investigated. With the help of digital tools, quality education, one of the sustainable goals will be achieved.

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Vocabulary Learning Strategies Used by Education College Students of Upper Myanmar

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Abstract

Language learners need to use strategies which help them acquire new lexical items and vocabulary. Vocabulary learning strategies help learners develop their vocabulary knowledge. The aim of this research is to explore vocabulary learning strategies used by Pakokku and Sagaing Education College students of Upper Myanmar. The objectives of this research are (1) to classify vocabulary learning strategies used by Education College students of Upper Myanmar, (2) to find out the various strategies in their vocabulary learning. The participants are (290) who are studying in Pakokku and Sagaing Education Colleges. The instrument for this research is the questionnaire with 40 items which are based on Schmitt’s (1997) taxonomy of vocabulary learning strategies. The data are analyzed by calculating frequency. The findings show that the students use various strategies when they discover the meanings of the unknown words. Some students use many strategies more than some students.

Keywords: vocabulary learning strategies, determination, social, memory, cognitive and metacognitive strategies

Introduction

Language can be defined as a system of communication which consists of a set of sounds and written symbols which are used by the people of a particular country or region for speaking or writing. Besides, language is a tool to express the feelings and ideas or attitudes towards each other. Language means communication and understanding each other. Warning and Nation (1997) stated vocabulary as a very necessary component of any languages. According to Dugan (2010), knowledge of vocabulary means having an awareness of words and word meanings. In addition, knowledge of vocabulary is a fundamental element of language proficiency. According to Nation and Gu (2007), learners should use vocabulary learning strategies that develop word knowledge and word skills. Vocabulary learning strategies to facilitate learning and to enhance learners' vocabulary knowledge (Nation, 2001; Oxford, 1990; Schmitt, 2000). O'Malley and Chamot (1990) defined vocabulary learning strategies as special thoughts or behaviors that individuals use to comprehend and learn information.

Objectives of the Study

1. To classify vocabulary learning strategies used by Pakokku and Sagaing Education College students of Upper Myanmar
2. To find out the various strategies in their vocabulary learning
Literature Review

The scientific study of language is linguistics and there are three basic elements of a language; vocabulary, grammar and context. In language learning, the use of learning strategies for vocabulary acquisition is very crucial. Oxford (1990) defined language learning strategies as activities used by the students to make their learning easier and more effective. According to Lessard-Clouston (1997), learning strategies are concerned with all learning without regarding to the content and context. In language learning and teaching, learning strategies are utilized. According to Rubin's study (as cited in O’ Malley and Chamot, 1990), learning categories were classified as six types of direct learning strategies; clarification; monitoring; guessing/inductive reasoning; deductive reasoning, practice and memorization. The other learning strategy was indirect strategy which is sub-divided into creating practice opportunities and using production tricks.

According to Oxford (1992/1993), language learning strategies are specific actions, behaviors and steps to develop the students’ progress in second language skills. These strategies can facilitate the internalization, storage, and the use of new language. Strategies mean tools for the self-directed involvement that is necessary for developing communicative ability. Oxford, Wenden and Rubin's study (as cited in Lessard-Clouston, 1997) noted a request for control and autonomy of acquisition by the learner through language learning strategies. These strategies become more self-directed for learners and expand language teachers’ role. These strategies involve many aspects about the cognition.

Inter-relationships between Vocabulary Learning Strategies and Language Learning Strategies

Language learning strategies formed a sub class of learning strategies in general while vocabulary learning strategies constituted a sub-class of language learning strategies. There are researchers (Oxford and Scarcellat, 1994, and Schmitt, 1997) who have recognized vocabulary learning strategies. They did not forget the sight of vocabulary's correlation with language learning strategies.

Wenden and Rubin (1987), O’ Malley and Chamot (1990), Oxford (1990) and Schmitt (1997) asserted vocabulary learning strategies as a sub-class of framework for language learning strategies. Their vocabulary learning strategies are applicable to a wide variety of language learning tasks such as vocabulary, pronunciation and grammar to integrative tasks such as reading comprehension and oral communication. Schmitt (1997) manifests that language learning strategies are not good for various factors. They are the contexts which are used strategies, frequency of use, the combination with other strategies, language portability, background knowledge, the texts, target language, language learning proficiency level and language characteristics. The importance and popularity of vocabulary learning strategies in the group of language learning strategies is reflected by the fact that the majority of language learning strategies listed in Oxford’s (1990) taxonomies.

Theoretical Background

The researchers defined vocabulary learning strategies based on the definition of learning strategies. According to Nation (2001), vocabulary learning strategies are
the part of language learning strategies which in turn are the part of general learning strategies. Based on O’Malley and Chamot's (1990) definition of learning strategies, Schmitt (1997) asserts that learning is the process which information is obtained, stored, retrieved and used. So, vocabulary learning strategies could affect this widely defined process.

Intaraprasert (2004) had defined vocabulary learning strategies as any set of techniques or learning behaviors used to discover the meaning of a new word, to retain the knowledge of newly-learned words and to expand the learners' knowledge of vocabulary. According to Sokmen (1997), vocabulary learning strategies are actions made by the learners to understand, learn and remember the meaning of a word. In fact, vocabulary learning strategies are the techniques used by learners in the process of learning vocabulary in the target language.

O’Malley and Chamot (1990) defined that vocabulary learning strategies are special thoughts or behaviors that individuals use to comprehend and learn information. According to Takac (2008), vocabulary learning strategies are specific strategies used in the isolated task of learning vocabulary in the target language. Besides, vocabulary learning strategies are techniques or tools that help language learning in a second language. Researchers agree that vocabulary acquisition and vocabulary learning strategies constitute a great challenge for foreign or second language learners (Omaar, 2016 and Nation, 2005). According to Nation (1995), though native speakers take years to develop vocabulary through reading activities, non-native speakers face greater challenges in learning English due to the lack of vocabulary.

Schmitt (1997) explained that appreciation of the importance of vocabulary and learning strategies had led to considerable research. The researchers are interested in vocabulary learning strategies and are noticeable lack of attention. Therefore, vocabulary learning strategies research had increased in the last twenty years.

**Schmitt’s Taxonomy of Vocabulary Learning Strategies**

Schmitt (1997) classified his taxonomy of vocabulary learning strategies which consisted of 58 strategies into five groups: Determination strategies (DET), Social strategies (SOC), Memory strategies (MEM), Cognitive strategies (COG) and Metacognitive strategies (MET). Schmitt’s taxonomy of vocabulary learning strategies were based on Oxford’s (1990) discovery strategies and consolidation strategies.

**Discovery Strategies**

According to Schmitt (1997), the learners use discovery strategies to discover the meanings of the new words. These strategies were sub-divided into determination strategies and social strategies.

**i) Determination Strategies**

Determination strategies are strategies used by an individual when discovering a new word's meaning without recourse to another person's expertise. They are used when learners discover the meaning of a word by guessing from their structural knowledge of the language, guessing from a native language cognate, guessing from context, using reference materials or asking someone else. Learners can obtain clues about meaning from its root or affixes. However, according to Clarke and Nation
(1980), analysis of word parts can lead to incorrect meanings. So, they suggest that guessing the meaning of the words from context is better. According to Levin (1983) and Paivio (1983), pictures have been shown to be useful if learners focus on them. If the discourse is spoken, gestures or intonation can give clues to meaning.

Schmitt (1997) stated that guessing an unknown word's meaning from context had been widely promoted in the last two decades as it was a better communicative approach than other discovery strategies. Guessing from context refers to inferring a word's meaning from the surrounding words in a written text. The considerable research on textual inference showed that it could be a major way of acquiring new vocabulary but it has prerequisites. First, the learner must have language proficiency and adequate vocabulary background knowledge to use this strategy. Second, the context must have clues to enable guessing the meaning of words. Finally, finding a word's meaning is through materials, dictionaries. According to Tomaszczyk (1979) and Baxter (1980), bilingual dictionaries are used more extensively than monolingual dictionaries.

Word lists and flash cards have fallen out of favor since many teachers believe that words should only be presented in context. Schmitt (1995) illustrated that new words were first learned as translation pairs, and then were enriched in various ways such as semantic maps or using new words in sentences.

### i) Social Strategies

Social strategies are strategies that learners learn new words through interaction with other people to improve language learning. According to Schmitt (1997), a second way to discover a new meaning is social strategies which mean asking someone who knows vocabulary such as teachers. The learners can ask teachers to give help in a variety of ways: giving the native language translation, giving a synonym, giving a definition by paraphrase, using the new words in a sentence. The advantage of native language translation is that students understand it easily and quickly. The disadvantage is that most translation pairs are not exact equivalents. So, some incorrect knowledge may be transferred. In addition, learners can ask classmates or friends for meaning. They can obtain new words and discover their meanings through group work.

### Consolidation Strategies

According to Schmitt (1997), consolidation strategies are used for remembering a new word when learners have been introduced it. These strategies were divided into social strategies, memory strategies; pictures/imagery, related words, unrelated words, grouping, word's orthographical or phonological form, other memory strategies, cognitive strategies and metacognitive strategies.

### i) Social Strategies

According to Dansereau (1998), the social context enhances motivation of the participants; cooperative learning can prepare the participants for "team activities" outside the classroom. Moreover, the students use and manipulate language in the class. According to Kramsch (1979), another social strategy is "checking student's work for accuracy by teachers", especially flash cards and word lists since there are commonly used for independent learning outside of class. According to Krashen
(1982), a key element in language acquisition is that interacting with native-speakers will be an excellent way to gain vocabulary.

ii) Memory Strategies
Memory strategies are strategies that learners learn new words by relating new material to existing knowledge. In addition, they are focused on mental processing. Most memory strategies (traditionally known as mnemonics) are related to the words to be retained with some learned knowledge, using some form of imagery or grouping. According to Thompson (1987), memory strategies help individuals learn faster and recall better.

iii) Picture/Imagery
According to Schmitt (1997), new words can be gained by studying them with pictures of their meaning instead of definitions. Learners can make their own mental images of a word's meaning and imagery has been used to be more effective than repetition for reading passages. New words can be associated with personal experience of the underlying concept, for instance, a learner mentally connects the word "snow" to a memory of playing in the snow while the learner was young.

iv) Related Words
Schmitt (1997) pointed out that new words could be linked to second language words which the learners had already known such as coordination (apple → other kinds of fruit like pears, cherries or peaches), synonym or antonym. Oxford (1990) stated that these relationships could be illustrated with semantic maps to help vocabulary consolidate.

Some words, gradable adjectives are related to other words, for instance, big is larger than medium-sized but smaller than huge. According to Grim and Redman (1986), a helpful way to remember words is to set them in a scale (huge/big/medium-sized/small/tiny).

v) Unrelated Words
Schmitt (1997) explained that the learners could link words together without relationships. One way is "hook or peg words" and memorized a rhyme like "one is a bun, two is a shoe, three is a tree, etc". In addition, the rhyme can be recited. Paivio and Desrochers (1979) pointed out that English-speaking learners of French studied the same number of words by reciting a rhyme and by memorization. These learners could remember words twice by using peg words or hook words than rote memorization.

vi) Grouping
According to Schmitt (1997), grouping is an important way to aid recall and learners organize words into groups naturally without prompting. Words can be grouped spatially on a page and together in a very natural way by using the target words in sentences similarly in a story.
vii) Word's Orthographical or Phonological Form

Schmitt (1997) pointed out focusing on the target word's orthographical or phonological form to help recall. Learners could study the spelling or pronunciation of a word. Besides, learners could visualize the orthographical form of a word by attempting to remember and making a mental representation of the sound of a word.

The method which combines the phonological forms and meanings of native language and second language words could be the most researched mnemonic strategy. The keyword method involved finding a native language word which sounds like the target second language word.

(viii) Other Memory Strategies

A structural analysis of words can be useful for determining the meaning. Studying a word's affixes and root is useful as a way of consolidating its meaning. Scholfield (1980) states that paraphrasing can be utilized to teach the meanings of new words. According to Baxter (1980), paraphrasing can be employed as strategy to compensate for a limited productive vocabulary, especially when a word is temporarily inaccessible. Some vocabulary could be learned as phrases, idioms or proverbs. In addition, learners sometimes use physical actions while learning vocabulary (O'Malley et al., 1983, cited in Thompson, 1987). Semantic feature grids have often been used in vocabulary materials.

(ix) Cognitive Strategies

Schmitt (1997) proposed that cognitive strategies included repetition and using mechanical means to study vocabulary. Written and verbal repetition are common strategies in the world. According to O'Malley and Chamot (1990), these strategies make the students try other strategies. However, there are many learners who have used these strategies to reach high levels of proficiency. Though word lists and flash cards can be used for knowing vocabulary, most students used them to review vocabulary. According to Brown (1980), the advantage of flash cards is that learners can take them almost anywhere. Using study aids is another kind of cognitive strategy. Taking notes in class motivates learners to create their own personal structure for learning new vocabulary. Special vocabulary sections can be made in their textbooks to help them study target words. In addition, learners who prefer aural approach for learning can make a tape recording of word lists.

(x) Metacognitive Strategies

Metacognitive strategies are strategies involved a conscious overview of the learning process and making decision about planning, monitoring or evaluating the best ways to study. The students use metacognitive strategies to control and evaluate their own learning. Generally, they are broad strategies and concerned with more efficient learning. English medium books, magazines, newspapers and movies become endless resources. Moreover, the learners can study words by practicing and testing. Goulden, Nation and Read (1990) explain that even native speakers know only a portion of vast total words. Thus, second language learners should realize that they will never learn all the words and need to focus their limited resources on learning. Part of this involves knowing to skip or pass a word.
Research Methodology

This research was based mainly on Schmitt's (1997) taxonomy of vocabulary learning strategies: determination, social, memory, cognitive and metacognitive strategies. The data were collected through a questionnaire of vocabulary learning strategies proposed by Schmitt (1997). In the questionnaire, item 1 to 8 were dealt with determination strategies. For social strategies, item 9 to 16 were constructed. Item 17 to 24 were included in memory strategies. For cognitive strategies, item 25 to 32 were used and item 33 to 40 were dealt with metacognitive strategies. The questions were designed to explore which type of strategy the students prefer in attempting to get new vocabulary.

Data Collection and Data Analysis

In this research, the researcher used the questionnaire with 40 questions for five strategy groups. The questionnaires were distributed to 145 students from Pakokku Education College and 145 students from Sagaing Education College in Upper Myanmar. The participants had to give a tick (✓) in the specific columns placed at the end of each question. Data Collection was shown in the following tables.

Table 1
Percentages for vocabulary learning strategies used by Pakokku Education College Students

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Determination</th>
<th>Social</th>
<th>Memory</th>
<th>Cognitive</th>
<th>Metacognitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentages</td>
<td>59.91%</td>
<td>71.72%</td>
<td>53.44%</td>
<td>55.34%</td>
<td>51.55%</td>
</tr>
</tbody>
</table>

Table (1) showed the percentages for the total agree scores of Pakokku Education College students. According to the total agree scores, the percentage for the use of determination strategies is 59.91%. The percentage for the use of social strategies is 71.72%. The percentage for the use of memory strategies is 53.44%. The percentage for the use of cognitive strategies is 55.34%. The percentage for the use of metacognitive strategies is 51.55%.

Table 2
Percentages for vocabulary learning strategies used by Sagaing Education College Students

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Determination</th>
<th>Social</th>
<th>Memory</th>
<th>Cognitive</th>
<th>Metacognitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentages</td>
<td>63.62%</td>
<td>74.48%</td>
<td>56.03%</td>
<td>60.25%</td>
<td>57.67%</td>
</tr>
</tbody>
</table>

Table (2) showed the percentages for the total agree scores of Sagaing Education College students. According to the total agree scores, the percentage for the use of determination strategies is 63.62%. The percentage for the use of social strategies is 74.48%. The percentage for the use of memory strategies is 56.03%. The percentage for the use of cognitive strategies is 60.25%. The percentage for the use of metacognitive strategies is 57.67%.
Table 3
The Average Percentage for the Use of Vocabulary Learning Strategies in Upper Myanmar

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Determination</th>
<th>Social</th>
<th>Memory</th>
<th>Cognitive</th>
<th>Metacognitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>61.76%</td>
<td>73.10%</td>
<td>54.73%</td>
<td>57.79%</td>
<td>54.61%</td>
</tr>
</tbody>
</table>

Table 3 showed the average percentage for the total agree score of Pakokku and Sagaing Education College students. The average percentage for the use of determination strategies is 61.76%. The average percentage for the use of social strategies is 73.10%. The average percentage for the use of memory strategies is 54.73%. The average percentage for the use of cognitive strategies is 57.79%. The average percentage for the use of metacognitive strategies is 54.61%.

Finding and Discussion

Vocabulary learning strategies help the students learn many new words. According to the collected data, Pakokku and Sagaing Education College students of Upper Myanmar use determination, social, memory, cognitive and metacognitive strategies when they want to know and discover the meanings of the new words. Therefore, it is clear that they have the ability to use the certain ways when they want to know and discover the meanings of new words.

![Figure 1: Vocabulary Learning Strategies Used by Pakokku Education College Students](image)

By analyzing the frequency of vocabulary learning strategies used by Pakokku Education College students, it is found that social strategies are mainly used in vocabulary learning strategies. The least frequency is metacognitive strategy group. To sum up, while Pakokku Education College students learn vocabulary, they mostly used social strategies: (e.g. When they face the new word, they ask the teacher for native language translation.) To get the meaning of the words, they normally ask someone who knows vocabulary such as the teacher, the friend, and the classmates but social strategies such as "I ask the teacher for the synonym of the new word.", "I ask the teacher for a sentence including the new word." and "I study and practice meaning of the new words in a group of students." are rarely used. Except the use of social and determination strategies, the use of memory, cognitive and metacognitive strategies is nearly the same.
Figure 2: Vocabulary Learning Strategies Used by Sagaing Education College Students

In figure (2), analysis of the frequency of vocabulary learning strategies used by Sagaing Education College students showed that social strategies are the dominant use in vocabulary learning strategies. The least used vocabulary learning strategies are memory strategies.

Figure 3: The Average Percentage for the Use of Vocabulary Learning Strategies in Upper Myanmar

According to the collected data, it was found that Pakokku and Sagaing Education College Students of Upper Myanmar used determination strategies by an individual when discovering a new word's meaning without recourse to another person's expertise such as "guessing from context, using monolingual dictionary and so on." In the use of social strategies, they ask "someone who knows the meaning of the new words." In the use of memory strategies, they related new material to existing knowledge for new words such as "studying the sound of a word". Besides, they focused on mental processing such as "imaging word's meaning, remembering affixes and roots and so on." In the use of cognitive strategies, they used "repetition and mechanical means to study vocabulary" such as verbal repetition and written repetition. In the use of metacognitive strategies, they used these strategies such as using English language media, skipping or passing new word, using word practice and so on.

According to these findings, it was found that the students use various strategies when they discover the meanings of the unknown words. Some students use many strategies more than some students. Therefore, it was assumed that good learners use strategies more than poor learners because Rubin (1975) advised that a good language learner is "willing to guess intelligently, willing to communicate with
others, taking advantage of any opportunities, monitoring his or her performance and paying attention to the meaning of unknown words."

**Conclusion**

Vocabulary knowledge is an essential component of any languages. So, there have been interested in vocabulary acquisition and the important role of vocabulary in second language proficiency. In communication, vocabulary knowledge helps the learners to convey meanings. Mastering the knowledge of vocabulary is one of the tasks which EFL learners have to face during learning. Therefore, learners need the ways to develop their vocabulary. The learners can acquire large vocabulary with the help of vocabulary learning strategies. Using vocabulary learning strategies is a powerful approach to help learners acquire knowledge of vocabulary. Moreover, the learners need the teachers to provide them with vocabulary learning strategies to enhance their vocabulary knowledge. By providing with vocabulary learning strategies, the students have to know which strategies will be useful in vocabulary learning and they can apply vocabulary learning strategies very often. In other words, the students need to engage more vocabulary learning strategies to develop their vocabulary knowledge.

In this research, it was found that Education College students of Upper Myanmar used determination, social, memory, cognitive and metacognitive strategies to achieve the new words. Some students used various strategies more than some students. It was assumed that good learners use strategies more than poor learners. According to the collected data, the students from Education College, Upper Myanmar have the abilities to utilize vocabulary learning strategies to some extent. Therefore, when they become teachers, they can apply various strategies to improve learners' vocabulary use and facilitate learning more.

To sum up, this research showed the development of Education College students of Upper Myanmar for vocabulary learning by providing them with vocabulary learning strategies. According to the total frequency, it was found that most participants are good learners because they can apply a lot of strategies, and some are poor learners because they cannot utilize some strategies. Thus, the teachers should guide and practise the students to understand using vocabulary learning strategies more. When the participants become the use of strategies more understandable, they will use and apply strategies to get new vocabulary.
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An Introduction to Alternative Vocabulary Learning Strategies for Post-graduate Diploma in English Students in Myanmar

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Abstract

Making judgments about textbooks and teaching materials which are used as instructional materials is becoming important to create a successful classroom dynamics. The aim of the study is to introduce alternative vocabulary learning strategies excluded in vocabulary exercises in two textbooks from the point of Schmitt (2000)’s vocabulary learning strategies. It is evident that 12 out of 58 vocabulary learning strategies can be provided by the vocabulary exercises in the textbooks. “Memory Strategies” and “Determination Strategies” are the most frequent and affective, and “Metacognitive Strategies” is lack among exercises presented in the textbooks. Moreover, only three vocabulary learning strategies (coded as D4, M1, M19) are mostly underlined in the vocabulary exercises. It was also found that Consolidation strategies are more dominant than Discovery strategies. Alternative vocabulary learning strategies are suggested based on the findings. The results of this study could be helpful for English teachers to assist them to become more aware of different vocabulary exercises used in Synergy 1 & 2. This might offer some insights for material developers in order to develop and enrich the presented ELT materials in terms of learning strategies.

Keywords: vocabulary learning strategies, vocabulary exercises, synergy 1 & 2

Introduction

Course books are the most widely employed materials and play a central role next to teachers in Language Teaching, which are the outcomes from curriculum developing process including developing aims to sequencing units. Apart from these processes, there have been two concerns: choosing input and sources, and selecting exercise types. Choosing the types of exercises is one of the most difficult decisions in material designing. It is also important to relate between exercises and specific language teaching objectives. (Richards, 2002) Scholars like Crandall, Richards, and Grellet (mentioned in Richards, 2002) make suggestions on designing exercises for language skills like listening and reading based on the concept of taxonomy. Reviewing published materials for information of this kind is a good way to get a sense of the range of possible exercise types that can be used in materials (Richards, 2002).

Learning vocabulary is one of the crucial processes for the learners studied a foreign language. Expanding the repertoire of vocabulary in the target language can efficiently cause the acquisition of any language. Without knowing vocabulary, it is difficult for learners to learn the language. Vocabulary acquisition has become an extremely important part of second language acquisition. Thornburry (2002) argue
that ‘Without grammar very little meaning can be conveyed, without vocabulary nothing can be conveyed’.

Schmitt (2000) said that learning vocabulary in the second language requires the use of vocabulary learning strategies which have been receiving much attention in the field of second language learning. Other than that, the research has shown that many learners do use more strategies to learn vocabulary especially when compared to such integrated tasks such as listening and speaking. Those are mostly inclined to use basic vocabulary learning strategies (Schmitt, 1997).

One way to help learners to enhance their knowledge of second language vocabulary is through equipping learners with a variety of vocabulary learning strategies. In this case, the role of tasks and exercises in the textbook play an important role since they can provide students the practice of vocabulary learning strategies. This study will find out the underlying vocabulary learning strategies in the vocabulary exercises. In other words, the developing of vocabulary exercises will be learnt from the point of vocabulary learning strategies.

The extensive taxonomy of exercises, skills and processes related to specific language teaching objectives could be one of the influential factors on how to create exercises for teaching language skills (Richards, 2002). The following learning strategies help the curriculum developers and teachers to think up and build a set of different kinds of tasks based on the topics in the textbooks. Many researchers had been classifying the vocabulary learning strategies. Gu and Johnson (1996), Schmitt (1997), and Nation (2001) for example, propose taxonomy of vocabulary learning strategies based on the second or foreign learner’s various strategies to acquire the target language words (vocabularies). Schmitt (2000) groups vocabulary learning strategies into five categories, there are determined strategies, social strategies, memory strategies, cognitive strategies, and metacognitive strategies.

1. **Determination strategies** are individual learning strategies, which help learners to discover the meaning of words by themselves with no assistance from peers, such as guessing the words from the context (Schmitt, 2000).

2. **Social strategies** engage learners in interaction with their peers, and this helps them to learn from each other, such as observing their classmates and asking their teacher for the meaning of a word (Schmitt, 2000).

3. **Memory strategies** are strategies, which engage learners in learning the new word through mental processing by associating their existing or background knowledge with the new word (Schmitt, 2000).

4. **Cognitive strategies** do not engage learners in mental processing but is more mechanical. An example is repeating the pronunciation of new words (Schmitt, 2000).

5. **Metacognitive strategies** are strategies relating to processes involving monitoring, decision-making, and evaluation of one’s progress. Metacognitive strategies help the learner in determining appropriate VLS for learning new words (Schmitt, 2000).
1. Strategies for the discovery of a new word’s meaning

<table>
<thead>
<tr>
<th>No</th>
<th>Types of Strategy</th>
<th>Code</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Determination</td>
<td>D1</td>
<td>Analyzing parts of speech</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>D2</td>
<td>Analyzing affixes and roots</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>D3</td>
<td>Analyzing any available pictures or gestures</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>D4</td>
<td>Guess meaning from textual context</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>D5</td>
<td>Use a bilingual dictionary</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>D6</td>
<td>Use a monolingual dictionary</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>D7</td>
<td>Check for L1 cognate</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>D8</td>
<td>Use wordlists</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>D9</td>
<td>Use flashcards</td>
</tr>
<tr>
<td>10</td>
<td>Social</td>
<td>S1</td>
<td>Ask teacher for an L1 translation of new word</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>S2</td>
<td>Ask teacher for synonym/paraphrase of new word</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>S3</td>
<td>Ask teacher for a sentence including new word</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>S4</td>
<td>Ask classmates for meaning</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>S5</td>
<td>Discover new meaning through group work activity</td>
</tr>
</tbody>
</table>

2. Strategies for consolidating a word once it has been encountered

<table>
<thead>
<tr>
<th>No</th>
<th>Types of Strategy</th>
<th>Code</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Social</td>
<td>S6</td>
<td>Study and practice meaning in a group</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>S7</td>
<td>Interact with native speakers</td>
</tr>
<tr>
<td>17</td>
<td></td>
<td>S8</td>
<td>Teachers’ check students’ flashcards</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td>M1</td>
<td>Connect word to a previous personal experience</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td>M2</td>
<td>Connect the word with its coordinates (items in its lexical field)</td>
</tr>
<tr>
<td>20</td>
<td>Memory</td>
<td>M3</td>
<td>Use semantic maps</td>
</tr>
<tr>
<td>21</td>
<td></td>
<td>M4</td>
<td>Image word forms</td>
</tr>
<tr>
<td>22</td>
<td></td>
<td>M5</td>
<td>Group words together to study them</td>
</tr>
<tr>
<td>23</td>
<td></td>
<td>M6</td>
<td>Study the spelling of a word</td>
</tr>
<tr>
<td>24</td>
<td></td>
<td>M7</td>
<td>Underline initial letter of the word</td>
</tr>
<tr>
<td>25</td>
<td></td>
<td>M8</td>
<td>Use physical action when learning a word</td>
</tr>
<tr>
<td>26</td>
<td></td>
<td>M9</td>
<td>Study word with a pictorial representation of its meaning</td>
</tr>
<tr>
<td>27</td>
<td></td>
<td>M10</td>
<td>Form an image of word’s meaning</td>
</tr>
<tr>
<td>28</td>
<td></td>
<td>M11</td>
<td>Learn the words of an idiom together</td>
</tr>
<tr>
<td>29</td>
<td></td>
<td>M12</td>
<td>Connect the word to its synonyms and antonyms</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td>M13</td>
<td>Group words together within a storyline</td>
</tr>
<tr>
<td>31</td>
<td></td>
<td>M14</td>
<td>Use ‘scales’ for gradable adjectives</td>
</tr>
<tr>
<td>32</td>
<td></td>
<td>M15</td>
<td>Use peg method</td>
</tr>
<tr>
<td>33</td>
<td></td>
<td>M16</td>
<td>Use loci method</td>
</tr>
<tr>
<td>34</td>
<td></td>
<td>M17</td>
<td>Group words together spatially on a page</td>
</tr>
<tr>
<td>35</td>
<td></td>
<td>M18</td>
<td>Use new word in sentences</td>
</tr>
<tr>
<td>36</td>
<td></td>
<td>M19</td>
<td>Use semantic feature grids</td>
</tr>
<tr>
<td>37</td>
<td></td>
<td>M20</td>
<td>Study the sound of a word</td>
</tr>
<tr>
<td>38</td>
<td></td>
<td>M21</td>
<td>Say the new word when studying</td>
</tr>
<tr>
<td>39</td>
<td></td>
<td>M22</td>
<td>Configure word</td>
</tr>
<tr>
<td>40</td>
<td></td>
<td>M23</td>
<td>Use keyword method</td>
</tr>
<tr>
<td>41</td>
<td>M24</td>
<td>Affixes and roots (remembering)</td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>-----</td>
<td>---------------------------------</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>M25</td>
<td>Part of speech (remembering)</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>M26</td>
<td>Paraphrase the word’s meaning</td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>M27</td>
<td>Use cognates in study</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>C1</td>
<td>Verbal repetition</td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>C2</td>
<td>Written repetition</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>C3</td>
<td>Use Word lists</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>C4</td>
<td>Put English labels on physical objects</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>C5</td>
<td>Keep a vocabulary notebook</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>C6</td>
<td>Take notes in class</td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>C7</td>
<td>Use vocabulary sections in textbook</td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>C8</td>
<td>Listen to tape of wordlists</td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>C9</td>
<td>Use flashcards</td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>MC1</td>
<td>Use English language media (songs, movies, news, casts, etc.)</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>MC2</td>
<td>Use spaced word practice (expanding rehearsal)</td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>MC3</td>
<td>Test oneself with word tests</td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>MC4</td>
<td>Skip or pass new word</td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>MC5</td>
<td>Continue to study word over time</td>
<td></td>
</tr>
</tbody>
</table>

Ebadi and Hasan (2016) conducted a research entitled “A Critical Analysis of Tasks in EFL Textbook: A Case Study of Sunrise 12” to extract and classify the type of tasks included in *Sunrise 12* English instruction textbook currently taught to school students in Kurdistan Region of Iraq (KRI). The results were that linguistic and creative tasks were the most frequent and affective, while interpersonal, and cognitive tasks, respectively, were the least common pedagogical tasks presented in *Sunrise 12*.

Currently, there have been a few literatures related to evaluating pedagogic factors of course books namely, evaluating the task types of exercises in ELT textbooks especially vocabulary. Realizing the types of tasks or exercises employed in course books will surely benefit not only teachers but also curriculum developers as well as material writers. In curriculum developing, it is apparently crucial to design the materials which are guaranteed to fulfill the needs of the students. The teachers could adjust the exercises to engage with students’ aims and proficiency, and researchers devoted to curriculum developing may attain some insights and implications from this kind of research.

In order to fill the gaps in aforementioned, the aim of this study is to introduce alternative vocabulary learning strategies excluded in vocabulary exercises in two textbooks from the point of Schmitt (2000)’s vocabulary learning strategies. To this end, research questions for this research work are as follows:

1. How do vocabulary learning strategies underlie in vocabulary exercises in two textbooks?
2. How differ are the weight of some strategies than others?
3. What strategies need to be highlighted?
4. What kinds of vocabulary learning strategies can be employed in developing new vocabulary exercises for students?
5. What types of strategies are prevalent, and ignored by the vocabulary exercises?
(6) Which strategies are out-weighted in exercises: discovery and consolidation strategies?

Materials and Methods

Instrument

The data to be analyzed are collected from the textbook of Synergy 1 and 2 (Simplified Editions), which are employed to teach English for Post-graduate students in Myanmar for their Basic and Intermediate levels.

Data Collection and Analysis

In this research, vocabulary learning strategies by Schmitt (2000) was employed to collect the required data from 75 vocabulary exercises of six lessons. The research method in this study is descriptive content analysis, and longitudinal observational method. In former type of research method, written or visual materials are analyzed for the purpose of identifying specified characteristics of the material. All vocabulary exercises were categorized according to underlined learning strategies nearly seven months of practicing in classrooms. The categorized data is tabulated according to the lessons and overall textbooks.

Table 1

Vocabulary Learning Strategies underlying in the exercises of two textbooks

<table>
<thead>
<tr>
<th>No</th>
<th>Code</th>
<th>Number</th>
<th>Strategies</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>D4</td>
<td>16</td>
<td>Guess meaning from textual context</td>
<td>21</td>
</tr>
<tr>
<td>2</td>
<td>M19</td>
<td>15</td>
<td>Use semantic feature grids</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>M1</td>
<td>15</td>
<td>Connect word to a previous personal experience</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>S6</td>
<td>8</td>
<td>Study and practice meaning in a group</td>
<td>11</td>
</tr>
<tr>
<td>5</td>
<td>M2</td>
<td>8</td>
<td>Connect the word with its coordinates (items in its lexical field)</td>
<td>11</td>
</tr>
<tr>
<td>6</td>
<td>M26</td>
<td>4</td>
<td>Paraphrase the word’s meaning</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>M3</td>
<td>3</td>
<td>Use semantic maps</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>D3</td>
<td>2</td>
<td>Analyzing any available pictures or gestures</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>M5</td>
<td>1</td>
<td>Group words together to study them</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>C2</td>
<td>1</td>
<td>Written repetition</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>M13</td>
<td>1</td>
<td>Use Word lists</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>C3</td>
<td>1</td>
<td>Use Word lists</td>
<td>1</td>
</tr>
</tbody>
</table>

| 75 | 100 |

(12) out of (58) strategies can be found in the (75) vocabulary exercises. “Guess meaning from textual context” comes at the top of the table at 21 percent of all exercises followed by “Use semantic feature grids” and “Connect word to a previous personal experience” by 1 percent gap. The percentage for “Study and...
“Practice meaning in a group” is exactly as same as that of “Connect the word with its coordinates (items in its lexical field)”. The ratio of rest seven strategies range from 5 to 1 percentage in turn.

Table 2

<table>
<thead>
<tr>
<th>No</th>
<th>Code</th>
<th>Strategies</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M1</td>
<td>Connect word to a previous personal experience</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>D4</td>
<td>Guess meaning from textual context</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>M19</td>
<td>Use semantic feature grids</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>M2</td>
<td>Connect the word with its coordinates (items in its lexical field)</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>M3</td>
<td>Use semantic maps</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>S6</td>
<td>Study and practice meaning in a group</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>D3</td>
<td>Analyzing any available pictures or gestures</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>M13</td>
<td>Group words together within a storyline</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>C3</td>
<td>Use Word lists</td>
<td>1</td>
</tr>
</tbody>
</table>

9 out of 58 strategies are found in the Basic level textbook. With 1 gap in number, “Connect word to a previous personal experience”, “Guess meaning from textual context” and “Use semantic feature grids” stand in a row at the top of the table. The strategies coded as “M2, M3, and S6” is the same number with the strategy “M1” which is the most common one in the textbook. “D3, M13, C3” are the least common strategies.

Table 3

<table>
<thead>
<tr>
<th>No</th>
<th>Code</th>
<th>Strategies</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>D4</td>
<td>Guess meaning from textual context</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>M19</td>
<td>Use semantic feature grids</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>S6</td>
<td>Study and practice meaning in a group</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>M1</td>
<td>Connect word to a previous personal experience</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>M2</td>
<td>Connect the word with its coordinates (items in its lexical field)</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>M26</td>
<td>Paraphrase the word’s meaning</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>D3</td>
<td>Analyzing any available pictures or gestures</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>M5</td>
<td>Group words together to study them</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>C2</td>
<td>Written repetition</td>
<td>1</td>
</tr>
</tbody>
</table>

9 out of 58 strategies are found in the Intermediate level textbook as well. The number of strategies overlaps one after another. The most frequent strategies are D4 and M19 with 8 exercises each, and 6 for “S6” and “M1” which are followed by “M2” and “M26” with 4 in each. With 1 exercise each, “D3, M5, C2” are the least common strategies found in the exercises.
In Basic level textbooks, Metacognitive strategies are totally excluded while Memory Strategies are employed in nearly 70 percent of all exercises. One-fourth of those go to under the category of Determination strategies. The ratio of cognitive strategies at 3 percent, half of Social strategies, is the most ignorant ones in the textbook.

About 60 percent of the exercises are under the type of Memory Strategies. The number is lower in Determination Strategies with 24 percent and Social Strategies with 14 percent. Metacognitive Strategies are excluded in this textbook as well.
Figure 3: Differences of underlying strategies in two textbooks

Just only one-fourth of the vocabulary exercises is dealing with Discovery Strategies in both two textbooks.

Results and Discussion

This paper examines vocabulary learning strategies behind vocabulary exercise in the textbooks employed in Mandalay University of Foreign Languages for two levels (Basic & Intermediate) in Postgraduate Diploma in English Course with the aim of introducing alternative vocabulary learning strategies excluded in vocabulary exercises in two textbooks from the point of Schmitt (2000)’s vocabulary learning strategies.

There are (58) vocabulary learning strategies by Schmitt (1997). In total, (12) strategies are found out in (75) vocabulary exercise in both of the textbooks particularly 9 in each. Among (12) strategies, only five strategies are obviously outnumbered compared to other strategies which proportions are relatively low.

“Guess meaning from textual context” is the frequent strategy underlined in the exercises. Learning new vocabulary through context helps the student understand the word’s correct usage and prevents students from making sentences from definition. Gu (2003) stated that learning new words through context is only one step students may use, and they should think meta-cognitively and learn new words within the context of where they appear.

“Use semantic feature grids” and “Connect word to a previous personal experience” are another common strategies students need to practice, provided by the exercises. Semantic feature grids can provide clear-cut knowledge about words. Arousing students’ past experiences to connect meanings of the word is widely accepted as an effective strategy by both teachers and students.

“Study and practice meaning in a group” and “Connect the word with its coordinates (items in its lexical field)” are third prevalent strategies in the exercises. Gu (2003) pointed out vocabulary acquisition is very learner-centered activity. When learning vocabulary in a cooperative learning environment it allows students to learn from peers closet to them. Murphy and Aero (2001) pointed out that students felt more relaxed and learned more from peers since they saw that making mistake is acceptable, and learning English can be fun. Connecting the word with its coordinates could consolidate students’ knowledge about the forms of the words.
Exclusion of Metacognitive Strategies in the exercises means that they cannot provide students taking control of their own vocabulary learning. In order to review and test their vocabulary by themselves, exercises introducing the practice of Metacognitive Strategies should be developed. These result are against with the learners’ use of vocabulary learning strategies which shows Metacognitive Strategies and Cognitive Strategies are the most preferred ones.

According to Gu and Johnson (1996), the cognitive strategy is a positive predictor of general proficiency. Cognitive strategies provide more on the practices to make the learner to be able to remember the word in a longer time. The fewer exercises that reinforce the practice of Cognitive strategies may mean that the exercises cannot make learners to be able to remember the word in a longer time.

Although Social strategies are third most frequently found one underlying in the exercises, its proportion is relatively low compared to two prevalent types of strategy. This can be due to that English vocabulary learning tended to be done as individual process, when students are faced with new words, they preferred not to seek other’s help. Social interaction is necessarily required in learning a word.

One out of four exercises in each textbook are relating to dealing with Determination Strategies which help learners to know the meaning of the word by using their own knowledge without the help of other people. Memory strategy was found as the most frequently underlined strategy. However, in terms of use of learning strategies, it was less frequently used than metacognitive and cognitive strategies but more frequently used than determination and social strategies. Such position of memory strategy may probably be supportive since rote learning has been popular among EFL students in Myanmar.

Consolidation strategies which consolidate once it has been encountered are more frequently revealed than discovery strategies which are employed in learning new words in both two textbooks. This means that vocabularies in the textbooks are once students have encountered, they do not need to focus on solving immediate problem of finding out the meaning of unknown words, and the exercises demand students to go further towards consolidation of words what they have learnt.

Teachers may generate new kinds of vocabulary exercises in their lesson plans in terms of the rest strategies (46 strategies) since their proportions are relatively low and neglected compared to the found 12 strategies. This will reinforce the skill of material development of the teachers. Creating the most suitable vocabulary exercises which allows the students to encounter words multiple times is recommended, depending on the students’ levels and needs. Developing materials based on the findings of this research may be the first stage to compile the teacher generated textbooks for Myanmar Students.

Conclusion
This current study examines the (75) vocabulary exercises in Synergy 1 &2 from the point of vocabulary learning strategies developed by Schmitt (2000). It was found that the vocabulary exercises do not provide the use of vocabulary learning strategies in all five categories. The most frequently found strategy by all exercises belongs to Memory Strategies while Metacognitive Strategies are most ignorant. In terms of specific strategy, it is revealed that “Guess meaning from textual context”, “Use semantic feature grids”, and “Connect word to a previous personal experience”
are the most dominant. Consolidation strategies are more embedded in the exercises than Discovery strategies. The effectiveness of language exercises is closely linked with the vocabulary size and depth of the students. The more words the students know, the more effective the exercises are to develop their proficiency is. This research will provide a range of insights and implications for curriculum developers, especially material writers whose are novices in this area, as well as teachers who are making practical use of this course book in classroom. “Understanding of curriculum and materials” is one of the areas of professional development of the teachers. (Richards, 2015) The limitation of this study is lack of sufficient literatures about material evaluation, and previous researches in this area. Further studies should be carried out in order to cover all five textbooks not only in terms of vocabulary but also in terms of other language skills in textbooks.

References

An Assessment of Computer and ICT Skills among Private Teachers in Selected Division, Myanmar

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Abstract

As technology has developed, the role of computer and ICT skills has become an essential one in today's teachers' teachings. Also in Myanmar, the improvement of proficiency in these skills of the teachers has been performed particularly. However, the research on their status of their ICT skills from private sector and how they apply them in teaching has not still been done yet. This research studies mainly on the computer and ICT skills of private teachers in Myanmar. The purpose was to find out if the teachers were computer and ICT literate and to examine if they employ computers and ICT in their teaching activities. A self-designed questionnaire was administered to teachers in five cities, out of 83 copies were completed, returned and found usable. The study shows that the respondents are aware of the fact that being computer and ICT literate is very important in their profession. Although their skills in ICT are in a very good indication, so much is still needed to be done. The use of ICT gadgets in working conditions is better than expected in private school. The study concludes with a few suggestions on the private teachers' perceptions to computer and ICT skills and on the private schools as further directions.

Keywords: ICT skills, private teachers, private sectors

Introduction

Organizations of all types and sizes, including private schools, have recognized that the usage of computers in the work environment is important as it presents with unprecedented challenges that helps individuals to acquire an inquiring, critical and creative mind to capitalize on the opportunities driven by the explosive growth of information, knowledge and technology. (Kumar, Rose and D'Silva, 2008). Today, improved communication technology has made time and space less complex. It could be observed that this modern age is the age of information explosion in which an average individual wants to explore the information system. Thus, the ability for timely acquisition, utilization, communication and retrieval of relevant and accurate information has become an important attribute for better teaching-learning process. Robinson & Latchem (2003) described information and communication technologies as essential tools in any educational system. They have the potentials of being used to meet the learning needs of individual students, promote equality of educational opportunities; offer high quality learning materials, increase self-efficacy and independence of learning among students, and improve teachers’ professional
development. The use of technology, and knowing how technology can support student learning have become essential skills for professional teachers in today’s world. The functions of teaching in education process is considered paramount especially when we consider teaching and learning process as the acquisition of knowledge and skills by individuals to enable him become useful member of the society. Teachers are the primary agents of educational innovation therefore; ICT skills among private teachers should be seen as an invaluable prerequisite that would help facilitate the teaching and learning procedure in this modern age of information explosion. The main objective of information technology for teaching and learning according to Idowu (2001) is to facilitate a faster and better comprehension and appreciation of the subject matter in such a way as to obtain the maximum possible output from the teaching and learning process. With the changes in the forms, formats, and expressions of information, the process of access, storage, transmission and reproduction have witnessed new media technology, it is therefore of paramount importance for teachers to adapt themselves to new roles and skills in order to cope with the impending changes. Satharasinghe (2003) posited that use of computers can revolutionize teaching and learning and could bring advances that would improve education dramatically; ICT is now recognized as an essential ingredient for creating 21st century learning environment but Lau and Sim (2008) reported that despite the apparent benefits of the use of ICT for educational purpose, studies showed that in many cases, the learning potential of ICT is deprived as many teachers are still not fully ICT literate. There is a digital divide which refers to the widening imbalance of access to ICT’s between communities and countries which creates an imbalance for equitable access to quality education in an electronic age. Private schools are being seen as very important institutions for bridging the digital divide in society because they represent focal points where many children from different communities converge for learning purposes. The technology gap should not be defined narrowly as a problem of access. Training and content, should be included as other dimensions of the digital divide so that policy makers and programs to narrow the digital divide would not lose their focus. It is therefore of paramount importance for teacher preparatory institutions to aim at developing in teachers ICT pedagogical competencies that will ensure that these teachers help the country to cross over to the positive side of the digital divide and keep pace on the information superhighway. Facilities and resources such as computers and internet are very important tools in the hands of teachers if ICT learning is to be embraced in earnest. But the question is, are the facilities at the disposal of the teachers in private schools? If they are, are they of international standard and are the teachers utilizing the resources? This research has the purpose of finding out if teachers are computer and ICT literate and to examine if they employ the use of computers and ICT in their teaching activities.

Research Methodology

The survey research method was used in investigating the computer and ICT skills of the private teachers from Bago, Sagaing and Mandalay Division. Specifically, a questionnaire was designed and distributed to targeted audience who are teachers in private schools. Ninety five copies of the questionnaire were distributed among the teachers. Eighty three copies of the questionnaire were completed, returned and found usable. Out of the 95 copies of the questionnaire
distributed to the respondents, 83 (87%) were completed, returned and found useable for the purpose of this analysis. The age bracket of the respondents was 31-40 (47.5%), 40-50 (38%) and 51-65 (14.5%). A higher number of female 73% as against 27% male, constitute the study’s respondents.

Table 1  
Distribution of respondents by year of teaching experience

<table>
<thead>
<tr>
<th>Years</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 5 years</td>
<td>47%</td>
</tr>
<tr>
<td>6 – 10 years</td>
<td>6%</td>
</tr>
<tr>
<td>11 – 15 years</td>
<td>20%</td>
</tr>
<tr>
<td>Above 20 years</td>
<td>27%</td>
</tr>
</tbody>
</table>

From the table above, the teachers from 1 – 5 years had the highest number of respondents (47%) while teachers between 6 – 10 years (6%), 11 – 15 years (20%) and 20 years above (27%), respectively.

Table 2  
Distribution of Respondents by Qualification

<table>
<thead>
<tr>
<th>Types of Qualifications</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA / BSc</td>
<td>44%</td>
</tr>
<tr>
<td>MA / MSc</td>
<td>16%</td>
</tr>
<tr>
<td>PhD</td>
<td>1%</td>
</tr>
<tr>
<td>Others</td>
<td>39%</td>
</tr>
</tbody>
</table>

The table shows the level of education of the respondents BA / BSc (44%) had the highest while MA / MSc had (16%) and PhD (1%) and other qualifications such as had (39%), respectively.
Research Questions

Table 3
As a teacher, have you ever received any computer training?

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>51%</td>
</tr>
<tr>
<td>No</td>
<td>49%</td>
</tr>
</tbody>
</table>

The table above reveals that (51%) respondents have received computer training while (49%) have not received any computer training. It is very important for teachers to continuously retrain themselves and acquire new skills so as to maintain relevance in their job. Modern developments of innovative technologies have provided new possibilities to teaching professions, but at the same time have placed more demands on teachers to learn how to use these new technologies in their teaching (Robinson & Latchem, 2003). Roberts (2000) opined that even if all the technology in the world is made available, and there is no investments in teachers that will help to them acquire the comfort and know-how, it will be wasted. There is a need to find ways to help private teachers be competent, confident and creative users of technology because teachers tend to integrate ICT in their teaching if they experience ICT skills as a learner.

Table 4
Certification in Computer programs

<table>
<thead>
<tr>
<th>Computer Programs</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certification in Computer Course</td>
<td>32.5%</td>
</tr>
<tr>
<td>Diploma in Computer Course</td>
<td>17.5%</td>
</tr>
<tr>
<td>Certificate in Microsoft Office Suit (MSC word, MS Excel, MS power point, MS access)</td>
<td>17%</td>
</tr>
<tr>
<td>Internet Explorer</td>
<td>19%</td>
</tr>
<tr>
<td>Others</td>
<td>14%</td>
</tr>
</tbody>
</table>

The table above clearly indicates that respondents who had certification in computer appreciation are representing 32.5%, Diploma in Computer Appreciation representing 17.5%, Certificate in Microsoft Office Suit (MSC word, MS Excel, MS power point, MS access) representing 17%, Internet Explorer representing 19% and other programs and Diploma in Computer Engineering had respondents representing 14% respectively. This is an excellent development because it shows that the private teachers have built capacity in the area of training on various computer packages though the teachers scored so low in the parameter of internet explorer. This is in line with the suggestion of Idowu (2001) that teachers should be given attention in terms of seminars, workshops, conferences on latest developments on information technology. He further reiterated that teachers should not only be computer literate
but should be empowered to have access to computers and other devices so as to keep abreast of current findings and research activities.

**Table 5**

*Interest in developing computer and ICT skills*

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
<td>76%</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>6.5%</td>
</tr>
<tr>
<td>Undecided</td>
<td></td>
<td>17.5%</td>
</tr>
</tbody>
</table>

This table clearly indicates that respondents representing 76% were ready and willing to develop their computer and ICT skills. This is an excellent indication that if given the necessary support by either the government or the parent body of their schools, they will acquire necessary computer and ICT skills that is required to take their profession to a new level.

**Table 6**

*Respondents frequent use of computer*

<table>
<thead>
<tr>
<th>Items</th>
<th>Respondents' percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once a week</td>
<td>5%</td>
</tr>
<tr>
<td>Twice a week</td>
<td>33.5%</td>
</tr>
<tr>
<td>Once a month</td>
<td>12%</td>
</tr>
<tr>
<td>Not at all</td>
<td>19%</td>
</tr>
<tr>
<td>Daily</td>
<td>21%</td>
</tr>
<tr>
<td>Undecided</td>
<td>9.5%</td>
</tr>
</tbody>
</table>

According to the results, only (5%) of respondents uses computer once a week, (33.5%) of respondents twice a week, (12%) respondents once a month, (15%) not at all, daily (21%) and undecided (9.5%). This may be due to the fact that the schools in which these teachers find themselves do not have computers needless to talk about having internet connectivity. Their interaction with computers seems to be at a personal level; that is either using personal PCs or going to cyber cafes to make use of the internet. Collis & Jung (2003) stated that despite a great deal of recent progress and optimism that many more learners can benefit from access to ICT, the infrastructures necessary for deploying technological resources are lacking in low-income countries. Furthermore, many teachers are working in conditions that are not conducive to supporting ICT use.
Table 7
Respondents surf of the internet when preparing lesson note

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Frequency Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>75%</td>
</tr>
<tr>
<td>No</td>
<td>21.5%</td>
</tr>
<tr>
<td>Undecided</td>
<td>3.5%</td>
</tr>
</tbody>
</table>

According to the results, 75% of respondents surf the internet when preparing for lesson note while 21.5% don’t surf internet and 3.5% undecided respectively. A fairly large population of the respondents do not surf the internet while preparing lesson notes. The implication of this is that they will not be in touch with what their counterparts all over the world and they may also not have first hand information on current trends and best practices in their profession and method of teaching.

Table 8
Respondent use of spreadsheet package in preparing student results

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Frequency Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>45%</td>
</tr>
<tr>
<td>No</td>
<td>50%</td>
</tr>
<tr>
<td>Undecided</td>
<td>5%</td>
</tr>
</tbody>
</table>

The table above indicates that 45% respondents use spreadsheet package in preparing student results, 50% don’t use, this lack of usage may be due to the fact that spreadsheets are normally used by teachers to manage student grades and results and not for everyday use, therefore, 5% respondents were undecided. 45% of teachers have ever used both spreadsheets this shows that the respondents are competing almost on the same footing with their counterparts in other parts of the world. Spreadsheets are normally used by teachers to manage student grades and results.
Table 9
Opinions of respondents about ICT

<table>
<thead>
<tr>
<th>Sr. no.</th>
<th>Descriptions</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Not sure</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Training in computers and ICTs skills is useful.</td>
<td>74%</td>
<td>25%</td>
<td>0%</td>
<td>0.5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>2</td>
<td>Computer and ICT skills are not needed in my Profession.</td>
<td>1%</td>
<td>1%</td>
<td>7.5%</td>
<td>46.5%</td>
<td>44%</td>
</tr>
<tr>
<td>3</td>
<td>I really want to know about computer and ICT but don’t have the time.</td>
<td>10%</td>
<td>51.5%</td>
<td>21%</td>
<td>16%</td>
<td>1.5%</td>
</tr>
<tr>
<td>4</td>
<td>Programs don’t exist for such training in my school.</td>
<td>7%</td>
<td>37.5%</td>
<td>6.5%</td>
<td>42%</td>
<td>7%</td>
</tr>
</tbody>
</table>

From the table above, it can be deduced that respondents have positive attitudes towards computer and ICT skills; respondents representing 74% strongly agree that computer and ICT training is very important and useful, 44% strongly disagree that computer and ICT skills are not needed in their profession, 1.5% strongly disagrees with not having time to acquire necessary skills on computer and ICT while 7% also strongly disagrees with their schools not having programs for training teachers relevant skills on computer and ICT. It is clear from the table above that teachers recognize the fact that computer and ICT skills is very relevant to their profession most especially this 21st century where millions of information exist on the web. It will be a serious setback if they cannot access or utilize information that is at their disposal.
Results

![Pie chart showing overall perception on Training in computers and ICT skills]

**Figure 1: Overall perception on Training in computers and ICT skills**

In figure 1, the perception of the private teachers is positive. It expresses that 74% of the teachers strongly agree that training in ICT skills has become useful and important in education.

![Bar chart showing overall perception on the necessary of computers and ICT skills]

**Figure 2: Overall perception on the necessary of computers and ICT skills**

In figure 2, it can be said that they believe these skills are needed in their teaching. Almost 46.5% of private teachers completely disagree and 44% of them strongly disagree with the fact that ICT skills are not needed in their profession. According to the collected data, they really understand the important of ICT for their profession.
Figure 3: Overall perception of the respondents' desire to learn

In figure 3, nearly half of them don't claim that their absence of today's computer knowledge is because of no time but others think like that.

Figure 4: Overall perception on the program not existing for such training

According to the percentage of their disagreement on this in figure 4, 49% illustrates that the programs to promote private teachers' ICT qualification are being implemented in their private school.

Discussion

The study reveals that majority of the private teachers sampled were computer and ICT literate. Although this is a very good indication, so much still needs to be done. Viable private schools with computer and ICT gadgets in working conditions should be put in place in each school. Regular visits for inspection should be made to private schools by officials to make sure the private schools are achieving the purpose for which they were set up. These private schools will help in augmenting the training teachers receive on computer and ICT skills as they will provide services such as in
house trainings and will also have cybercafés/media centers where teachers can make use of computers at low or no cost. It is high time to stop idolizing computers if indeed we are to get on the information super highway.

**Recommendations**

This study aimed to access the computer and ICT skills among private teachers in selected Division in Myanmar. It primarily investigated the status of private teachers' perceptions on computer and ICT proficiency skills and the attitudes of private school to promote teachers' ICT qualifications are satisfying although a small need to improve it. The findings showed that most participants accepted use of ICT is necessary in their education, the study concluded with a few suggestions for further directions. Further researches might focus on a larger group of teachers teaching in other state or private universities or high schools. It is hoped that this study showed the ways to need in assessment of computer and ICT skills among private Teachers in Division in Myanmar.

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IT Revolution and Its Importance in Language Study with Special Reference to Marginalized Language Like Bodo

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Abstract

Bodo language is a branch of Tibeto-Burmese language family and has the largest speaker of that particular language family in North East India having about 1.5 million speakers. The Bodos constitute a very important section of the different ethnic groups and races settling in Assam with their distinctive cultural and linguistic traits. Racially they belong to the Mongoloid stock of the Indo-Mongoloid or Indo-Tibetans. This language had a glorious past but in course of time now it is in marginalized condition. Now to regain its glorious past the speaker and linguists from all over the world have taken up certain initiatives for betterment of this particular language. Other bodies of Government of India like CIIL, (MHRD), Commission for Scientific and Technical Terminology are also working hard for the development of Bodo language. Mention may be made of so far CSTT has published numbers of Technical Terminology books on different disciplines. The revolution of Information Technology in every aspect in a positive way is really appreciable for mankind.

Introduction

The electronic media has ushered in a revolution – the Information Technology (IT) revolution. It has shrunk the world to such an extent that it could be called a ‘global village’. No achievement of science brought about such a transformation as IT. It has opened up an infinite number of new avenues education, communication, commerce and etc. (Source: http://en.wikipedia.org/wiki/Language). IT is an integrated technology which integrates, computer, magnetic storage media, television, telecommunication and various software systems to operate all such things. Computer has revolutionized every sphere of our life. We cannot predict the impact of new technology on the quality of work simply from a knowledge of its technical features. So much depends on why and how it is used. It is widely assumed that we must employ new information and computing technologies to remain competitive in world markets. In the field of language also it is accepted that, because microprocessor technologies are widely applicable, faster, smaller, cheaper and more reliable, their application is inevitable, rapid and beneficial. In the following I tried to highlight a few points which are very much essential applications of technology to study and analyze a marginalized language like Bodo. The Bodo language was confined to its spoken form until recent past. So we cannot compare it to the I.A. languages like Bengali and Assamese which have rich traditions of literature since the 14th century A.D. or even before that. The Era of the written literature in Bodo is started in second decade of the twentieth century. On the other hand, the scientific study on Bodo language is started in recent past.
Corpora technology and its usage

In recent years a lot of investigation has been devoted to how computers can facilitate language learning. One specific area on the computer frontier which still remains quite open to exploration is corpus linguistics. Having heard a declaration that corpora will revolutionize language teaching, I became very curious to find out for myself what corpus studies have to offer the Bodo language teacher and student and how feasible such an implementation would be.

In order to conduct a study of language which is corpus-based, it is necessary to gain access to a corpus and a concordancer program. A corpus consists of a databank of natural texts, compiled from writing and/or a transcription of recorded speech. A concordancer is a software program which analyzes corpora and lists the results. The main focus of corpus linguistics is to discover patterns of authentic language use through analysis of actual usage. The aim of a corpus based analysis is not to generate theories of what is possible in the language, such as Chomsky's phrase structure grammar which can generate an infinite number of sentences but which does not account for the probable choices that speakers actually make. Corpus linguistics’ only concern is the usage patterns of the empirical data and what that reveals to us about language behavior. The corpus program for Bodo language is being developed by the IIT, Guwahati and CDAC of Pune.

Necessity of Language exchange websites

Language exchange facilitates language learning by placing users with complementary language skills in contact with each other. For instance, User A is a native Spanish speaker and wants to learn English; User B is a native English speaker and wants to learn Spanish. Language exchange websites essentially treat knowledge of a language as a commodity, and provide a market like environment for the commodity to be exchanged. Users typically contact each other via text chat, voice-over-IP, or email. Such websites or software are also very necessary for Indian languages. Than only a Bodo speaker can learn Hindi or other Indian languages without help of teacher. That will also help each other to understand better and enhance the national integration.

Language exchanges have also been viewed as a helpful tool to aid language learning at language schools. Language exchanges tend to benefit oral proficiency, fluency, colloquial vocabulary acquisition, and vernacular usage, rather than formal grammar or writing skills.

The very thing is that enables us to store so much, and share it so swiftly, also makes these texts vulnerable to loss. An old book may survive for centuries but electronic storage is not so enduring. Indeed, digital publishing may have more in common with book production by manuscript in the ancient world - here texts were kept alive by a continual process of copying and distribution, replacing the old as they wore out, which for us may resemble the process of adapting information from one format or storage medium to a successor.

Materials and e-learning for minority language education

Suitable resources for teaching and learning minority languages (like Bodo) can be difficult to find and access, which has led to calls for the increased
development of materials for minority language teaching. The internet offers opportunities to access a wider range of texts, audios and videos. Language learning offers opportunities for material development for lesser-taught languages and to bring together geographically dispersed teachers and learners.

Computational linguistics (CL)

Computational linguistics is a discipline between linguistics and computer science which is concerned with the computational aspects of the human language faculty. It belongs to the cognitive sciences and overlaps with the field of artificial intelligence (AI), a branch of computer science aiming at computational models of human cognition. Computational linguistics has applied and theoretical components. The Computer Science Department of Gauhati University has also taken up a project on Bodo Language.

Conclusion

As all of we are aware that Bodo language is a branch of Tibeto-Burmes language family and has the largest speaker of that particular language family in North East India having about 1.5 million speakers. The Bodos constitute a very important section of the different ethnic groups and races settling in Assam with their distinctive cultural and linguistic traits. Racially they belong to the Mongoloid stock of the Indo-Mongoloid or Indo-Tibetans. This language had a glorious past but in course of time now it is in marginalized condition. Now to regain its glorious past the speaker and linguists from all over the world have taken up certain initiatives for betterment of this particular language. Other bodies of Government of India like CIIL, (MHRD), Commission for Scientific and Technical Terminology are also working hard for the development of Bodo language. Mention may be made of so far CSTT has published numbers of Technical Terminology books on different disciplines. The revolution of Information Technology in every aspect in a positive way is really appreciable for mankind.

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http://en.wikipedia.org/wiki/Language
Other Fields Related to the Conference Theme
Tourism Students' Perception on Cultural Heritage Tourism: 
Myanmar Context

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Abstract

Cultural heritage tourism is a branch of tourism oriented towards the cultural heritage of the location where tourism is occurring. The National Trust for Historic Preservation in the United States defines heritage tourism as "traveling to experience the places, artifacts and activities that authentically represent the stories and people of the past", and "heritage tourism can include cultural, historic and natural resources". Investing in cultural heritage will help strengthen economy, with the benefits extending far beyond tourism (Thurley, 2005). Culture and heritage tourism play a critical role in building the visitor economy and goes even beyond that. Culture and heritage tourism are a fast growing and high-yielding sector. Statistics also indicate that culture and heritage tourism continue to grow as rapidly, especially in Myanmar. It is already directly responsible for jobs in most countries. There is no denying the fact that culture and heritage tourism tends to attract high-yield tourists. Culture and heritage tourists often stay longer and spend a lot more money in general than other tourists do. Although the statistical evidence doesn’t show consistency when it comes to repeat visitors, tourism data indicate that the level of repeat visitation amongst this group of travelers is higher than that of traditional tourists. This research seeks to explore how tourism students' perceptions on culture and heritage tourism in Myanmar. These include an analysis to add value and increase students' ability to move theory into practice. Using a quantitative paper-based questionnaire survey, the findings revealed that respondents had significantly different perceptions regarding importance culture and heritage tourism in Myanmar. The study concludes that innovative planning ways should be found to ensure the full involvement in building training program plans in an increasingly mature Myanmar educational tourism system. According to the data, to ensure development in the tourism sector and to sustain competition, education and training has become an essential element and are now compulsory.

Keywords: Tourism education, culture and heritage tourism, tourism education, university students, Myanmar
Introduction

Cultural and Heritage Tourism is a tool of economic development that achieves economic growth through attracting visitors from outside a host community, who are motivated wholly or in part by interest in the historical, artistic, scientific or lifestyle / heritage offerings of a community, region, group or institution (Silberberg, 1995). Understanding the history is possible by knowing the human thoughts. One possible way to know the human thoughts is the objective manifestation of the subjective structures. In other words, the objective manifestation of the human mind is specifically evident in the values of cultural heritage, and more specifically is demonstrated in the historical monuments and sites. Culture and heritage tourists usually visit cultural heritage attractions such as: historic buildings and other historic attractions; archaeological sites; state, local, or national parks; art galleries or museums; concerts, plays or musicals; ethnic or ecological heritage sites; and suchlike attractions. These travelers say that these trips are more memorable than conventional holiday trips since they allow them to learn something new. This focus on learning skills and gain enrichment has been identified by Trend-watching as a core global trend in travel (and links to broader macro trends in consumer needs). Culture and heritage tourists say they often extend their stay because of a heritage activity. Culture and heritage tourists also tend to put more money back into the local economy, spending more than other kinds of tourists per trip. But these economic benefits are not the only reason why heritage tourism may be good for the community. The benefits of culture and heritage tourism are amplified through the economy, so their impact is much wider than just the direct spending levels. As Simon Thurley of English Heritage has shown in his Heritage Cycle, heritage tourism has benefits that extend beyond the solely economic.

![Heritage Cycle](source: Thurley, 2005)

(a) Benefits of Cultural and Heritage Tourism

Generally, the benefits of heritage tourism can be categorized into three groups: economic, social and environmental. As they tend to be the highest focus for destinations and policy makers, we have focused on the economic benefits first.

Economic Benefits of Cultural and Heritage Tourism

(i) Injects new money into the economy, boosting businesses and tax revenues

(ii) Creates new jobs, businesses, events and attractions, thus helping diversify the local economy

(iii) Supports small businesses and enables them to expand
(iv) Promotes the active preservation and protection of important local resources
(v) Builds vital relationships among and within local communities
(vi) Helps encourage the development and maintenance of new/existing community amenities

The global scale of tourism has created a series of challenges for many communities. With the growing uniformity of hotel architecture, restaurant chains, street furniture, etc, communities must safeguard local identities while meeting tourist quality and standards expectations. It is important not to compromise conservation and cultural values, and to balance socio-cultural needs with economic gains (Nasser, 2000).

Social Benefits of Cultural and Heritage Tourism

(i) Helps build social capital
(ii) Promotes preservation of local traditions, customs and culture. UNESCO now recognises intangible cultural heritage as being as important as buildings. A market for experiences and traditional projects provides the economic support for keeping these skills and traditions alive
(iii) Promotes positive behaviour
(iv) Helps improve the community’s image and pride
(v) Promotes community beautification
(vi) Builds opportunities for healthy and useful community relationships and partnerships
(vii) Provides research, education and work-placement opportunities for students
(viii) Creates enjoyable opportunities for both local residents and visitors attracted to the cultural arts, history and preservation
(ix) Boosts local investment in heritage resources and amenities that support tourism services

There is even evidence that by helping to maintain buildings of character culture and heritage tourism can also contribute to the innovation and business diversification of precincts. Small businesses based in amazing buildings are typically innovators and provide a core for other larger businesses.

Environmental Benefits of Cultural and Heritage Tourism

(i) Helps encourage a culture of preservation
(ii) Boost awareness of the tourist site, attraction or area’s significance
(iii) Helps encourage local residents and visitors to be mindful about their impact on the natural and built environment

The natural instinct is to protect and preserve the “built” environment, but a good argument can be made that to rebuild may be a more appropriate way to accurately reflect a period or culture. But heritage tourism has an exploitive dimension which is in conflict with conservation and cultural values. Tourist interest in religious institutions may make it difficult for them to operate as religious institutions rather than museums or tourist destinations.
(b) **The practical guidelines to operationalize cultural and heritage tourism**

Like all economic development tools, a community would be well served to begin its efforts in developing cultural and heritage tourism with some of the key elements of strategic planning in order to fully understand local conditions and opportunities and to set a strategic direction. The locality should empower an individual and an organization to take leadership in this strategic planning effort. There are a variety of steps and considerations that communities should take to effectively implement the cultural and heritage tourism. Some of these will be taken up as a part of a comprehensive strategic planning process; others are a part of good program management. These focus on the cultural and heritage products themselves, support services, education and training, marketing, planning, management and assessment/evaluation, and public policy actions.

**Cultural / Heritage Product Development and Enhancement**

(i) determine significance and distinctiveness (how unique from others)
(ii) emphasize quality of the product (both real and perceived; understandable and enjoyable)
(iii) arrange physical clustering of activities
(iv) enable enhancement and renovation of historic buildings, monuments, museums, archeological and historical places
(v) develop special events and festivals (chamber music, opera, ballet and dance, arts and crafts, ethnic heritage, special holidays, modern music, ethnic music)
(vi) develop minority cultural heritage facilities and programs
(vii) develop small and medium sized handicrafts businesses that focus on locally themed and made items
(viii) make all sites accessible for all people including those with physical handicaps; new lifts and entrances; discounts to children and pensioners and persons with disabilities
(ix) arrange multi-lingual signage and programs
(x) tailor opening hours of sites to meet the needs of tourists

**Support Services and Quality**

(i) enhance mediating services such as tourist offices, tour operators, internet services,
(ii) arrange inter-city transportation services – direct air links to key cities
(iii) arrange intra-city transportation – taxi, bus, rail services
(iv) support restaurants, hotels, souvenirs, shopping
(v) tailor opening hours of support services (including tourist offices) to meet the needs of tourists

**Education and Training**

(i) support education and training of local population in service quality and customer service
(ii) educate and train local population in cultural areas (conservatory, youth and college-level music, arts and crafts programs)
(iii) develop special training programs for owners of monuments and museums, as well as local businesses
(iv) build community support and involvement
(v) create special education and training programs to involve people in the delivery of services
(vi) assist individual organizations in developing grant applications for outside support

(c) Conditions necessary for success

Cultural and heritage tourism has become a major source of revenue for many communities and states across the globe. Not only does it create jobs, but it has the potential of bringing in needed revenue from outside the community and stimulating the local economy beyond the capacity of its own residents.

**Authentic cultural and heritage venues and programs**

Each community needs to realize that cultural and heritage tourism is a competitive venture. Tourists have many options and can be selective. There is a need to tell a story, to capture the audience, and to leave them with a sense of enjoyment, appreciation and understanding. The sites need to be developed or restored. Signage needs to be appropriate to telling the story.

**Staff needed to be trained**

Tourists need to be able to easily discover all the needed information for a trip to be enjoyable. This means Internet web sites in multiple languages (particularly if one is targeting international visitors) and local offices centrally and visibly located at transportation points and near venues. These local offices need to be designed for their customers and staffed with individuals who are knowledgeable and trained in customer service.

**Coordination of stakeholders**

Successful cultural and heritage tourism requires the coordination of all aspects of travel and development. Before a site can reach its maximum potential, a community needs to develop all of the infrastructure requirements, ranging from water and sewer systems, roads, bus and train terminals and airports, to hotels, restaurants, and shopping districts and the cultural and heritage sites themselves. Starting from scratch, this is a long-term enterprise requiring careful planning and widespread involvement of key stakeholders.

**Marketing**

A key aspect of a successful cultural and heritage tourism program has to be the development and implementation of a sophisticated marketing plan. Development of necessary infrastructure: hotels, transportation, government capacity, amenities. Success ultimately means more tourists traveling to a community, staying longer, and spending more money. It means developing a reputation among tourists that a community, a site, a program, and the overall experience is worthwhile. This requires that all aspects of a visit be enjoyable.

**Methodology**

Cultural heritage tourism is one of the most essential components in tourist industry while tourist perception is of considerable referential importance for the development of cultural heritage destination. This research explores based on three objectives and makes some suggestions on the tourism activities and tourism support
system. We begin this research by questioning: How can intangible cultural heritage sustained with the effects of tourism development? What are the effects of tourism development? It is believed that tourism is the largest industry in the world based on its contribution to the gross domestic product. Instead of being a part of the economic contributors, participants also agree that tourism is able to improve the quality of life.

(i) Benefits of Cultural and Heritage Tourism

Generally, the benefits of heritage tourism can be categorized into three groups: economic, social and environmental. As they tend to be the highest focus for destinations and policy makers, we have focused on the economic benefits first.

<table>
<thead>
<tr>
<th>Benefits of culture and heritage tourism</th>
<th>Responses of tourism students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Economic Benefits of Cultural and Heritage Tourism</td>
<td>52%</td>
</tr>
<tr>
<td>Social Benefits of Cultural and Heritage Tourism</td>
<td>73%</td>
</tr>
<tr>
<td>Environmental Benefits of Cultural and Heritage Tourism</td>
<td>67%</td>
</tr>
</tbody>
</table>

According to the responses of the students, such travel is focused upon experiencing cultural environments, including landscapes, the visual and performing arts and special lifestyles, values, traditions, and events. Tourism is widely recognized for its tangible outcomes (job creation, tax revenues) as well as its fewer tangible outcomes (quality of life). It may be built upon a wide variety of attractions, including Agri-tourism, arts tourism, cultural and heritage tourism, destination tourism, fairs, events and conferences, sports teams, recreation, and more. Cultural and Heritage tourism is the world’s largest export earner and an important factor in the balance of payments in most nations (United Nations World Tourism Organization 2007). The preference of the participants is improving the community’s image and pride to attract visitors in “cultural and heritage tourism.” There is also evidence that by helping to maintain buildings of character culture and heritage tourism can also contribute to the innovation and economic benefits. Creating new jobs, businesses, events and attractions, thus helping diversify the local economy are typically innovators and provide a core for country’s larger businesses. Participants also think cultural and heritage tourism is so vital to the environment – and that helps encourage a culture of preservation. Cultural and heritage tourists stay longer and spend more money than other kinds of travelers thus making such tourism an important economic development tool (Advisory Council on Historic Preservation, 2002).
(b) The practical guidelines to operationalize cultural and heritage tourism

Table 2
Tourism students' perception on practical guidelines to operationalize cultural and heritage tourism

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Practical guidelines</th>
<th>Tourism students' responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Important</td>
</tr>
<tr>
<td>1</td>
<td>Cultural / Heritage product development and enhancement</td>
<td>73%</td>
</tr>
<tr>
<td>2</td>
<td>Support Services and Quality</td>
<td>71%</td>
</tr>
<tr>
<td>3</td>
<td>Education and Training</td>
<td>88%</td>
</tr>
</tbody>
</table>

88% of the students show that tourism trainings in higher education are more likely to be culturally oriented and with a greater emphasis on quality time experiences which cultural facilities and events offer travelers to seek out more.

(c) Conditions necessary for success

There are many conditions and resources that are needed for success. Here students highlight the most essential components.

Table 3
Tourism students' perception on conditions necessary for success of cultural and heritage tourism

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Conditions necessary for success</th>
<th>Tourism students' responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>1</td>
<td>Authentic cultural and heritage venues and programs</td>
<td>79%</td>
</tr>
<tr>
<td>2</td>
<td>Staff needed to be trained</td>
<td>65%</td>
</tr>
<tr>
<td>3</td>
<td>Coordination of stakeholders</td>
<td>57%</td>
</tr>
<tr>
<td>4</td>
<td>Marketing</td>
<td>71%</td>
</tr>
</tbody>
</table>

79% of the students agree that a primary condition is the substantive nature of the venue and program – its link to historic events / periods, people and cultures. Staff needs to have information on all aspects of travel – inter-city transportation, intra-city transportation, lodging, food, shopping, and health care, as well as the substantive cultural and heritage sites and programs, said 65% of the students.

Even a community that has made some or substantial progress still needs to assess where it is and how much additional potential there may be for growth. In all cases this requires bringing together public and private officials, those directly involved in tourism (hotels, restaurants, transportation officials, private tourism agencies), those directly involved in economic development (public officials, banks, private developers), those directly involved in infrastructure (local and state officials), and those directly involved in the cultural and heritage tourism sites (public, nonprofit, and private organizations). 57% of the participants respond that bringing these individuals together should result in a master plan, a strategic plan and buy-in from each sector.

Thus, programs necessary for stimulating the development of hotels, restaurants and shopping and programs necessary for financing public works and targeting such activities on the needs of the tourists are essential. Support for the
cultural and tourism site or program may be needed as well. Government officials may need to identify funds and programs to redevelop cultural and historic sites, train staff, and provide seed money for private, nonprofit and government owned and operated programs, said 71% of the participants.

Findings

Tourism has grown at an accelerated pace over the last few decades and forecasts indicate an ever-faster rate of growth into the new Millenium, with Asia and the Pacific becoming the second most important tourism destination of the world by 2020. One of the pillars of the tourism industry has been mankind's inherent desire to see and learn about the cultural identity of different parts of the world. In domestic tourism, cultural heritage stimulates national pride in one's history. In international tourism, cultural heritage stimulates a respect and understanding of other cultures and, as a consequence, promotes peace and understanding. The Asia-Pacific continent is the most diverse in terms of cultural heritage. It has been the birthplace of all the world's major religions - Buddhism, Christianity, Hinduism, Islam, and Judaism - and a great many of its minor ones. The interchange of cultures over thousands of years has resulted in some of the best historical monuments and a plethora of religious and cultural mix. Famed for archaeological rarities of immense beauty such as Angkor Wat, Borobudur, the Great Wall, and the Taj Mahal, Asia undoubtedly forms an extremely attractive and diversified tourism product which has something to offer to tourists from all walks of life. Aware of the wealth and diversity of culture to be found in Asia, and realizing that Asia would become a leading tourism destination in the near future, tourism planners and tourists alike are learning to beware of mass and unplanned tourism and strive for sustainable tourism development. Cultural heritage attractions are, by nature, unique and fragile. Therefore, it is fundamental that tourism authorities study how best to develop these cultural heritage sites while protecting and preserving them for the long-term. If not, irreparable and irreversible damage can be done to the very heart of cultural identity.

Firstly, in the respondents of tourism students’ perception on benefits of cultural and heritage tourism in Myanmar context, economic benefits, social benefits and environmental benefits of cultural and heritage tourism are getting highest percentage of agreement among other question items.
Secondly, in the respondents of tourism students’ perception on practical guidelines to operationalize cultural and heritage tourism, the cultural heritage product development and enhancement, support services and quality and education and training are getting highest percentage in important category.
The last, the respondents of tourism students’ perception on conditions necessary for success of cultural and heritage tourism are getting the agreement in highest percentage of authentic cultural and heritage values and programs, staff needed to be trained, coordination of stakeholders and marketing.

Finally, cultural heritage tourism can be developed by participating of many sectors like policy makers, strategic and tactic planning, sustainable process in this heritage site. By looking up above statistics, cultural and heritage tourism of Myanmar absolutely need varieties of ways on how to improve skills, knowledge and experiences of residents by giving some trainings or workshop relating to tourism that toughing with sustainable process of cultures and heritages.
Figure 3: Tourism students' perception on conditions necessary for success of cultural and heritage tourism

Discussions

Tourists today are increasingly seeking new and different experiences beyond those provided within destinations and traditional holiday places. Heritage appeal within destinations is capturing the interest of a more mature and discerning market. This research is in three parts. First, a discussion of tourism students' perception on benefits of culture and heritage tourism in Myanmar context is presented that stresses social benefits of cultural and heritage tourism. Secondly, tourism students' perception on practical guidelines to operationalize cultural and heritage tourism has been investigated. Thirdly, tourism students' perception on conditions necessary for success of cultural and heritage tourism are examined and discussion is provided on the challenges in implementing such principles. By seeing these three parts, cultural heritage tourism makes the benefits not only on local people but also on the whole community in such areas. As this study focused on above three parts responding from tourism students’ perception, it is suggested that developing cultural tourism makes the great values of community’s heritage in one country. Since 2010, Myanmar tourism is more booming to attract international or domestic visitors. Because of Myanmar’s heritage and culture have been already recognized by visitor’s experience who have being visited it. As Myanmar tourism students are future generation for developing tourism sectors, they should create best benefits and great values from tourism fields to the local people by integrating with public and private sectors.
References


An Ethnobotanical study on Chin tribes lives of Hakha Township in Myanmar

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Abstract

Ethnobotany is the use of plants in material or abstract form among ethnic communities or tribal people. Ethnobotany is the study of the links that human beings, as individuals or societies, have maintained and maintain with plants. Myanmar is a country with more than 130 different national minorities, with very different traditional cultures, languages, food habits, etc. The ethnic uses of 63 utensils of plants used by Chin tribes especially Hakha Township in Myanmar were studied. The application of plants used are categorized as Household utensils, agricultural implements, milling implements, hunting tools, firewood, musical instrument for traditional dance, religious and ritual purposes, foods, beverage plants and medicinal purposes. Ethnobotanical data are obtained from chin tribes by using interview method, that deal with 63 citation for 10 major group of materials. The usage of the plant species is calculated by index of performance (Ip) for each plant and recorded with color photograph.

Keywords: ethnic, plants, uses, Chin tribes, Ip

Introduction

Human's culture is dependent on its environment where they used various plants for their household utensils, food, medicine and constructive tools etc. The present work deals with some preliminary study on the ethnobotanical research projects undertaken by the Department of Botany, University of Kalay with the scope of the Ethnobotany of Hakha Township. The first person to define ethnobotany was John Harshberger in 1885, and his definition is that "Ethnobotany is the study of plants used by primitive and aboriginal people". About 100 years later: Naney Turner in 1996 defined is preferred by many ethnobotanists. In broad terms, "Ethnobotany is the study of the relationships between plants and people". The two major parts of ethnobotany are encapsulated in the word itself: "ethno"; the study of people, and "botany"; the study of plants. Arrayed between these two points labeled "ethno" and "botany" lies a spectrum of interests ranging from archaeological investigations of ancient civilizations to the bioengineering of new crops. However, the field is limited on both sides. On the botanical side of the field, few ethnobotanical studies are concerned with plants that have no connection to people. On the ethno side, most studies are concerned with the ways indigenous people use and view plants. And those uses and those views can provide deep insights into the human condition (Balick and Cox, 1996).
Hakha Township is located in Chin State and geographically between North latitudes from 22 H01' to 23 H49' and East longitudes from 93 H28' to 94 H12' and the area of Hakha Township is 1608.24 square miles. The studied area is situated about 124 miles from Kalay and 6120 sea-level. The area is bounded to the East by the Kalay Township and Gangaw Township, to the West by the Thantlang Township, to the North by the Falam Township and to the South by the Matupi Township. The whole Township is made up of mountain, largely dissected by gorges and deep valleys. The general high of the mountains is between 4000 - 6000. At Hakha, the average summer temperature is 16 °C (60.8 °F) and the lowest winter temperature is - 4 °C. The rainy season is from June to November, just like the rest of Myanmar, but pre-monsoon storms are quite common. The amount of rainfall at Hakha receives about 90 inches to 100 inches throughout the year.

Hakha is the capital of the Chin State. It is much more centrally placed than the old capital. In the Hakha consisting six quarters and living various tribes of Chin such Hakha Chin, Falam Chin, Tiddim Chin and Zomi Chin. Within the subtribes, languages, belief religions and cultures are differences between from each other. There was no systematic survey on the ethnobotanical study in Hakha Chin tribes. So that, Ethnobotanists can play very useful roles in rescuing disappearing knowledge and returning it to local communities. In this way local ethnobotanical aspects.

**Research Objectives**

This research consisted of three objectives:

1. To understand the useful materials made from plants;
2. To examine the relationship of plants and people of Hakha in Myanmar;
3. To maintain heritage of Chin tribes.

**Research Methodology**

Field study and trip have been done to some villages where Chin tribes lives in Hakha Township from November 2016 to March 2017. The information regarding to different species of plant and ethnobotanical knowledge are collected by interviewing with Chin tribe families or individuals. The local names and scientific names are checked by Kress *et al*, 2003. Plant identification was carried out by literatures namely Hooker (1875 - 1897), Backer (1965 - 1968) and Hutchinson (1967). The ethnobotanical information is recorded with semi-structured questionnaire from the local people lived in 10 village tracts of Hakha Township in the Northern Chin State. In data collection, semi-structured questionnaire as described by Creswell, 2003 is used. To compare the uses of each plants, the performance index ($Ip$) is then calculated as described by Betti, 2004.

**Performance index ($Ip$)**

The method of performance index ($Ip$) was calculated as mentioned by Betti (2004). This method consist of gathering data based on usage of plants for food and those used for eating in study area. To utilize this method, the data were obtained from direct interviews with the Chin tribes from Hakha Township.
Performance index \((Ip)\) is defined as the difference between, \(P1\) and \(P2\) where
\[
P1 = \frac{(observed)}{C1/C2}
\]
\[
P2 = \frac{(theoretical)}{C3/C4}
\]
\(C1\) = number of citations of specific species for using specific usage;
\(C2\) = number of citations of specific species in all usage;
\(C3\) = total number of citations of the specific usage;
\(C4\) = total number of citations for all usage;
A performance index \((Ip)\), ranges from 0 to 3 according to the following arbitrary scale.
A performance index \((Ip)\), was categorized into 4 groups.
* if \(P1 - P2 < 0\), \(Ip = 0\): the plants concerned are rejected, not significant;
* if \(0 < P1 - P2 < \frac{1}{3}\), \(Ip = 1\): average performance;
* if \(\frac{1}{3} < P1 - P2 < \frac{2}{3}\), \(Ip = 2\): high performance;
* if \(P1 - P2 > \frac{2}{3}\), \(Ip = 3\): very high performance;

Research Results
The Chin tribes materials are made by hand from material that taken from the surrounding area of forest. Various kinds of traditional materials are found in the study area. Chin people make a wide range of various utensils by using the raw materials of forest product. Thirty plants species are used as various things of Chin tribes. The products of these plants were typically classified into Household utensils, agricultural implements, milling implements, hunting tools, firewood, musical instrument for traditional dance, religious and ritual purposes, foods, beverage plants and medicinal purposes.

Food is a major requirement for life. The Chin people eat two or three meals a day. The staple meals for the Chin tribes include rice, maize and vegetables. Most Chin tribes living near forest and on mountainous area are rely on edible parts such as stems, buds, leaves, flowers, fruits, tubers, roots, shoots and whole plants. Most of plants are cultivated by small scale production in their home garden. Transportation is difficult, especially in rainy season. Meat and other goods are not readily consumed. Every Chin people's house has small home garden. They obtained fresh vegetables readily from their home garden. There are 17 plant species traditionally used as food by Chin tribes in Hakha Township.

Wine is an alcoholic beverage that produced by the fermentation of fruit juice by using various types of yeast. The natural chemicals of fruits can ferment without the addition of sugars and salt or other nutrients. Wine is a popular beverage. 4.1 Popular foods for Chin Tribes

4.1.1. Sabuti
Sabuti is the most popular staple food for Chin tribes in study area. Sabuti is make by boiling the mixture of maize and meat. First, the meat chosen is boiled to get meat soup and then is mixed with grain and is boiled again for a few minute. Chin tribes are eaten as sabuti together with meat or vegetables.

4.1.2. Khaung-ye
Rice is soaked for overnight in order to make "Khaung-ye". After that it is mixed with chaff and is washed nicely. Two pots are used to produce the liquid of the
Khaung-ye. One pot is put upon another one and is bound with some clothes in the middle of each pot which means the water is poured only in the first pot (down pot) and the solid substance of the rice and the chaff are in the second pot (up pot). After that rice is cooked and made it cold. Next it is again mixed with yeast (5-6 balls). Then, it is conserved for one week in one pot. After it is fermented, it is put into one pot and some water is poured into it. Some put bamboo pipe in the middle of the pot and drink it.

4.1.3. Chin rice whiskey
First, rice is cooked. After cooking, it is taken out and is squeezed which is mixed with yeasts (30 balls) again. Then, it is fermented for one week. For this case of producing of liquid, three pots are used for boiling. The fermented ingredient is put into the first pot. The purified water is poured into the third pot (top one). The middle is made bottom hole which is punctured with bamboo filter and one tiny hole in the wall side which is to filter the alcoholic liquid. The scarf of the first and the second pots are bound with some cloths and the third pot is covered. The water in the top pot and the vapouration of the mixing of rice and yeast vapour into the middle one. The water vapouration is happening in the middle. Lastly, the liquid comes out from the tiny hole in the wall side by using bamboo pipe which becomes alcoholic liquid.

The performance of index (Ip) plants used in all materials.

Citation of each plant
The citation of each plant used by Chin tribe. Among the total citation of 63, *Rhododendron arboreum* have 10 citations with 6 kinds of uses and then followed by *Parkia speciosa* with 6 kinds of uses and then followed by *Parkia speciosa* with 5 citations with 3 kinds of uses.

Citation of material
A total of 63 citations are obtained from 10 materials of Chin tribe from study area. Citation of each material used among the Chin tribe. Among the 63 citations food used from 17 plant species and have 28 citations and then the medicinal plants are used from 10 species and have 15 citations.

Index performance (Ip)
Index performance of each plant used for 10 materials by Chin tribe is given in Table (3). In food, *Acmella manuritanica*, *Canavalia gladiata*, *Clematis grewiaeflora*, *Crotalaria juncea*, *Curcuma petiolata*, *Osbeckia rostrata*, *Polygonum chinense*, *Setaria italica*, *Solanum betacerm* and *Zea mays* have the high index performance (Ip =2), *Clerodendrum infortunatum*, *Oryza sativa*, *Parkia speciosa*, *Rubus ellipticus* and *Vitis vinifera* have the average index performance (Ip = 1) and *Rhododendron arboreum* has not significant in food index performance (Ip=0). Eight species *Aeginetia indica*, *Amorphophallus campanulatus*, *Aristolochia roxburghiana*, *Cousinia thomsonii*, *Desmodium gyroides* *Hedychium roxburghii*, *Saxifraga ligulata* and *Vitis discolor* are (Ip=3) in medicinal plants.
Figure 1: Various uses (especially Sabuti, Khaung-ye, chin rice whiskey) of Chin tribes

Table 1
Citation of each plants used by Chin tribes

<table>
<thead>
<tr>
<th>No</th>
<th>Scientific name</th>
<th>Part used</th>
<th>Group of material</th>
<th>No of citation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Acmella repens</td>
<td>Stem, leaf, flower</td>
<td>Food</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Aeginetia indica</td>
<td>The whole plant</td>
<td>Medicinal</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Amorpophallus campanulatus</td>
<td>Tuberous roots</td>
<td>Medicinal</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Aristolochia indica</td>
<td>Leaves</td>
<td>Medicinal</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>Canavalia gladiata</td>
<td>Seeds</td>
<td>Food</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>Clematis greviaeflora</td>
<td>Leaves, flowers</td>
<td>Food</td>
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<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Clerodendrum infortunatum</td>
<td>Leaves</td>
<td>Food</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>Cousinia thomsonii</td>
<td>The whole plant</td>
<td>Medicinal</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Crotalaria juncea</td>
<td>Flowers</td>
<td>Food</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>Curcuma petiolata</td>
<td>Inflorescence</td>
<td>Food</td>
<td>2</td>
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</tr>
<tr>
<td>11</td>
<td>Desmodium gyroides</td>
<td>Stems, Leaves</td>
<td>Medicinal</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>Hedychium roxburghii</td>
<td>Rhizomes</td>
<td>Medicinal</td>
<td>1</td>
<td>1</td>
</tr>
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<td>No</td>
<td>Species Name</td>
<td>Part(s) Described</td>
<td>Use(s)</td>
<td>Quantity</td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>----------------------</td>
<td>-------------------</td>
<td>--------------------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Lagenaria vulgaris</td>
<td>Fruits</td>
<td>Household</td>
<td>1</td>
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</tr>
<tr>
<td>14</td>
<td>Lobelia nicotianaefolia</td>
<td>Mature stem</td>
<td>Musical instrument</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Luculia gratissima</td>
<td>Stems</td>
<td>Household</td>
<td>1</td>
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<tr>
<td>16</td>
<td>Mimosa dipolotricha</td>
<td>The whole plant</td>
<td>Food</td>
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<tr>
<td>17</td>
<td>Oryza sativa</td>
<td>Grains</td>
<td>Medicinal</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Osbeckia rostrata</td>
<td>Leaves, flowers</td>
<td>Music</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Parkia speciosa</td>
<td>Peduncle</td>
<td>Household</td>
<td>1</td>
<td></td>
</tr>
<tr>
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<td>Phoenix dactylfera</td>
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<td>Agricultural</td>
<td>1</td>
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<tr>
<td>21</td>
<td>Pinus insularix</td>
<td>Stems</td>
<td>Household</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Polygonum chinense</td>
<td>Aerial shoots</td>
<td>Food</td>
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<td></td>
</tr>
<tr>
<td>23</td>
<td>Rhododendron arboreum</td>
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<td>Agricultural</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hunting tools</td>
<td>10</td>
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<td>15</td>
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<td>1</td>
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<td>2</td>
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<td>1</td>
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<td>1</td>
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<tr>
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### Index performance of plants used by Chin tribes

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<th>Milling</th>
<th>Hunt</th>
<th>Fire</th>
<th>Music</th>
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<th>Food</th>
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</tbody>
</table>
Discussion

Plant form the basis of life. They provide us ready-made food. Medicines to cure disease, fuel wood for burning, food and forage for our cattle, flowers for celebration, valuable wood for making agricultural tools. Timber for construction and many more useful items. Ethnobotany is the most important approach to study natural resource management. The interaction between the mountain people and natural systems through history has helped in management the richness of the species, communication and genetic material in both productive systems and wild lands of the mountain environments. However, the rich biodiversity is being disastrously impoverished due to human action in the last few decades. Understanding indigenous knowledge of mountain people in relation to biodiversity resources management is done of the issues for sustainable development (Pei, 1991).

Most of people especially live in villages, hill and small Towns, rely on wild plants collected for food, medicine, construction and many other purposes. Now there is often a decreases in the availability of wild plant resources, related to grow human populations and land use. Ethnobotanical surveys can help local communities define their needs for plant resources clearly.

In present work Chin tribes use the plants for their daily life for household utensils, agricultural implements, milling implements, hunting tools, firewood,
musical instrument for traditional dance, religious and ritual purposes, foods, beverage plants and medicinal purposes.

Index performance of each plant used for 10 materials of Chin tribe is calculated. Among them, in food, had not found the highest index performance 

\[ Ip = 3 \]. In beverage plants, *Oryza sativa*, *Rubus ellipticus* and *Vitis vinifera* are the high index performance \( Ip = 2 \). In medicinal plants, *Clerodendrum infortunatum* and *Mimosa diplotricha* are the average index performance \( Ip = 1 \).

It is found that the Chin tribes are depending on plants and plant products for their food, clothing and housing form their surrounding plant resources. The present investigation deals the uses of various plants in many ways such as household utensils, agricultural implements, milling implements, hunting tools, firewood, musical instrument for traditional dance, religious and ritual purposes, foods, beverage plants and medicinal purposes through practice and knowledge form local people of Hakha Township. It can be concluded that the hill tribe people indeed, an important cultural resources, and their knowledge can be a valuable for conserving what remains of Chin tribe's natural heritage. Therefore, it is necessary to record the uses and Chin tribe's knowledge to make utensils from various plants. The present study is preliminary record to maintain the Chin tribe's culture.

**Recommendation**

We will need to establish the most desirable future for ethnobotany, as well as the potential benefits of this research for the scientific community and society in general. Elaboration of research agendas based on questions that will advance the field into high priority areas, such as biodiversity and conservation. The recognition of the value of ethnobotanical research by other areas of the natural sciences, such as ecology and conservation biology, would also help define new lines of action for the application of local knowledge to the understanding of and response to ecological problems.

**References**


Awareness and Perception of Customers about E-Banking Services Provided by PSBs in Imphal, Manipur (India)

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Abstract

Today, the banking sector occupies one of the most prominent domains in services industry. Technology penetration is one of the highest in banking sector. Banking services expanded as per the demands and requirements of the customers. Manual banking transactions are gradually replaced by electronic or E-Banking. The infusion of technological revolution particularly information technology and communication techniques has been a driver for advancements in E-Banking. This paper is an attempt to check and study the awareness and perceptions of E-Banking services among customers of public sector banks in Imphal. It is observed that the use of E-Banking services is significantly influence by educational qualification and occupation. Also, gender and educational qualification significantly impacts the degree of confidence in E-Banking.

Keywords: awareness, E-banking, information technology

Introduction

E-Banking, is an electronic payment system that enables customers of a bank or other financial institution to conduct a range of financial transactions through the financial institution's websites. It is a part of core banking system. The E-Banking system will typically connect to or be part of the core banking system operated by a bank and is in contrast to branch banking which was the traditional way customers accessed banking services (Thulani et al., 2009; Henry, 2000)

The Internet has changed the operations of many businesses, and has been becoming a powerful channel for business marketing and communication (American Banker, 2000). The banking industry has followed this trend in recent years, and sometimes called "E-Banking" referring to all banking transactions now completing through Internet applications. E-Banking has been viewed as an advanced upgrading from previous electronic delivery systems to open many new business opportunities for the banking industry. Internet banking (or E-Banking) means any user with a personal computer and a browser can get connected to his bank’s website to perform any of the virtual banking functions (Yang et al., 2005).
Purposes of the study

Infusion of internet in every sector has affected the way how customers generally indulge in their normal banking activities. Few studies have so far been carried out to understand the level of awareness and perceptions of E-Banking services among Public Sector Banks in Imphal. This study is undertaken to ascertain the above mentioned aspects in E-Banking services. Following are few of the main points for the need to study this topic.

1. Ascertain the awareness of E-Banking services provided by Public Sector Banks
2. Measuring degree of confidence and reasons for using E-Banking
3. Identifying the benefits from the use of E-Banking services.

Review of literature

According to Peterson (n.d.), the concept of Internet banking has been simultaneously evolving with the development of the World Wide Web since the 1980s. First conceptualized in the mid-1970’s, the emergence of E-Banking has enabled the banks to offer real-time transactions and integrate all customers’ related functions. Indian Banks are exploiting the synergies of this new technology with branch expansion to provide better technology and convenient access to its customers. India is thus poised to for a huge growth in the world of electronic banking (Anithamary & Harini, 1999).

Awareness and Perception – Studies on understanding the awareness and perception of E-Banking have been carried out extensively. According to Seth and Sisodia (2008), for a customer to arouse interest in any type of offering, a customer must have awareness; find it acceptable, available at the right time and place, and affordable. Marketing strategies rooted in the 4 A's framework: affordability, accessibility, acceptability and awareness can upscale the ratio of non-users to users of any offering (Sinha & Sheth, 2018).

According to Beer (2006), regarding the perception of E-Banking, the convenience of online banking is helping people gain greater control of their finances and contributing to changing patterns in cash withdrawal and day to day money management. One of the very important service quality dimensions of E-Banking service quality is reliability. Saving time is an important factor which influences the customers prefers to use E-Banking. The most popular online transaction through internet banking is funds transfer/bill payment. Ease of use is another important determinant for the customer preferring the internet banking. Online banking users say that convenience is one of the most important factors. Online banking lets them access their accounts anywhere and at any time.

E-Banking and Customer Confidence – According to Anaraki-Ardakani & Haghhighi-Kafash, (2014), ten factors say security, confidentiality, capability, honesty, predictability, benevolence, risk, willing to confide, bank reputation and bank size affects the customer confidence in using E-Banking services. Besides, earlier researchers have noticed that customers with younger ages up to 35 years are significantly more confident in the use of electronic banking through public networks (Belás et al., 2015).

Advantages of E-Banking – According to Nataranjan, (2015), E-Banking provides different benefits to customers like 24X7 for 365 days in a year causing no
problem during holidays and assessable any time anywhere, E-Banking services save time and money of customers, perform financial transactions with the use of personal computer, laptop, mobile banking etc., reduces the risk of customers to carry cash while travelling.

**Disadvantages of E-Banking services** – There are few disadvantages associated with E-Banking services like lesser face to face customer service, limited capabilities compared to retail banking, no physical locations and security risk (e.g. phishing, card cloning etc.)

In a case study of ICICI Bank as depicted in Table 1, the share of transactions for a period of 4 years (during March 2000 to March 2004) show the gradual shifting of Branch visit or approaching branches by customers for banking services to more convenient electronic channels like ATMs, Internet Banking, etc.

<table>
<thead>
<tr>
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<tr>
<td>Branches</td>
<td>94%</td>
<td>25%</td>
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<tr>
<td>ATM's</td>
<td>3 %</td>
<td>43 %</td>
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<tr>
<td>Internet &amp; Mobile</td>
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<td>21 %</td>
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<tr>
<td>Call Centres</td>
<td>1 %</td>
<td>11 %</td>
</tr>
</tbody>
</table>

*Source: A case study of ICICI Bank*

**Service Industry** - Banking belongs to financial service industry. Blackshaw identifies six drivers to brand credibility as trust, authenticity, transparency, listening, responsiveness and affirmation (Blackshaw, 2008). 7Ps of marketing mix applies for the Banking services industry.

**Objectives of the study**

The main objective of this study is to determine the awareness and perception of E-Banking services by customers of public sector banks in Imphal. In doing so, the article aims to study

- the level of awareness of E-Banking facilities at the time of opening their account
- the degree of confidence of customer in using E-Banking services
- the main reason for using E-Banking services
- the benefits accrued by the customers in using E-Banking facilities
- whether Gender, Age Group, Educational Qualification and Occupation differences have any significance on the level of awareness of E-Banking services
- whether Gender, Age Group, Educational Qualification and Occupation positively affects the degree of confidence in E-Banking
- whether Gender, Age Group, Educational Qualification and Occupation affects the level of satisfaction of customer in using E-Banking service

Under these objectives following null hypotheses are framed.
Null Hypotheses:
(i). \( H_{01} \): Gender, Age Group, Educational Qualification and Occupation have no effect on the level of awareness of customer on E-Banking.
(ii). \( H_{02} \): Gender, Age Group, Educational Qualification and Occupation have no effect on the degree of confidence of customer on E-Banking.
(iii). \( H_{03} \): Gender, Age Group, Educational Qualification and Occupation have no effect on the satisfaction level of customer on E-Banking

Research Methodology

5.1 Methods of Data Collection and Sample Size

Population could not be determined conclusively. Initially, random sampling sizes of 411 respondents are taken for this study. Out of these 18 samples are rejected. So, Random sampling size of 393 is taken for the final analysis. Information is collected by using questionnaire. The data was collected during the months between September to December, 2018.

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<td>39.69</td>
</tr>
<tr>
<td>2</td>
<td>United Bank of India</td>
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</tr>
<tr>
<td>3</td>
<td>UCO Bank</td>
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<tr>
<td>4</td>
<td>PNB</td>
<td>57</td>
<td>14.50</td>
</tr>
<tr>
<td>5</td>
<td>Punjab &amp; Sind Bank</td>
<td>27</td>
<td>6.87</td>
</tr>
<tr>
<td>6</td>
<td>Indian Overseas Bank</td>
<td>15</td>
<td>3.82</td>
</tr>
<tr>
<td>7</td>
<td>Vijaya Bank</td>
<td>21</td>
<td>5.34</td>
</tr>
<tr>
<td>8</td>
<td>BoB</td>
<td>45</td>
<td>11.45</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>393</strong></td>
<td><strong>100</strong></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Primary Data*

5.2 Data Analysis

Data collected through structured questionnaire were analysed using SPSS. The Statistical techniques namely descriptive statistics that is percentage and Chi Square test are mainly used to test the hypotheses.

5.3 Research Instrument

Questionnaire both open ended and closed ended (Five Point Rating Scale) were used to get the opinion from the respondents.

Limitations of the Study

Limitations of this study are as follows:-
- The study is limited to areas of Imphal only.
- The study is related to customers only.
- People were reluctant to go in to details because of their busy schedules.
7.0 Data Analysis and Discussion

Data analysis and discussion are deliberated below

7.1 Profile of the respondents

Table 3
Profile of Respondents

<table>
<thead>
<tr>
<th>Personal Information</th>
<th>No. of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>213</td>
<td>54.19</td>
</tr>
<tr>
<td>Female</td>
<td>180</td>
<td>45.80</td>
</tr>
<tr>
<td>Age Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-25</td>
<td>315</td>
<td>80.15</td>
</tr>
<tr>
<td>26-35</td>
<td>45</td>
<td>11.45</td>
</tr>
<tr>
<td>36-45</td>
<td>21</td>
<td>00.05</td>
</tr>
<tr>
<td>46-55</td>
<td>12</td>
<td>00.03</td>
</tr>
<tr>
<td>10+2</td>
<td>69</td>
<td>17.55</td>
</tr>
<tr>
<td>Graduate</td>
<td>192</td>
<td>48.85</td>
</tr>
<tr>
<td>Educational Qualification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.Sc.</td>
<td>18</td>
<td>00.05</td>
</tr>
<tr>
<td>MA</td>
<td>12</td>
<td>00.03</td>
</tr>
<tr>
<td>Matriculate</td>
<td>12</td>
<td>00.03</td>
</tr>
<tr>
<td>Post Graduate</td>
<td>84</td>
<td>21.37</td>
</tr>
<tr>
<td>Businessman</td>
<td>12</td>
<td>00.03</td>
</tr>
<tr>
<td>Govt. Employee</td>
<td>6</td>
<td>00.02</td>
</tr>
<tr>
<td>Housewife</td>
<td>6</td>
<td>00.02</td>
</tr>
<tr>
<td>Nurse</td>
<td>6</td>
<td>00.02</td>
</tr>
<tr>
<td>Student</td>
<td>351</td>
<td>89.31</td>
</tr>
<tr>
<td>Teacher</td>
<td>12</td>
<td>00.03</td>
</tr>
<tr>
<td>Total</td>
<td>393</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Primary data

From the above table it is clear 54.19% of the respondents are males and 45.80% of the respondents are females. Most of the respondents (above 80%) belong to the age group 16-25 years. Further, around 71% of the respondents are graduates and above. Also students comprise more than 89% of the respondents.

- Due to continuous change in environment, what is relevant today may be irrelevant tomorrow.
7.2 Awareness of E-Banking services while opening bank accounts

Table 4  
Awareness of E-Banking services

<table>
<thead>
<tr>
<th>Awareness</th>
<th>No. of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>249</td>
<td>63.4</td>
</tr>
<tr>
<td>No</td>
<td>144</td>
<td>36.6</td>
</tr>
<tr>
<td>Total</td>
<td>393</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source Primary Data

Majority (i.e. more than 63%) of the respondents are aware about E-Banking services at the time of opening their bank accounts.

7.3 Degree of confidence on E-Banking

Table 5  
Degree of confidence

<table>
<thead>
<tr>
<th>Degree of confidence</th>
<th>No. of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little</td>
<td>48</td>
<td>12.0</td>
</tr>
<tr>
<td>Some</td>
<td>189</td>
<td>48.1</td>
</tr>
<tr>
<td>Not at all</td>
<td>27</td>
<td>6.9</td>
</tr>
<tr>
<td>High</td>
<td>114</td>
<td>29.0</td>
</tr>
<tr>
<td>Very High</td>
<td>15</td>
<td>3.8</td>
</tr>
<tr>
<td>Total</td>
<td>393</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Primary data

From the above table it shows that the respondent’s degree of confidence on E-Banking is relatively lower as above 63% of the respondents have lesser confidence on E-Banking services while around 38% of the respondents have confidence on E-Banking.

7.4 Main reasons for using E-Banking services

Table 6  
Main reason for using E-Banking

<table>
<thead>
<tr>
<th>Reasons</th>
<th>No. of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better Information</td>
<td>63</td>
<td>16.0</td>
</tr>
<tr>
<td>Simplification of processes</td>
<td>198</td>
<td>50.4</td>
</tr>
<tr>
<td>24 Hr. Service</td>
<td>111</td>
<td>28.2</td>
</tr>
<tr>
<td>Limited time available</td>
<td>21</td>
<td>5.3</td>
</tr>
<tr>
<td>Total</td>
<td>393</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Primary data

More than 50% of the respondents say the main reason for using E-Banking services are mostly due to simplification of processes and availability of 24 hours service.
7.5 Benefits accrue from E-Banking services

Table 7
Benefits Accrue from E-Banking Services

<table>
<thead>
<tr>
<th>Benefits</th>
<th>No. of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time saving</td>
<td>207</td>
<td>52.7</td>
</tr>
<tr>
<td>Inexpensive</td>
<td>12</td>
<td>3.1</td>
</tr>
<tr>
<td>Easy processing</td>
<td>105</td>
<td>26.7</td>
</tr>
<tr>
<td>Easy fund transfer</td>
<td>54</td>
<td>13.7</td>
</tr>
<tr>
<td>Others</td>
<td>15</td>
<td>3.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>373</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

*Source: Primary data*

The above table shows the benefits accrue from E-Banking services where most of the respondents used E-Banking services is due to its time saving facilities (i.e. 52.7%) and 26.7% of the respondents used it for easy processing.

7.6 Availing E-Banking Services as viewed from the perspectives of Gender, Age Group, Educational Qualification and Occupation

Table 8
Availing E-Banking Services based on Gender, Age Group, Educational Qualification and Occupation

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Availing E-Banking services</th>
<th>Total</th>
<th>Chi-square</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>195</td>
<td>18</td>
<td>213</td>
<td>1.485</td>
</tr>
<tr>
<td>Female</td>
<td>174</td>
<td>6</td>
<td>180</td>
<td></td>
</tr>
<tr>
<td>16-25</td>
<td>297</td>
<td>18</td>
<td>315</td>
<td></td>
</tr>
<tr>
<td>26-35</td>
<td>45</td>
<td>0</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>36-45</td>
<td>15</td>
<td>6</td>
<td>21</td>
<td>7.425</td>
</tr>
<tr>
<td>Age Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46-55</td>
<td>12</td>
<td>0</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>10+2</td>
<td>63</td>
<td>6</td>
<td>69</td>
<td></td>
</tr>
<tr>
<td>Graduate</td>
<td>192</td>
<td>0</td>
<td>192</td>
<td></td>
</tr>
<tr>
<td>Educational Qualification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.Sc</td>
<td>18</td>
<td>0</td>
<td>18</td>
<td>49.324</td>
</tr>
<tr>
<td>MA</td>
<td>12</td>
<td>0</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Matriculate</td>
<td>6</td>
<td>12</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Post Graduate</td>
<td>78</td>
<td>6</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>Graduate</td>
<td>6</td>
<td>6</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Businessman</td>
<td>6</td>
<td>0</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Govt. Employee</td>
<td>6</td>
<td>0</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housewife</td>
<td>6</td>
<td>0</td>
<td>6</td>
<td>14.286</td>
</tr>
<tr>
<td>Nurse</td>
<td>6</td>
<td>0</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>333</td>
<td>18</td>
<td>351</td>
<td></td>
</tr>
<tr>
<td>Teacher</td>
<td>12</td>
<td>0</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>369</strong></td>
<td><strong>24</strong></td>
<td><strong>393</strong></td>
<td></td>
</tr>
</tbody>
</table>

*Significance at P<0.05*  

*Source: Primary Data*
From the above table, it is observed that Educational Qualification significantly influences the use of E-Banking services (P-value<0.001). Besides, Occupation also affects the use of E-Banking services (<.05). All other factors like Gender and Age Group do not affect a customer availing E-Banking services.

7.7 Degree of confidence as viewed from the perspectives of Gender, Age Group, Educational Qualification and Occupation

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Degree of confidence on E-Banking Services</th>
<th>Total</th>
<th>Chi-square</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Little</td>
<td>Some</td>
<td>Not at all</td>
<td>High</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>18</td>
<td>63</td>
<td>27</td>
<td>96</td>
</tr>
<tr>
<td>Female</td>
<td>30</td>
<td>126</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>Age Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-25</td>
<td>48</td>
<td>144</td>
<td>15</td>
<td>93</td>
</tr>
<tr>
<td>26-35</td>
<td>0</td>
<td>24</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>36-45</td>
<td>0</td>
<td>15</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>46-55</td>
<td>0</td>
<td>12</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10+2</td>
<td>6</td>
<td>42</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>Graduate</td>
<td>36</td>
<td>78</td>
<td>0</td>
<td>69</td>
</tr>
<tr>
<td>M.Sc</td>
<td>6</td>
<td>12</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MA</td>
<td>0</td>
<td>12</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Matriculate</td>
<td>0</td>
<td>6</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Post Graduate</td>
<td>0</td>
<td>39</td>
<td>9</td>
<td>30</td>
</tr>
<tr>
<td>Businessman</td>
<td>0</td>
<td>3</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Govt. Employee</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Housewife</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nurse</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Student</td>
<td>48</td>
<td>162</td>
<td>21</td>
<td>105</td>
</tr>
<tr>
<td>Teacher</td>
<td>0</td>
<td>12</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>189</td>
<td>27</td>
<td>114</td>
</tr>
</tbody>
</table>

Source: Primary Data

From the above Table, factors like Gender and Educational Qualification have a profound effect on the degree of confidence (in both cases P-value is <.001) on the use of E-Banking services. For all other factors like Age Group and Occupation, there is no difference in the degree of confidence on the use of E-Banking services.
7.8 Satisfaction with the E-Banking services as viewed from the perspectives of Gender, Age Group, Educational Qualification and Occupation

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Satisfied with E-Banking services</th>
<th>Total</th>
<th>Chi-square</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>174</td>
<td>39</td>
<td>213</td>
<td>1.109</td>
</tr>
<tr>
<td>Female</td>
<td>159</td>
<td>21</td>
<td>180</td>
<td>0.587</td>
</tr>
<tr>
<td>16-25</td>
<td>231</td>
<td>54</td>
<td>315</td>
<td>0.835</td>
</tr>
<tr>
<td>26-35</td>
<td>39</td>
<td>6</td>
<td>45</td>
<td>0.109</td>
</tr>
<tr>
<td>36-45</td>
<td>21</td>
<td>0</td>
<td>21</td>
<td>0.109</td>
</tr>
<tr>
<td>46-55</td>
<td>12</td>
<td>0</td>
<td>12</td>
<td>0.109</td>
</tr>
<tr>
<td>10+2</td>
<td>63</td>
<td>6</td>
<td>69</td>
<td>0.835</td>
</tr>
<tr>
<td>Age Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate</td>
<td>159</td>
<td>33</td>
<td>192</td>
<td>4.411</td>
</tr>
<tr>
<td>M.Sc</td>
<td>12</td>
<td>6</td>
<td>18</td>
<td>0.835</td>
</tr>
<tr>
<td>MA</td>
<td>12</td>
<td>0</td>
<td>12</td>
<td>0.835</td>
</tr>
<tr>
<td>Educational</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qualification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Matriculate</td>
<td>18</td>
<td>0</td>
<td>18</td>
<td>0.835</td>
</tr>
<tr>
<td>Post Graduate</td>
<td>69</td>
<td>15</td>
<td>84</td>
<td>0.835</td>
</tr>
<tr>
<td>Bachelor</td>
<td>12</td>
<td>0</td>
<td>12</td>
<td>0.835</td>
</tr>
<tr>
<td>Govt. Employee</td>
<td>6</td>
<td>0</td>
<td>6</td>
<td>0.835</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housewife</td>
<td>6</td>
<td>0</td>
<td>6</td>
<td>2.824</td>
</tr>
<tr>
<td>Nurse</td>
<td>6</td>
<td>0</td>
<td>6</td>
<td>0.835</td>
</tr>
<tr>
<td>Student</td>
<td>291</td>
<td>60</td>
<td>351</td>
<td>0.835</td>
</tr>
<tr>
<td>Teacher</td>
<td>12</td>
<td>0</td>
<td>12</td>
<td>0.835</td>
</tr>
<tr>
<td>Total</td>
<td>333</td>
<td>60</td>
<td>393</td>
<td>0.835</td>
</tr>
</tbody>
</table>

Source: Primary Data

From the Table above, it is observed that there is no significant difference on the level of satisfaction of E-Banking services as seen from the perspectives of Gender, Age Group, Educational Qualification and Occupation.

Conclusion

Majority of the respondents are aware about E-Banking services at the time of opening their bank accounts. Degree of confidence on E-Banking is relatively lower. Among the users of E-Banking services the main reason for using E-Banking service is due to the simplification of processes and availability of 24 hours service. Educational qualification significantly influences the use of E-Banking services. Besides, factors like Gender and Educational qualification have a profound effect on the degree of confidence on the use of E-Banking services.
Recommendations

Focus on younger customers. But equally important is older customers should not be side-lined.

Banks should conduct awareness programmes for all its existing customers and particularly for older customers, female customers and customers from different occupation & educational background.

References

An Analysis of the Project: Myanmar Bamboo Bike Partnership, Developing in Kachin State

Nang Aye Aye Thein
Professor, English Department, Myitkyina University
E-mail: nangayeayethein26@gmail.com

Abstract
This research focuses on Myanmar Bamboo Bike Partnership, the project developing in these days in Kachin State. The aim of this research is to analyse the contribution of Bamboo Bike Project in Kachin State and if this project is sustainable development for the community, following Kapple (2017)’s 6 ways to measure small business success. In analyzing this project, the methodology in fixing the bikes through bamboo which is the native product, and the goal and vision of their project will become impressive. The findings of this research have raised the questions: will the project support the jobless people in Northern state and will it make the local people to be good leaders of their community. Nevertheless, it is hoped that the project really gives the mechanical education to local people of Northern Myanmar.

Keywords: Myanmar, bamboo bike, Kachin state

Introduction
“Sustainable development is economic development that is conducted without depletion of natural resources” states the Oxford Dictionary. According to Wikipedia, sustainable development is a way for people to use resources without the resources running out. However, Samantha Davis (2016) states that although sustainable development is defined in multiple ways, the most often cited definition of the term comes from the Bruntland Report titled, “Our Common Future.” According to the report, sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. He also mentions five examples of sustainable development: solar energy, wind energy, crop rotation, efficient water fixtures, and green space. Yet, this research tries to ensure that building bamboo bikes is really sustainable development for our community.

Literature Review
The Bamboo Bike Project was started by two scientists, David Ho, now a Professor of Oceanography at University of Hawaii at Manoa, and his colleague John Mutter, with initial funding coming from The Earth Institute at Columbia University. The goal of their project is to help local investors start factories that make low cost, high quality, locally produced bamboo bikes to be widely distributed in Sub-Saharan Africa. In 2006, David Ho, won $25,000 in a seed funding competition from the Earth Clinic to determine the feasibility of using bamboo bicycles to provide improved transportation in sub-Saharan Africa. In the summer of 2007, Ho and John Mutter, using the seed money from the Earth Clinic, paid for Craig Calfee to join them on a trip to Accra, Ghana to determine the feasibility of building bamboo bikes using
locally sourced material. After a successful trip, the Bamboo Bike Project teamed up with the Millennium Cities Initiative in 2008 to help establish bamboo bike building factories in Kumasi and elsewhere.

(Wikipedia, 2019)

Portia Crowe (2012) said that in Ghana, a country burgeoning with traffic congestion, increasing economic growth, and a stark urban–rural divide, making frames of bicycles out of bamboo could be the key to promoting sustainable development. It also makes stronger and long–lasting bikes. According to Crowe (2012), Bernice Dapaah, the executive director of Bamboo Bikes Initiatives, trained young Ghanaians to build, fix, and market bamboo-framed bicycles.

According to the article from the Bamboo Bikes Project (2007–2011), the objectives of the project are two-fold as follows:

1. To build a better bike for poor Africans in rural areas
2. To stimulate a bicycle building industry in Africa to satisfy local needs.

The goal of this project is to test the feasibility of implementing bamboo bikes as a new form of transportation in Africa. To achieve this goal, a number of steps need to be undertaken:

1. Design and build a bamboo bicycle that is suitable for the local terrain
2. Find cost effective and technological feasible ways to produce these bicycles in rural Africa
3. Engage local people to determine the potential for adoption of the bicycle
4. Develop a plan to make production and distribution of bamboo bicycles a self-sustaining micro-business

Similarly, the project of Bamboo Bike Partnership in Myitkyina, Kachin state was founded in 2015. However, the project is started to boost up in August, 2014. The Parkers, Jeff and Kristen Parker are the contributors who have built several frames and have been trained by a professional bamboo bicycle frame builder in Southeast Asia. They are currently deeply committed to the community in Northern Myanmar. They discovered that 85% of people from Northern Myanmar are jobless and most of them are drug users. Therefore, they have contributed their mechanical education to local people. The project goal is to equip local leaders in order to build sustainable development through their bamboo bike project. During the project, local people have to learn the skills such as leadership, computer, engineering using auto CAD. The vision of the project is to make a positive difference through local leaders and make Burma Bike Partnership as one of the iconic Myanmar values in the future.

Methodology

This research focuses on contribution of the project: Myanmar Bamboo Bike Partnership in Myitkyina, Kachin state which has been led by Jeff and Kristen Parker. The project includes totally 6 members: Jeffery and Kristen Parker, the 2 starters and the 4 Native Kachin Young people: David Karen, Tuseng Hkalam, Naw Hpan Dumhpya, and Zau Latt Sing Nan. They made 4 types of bamboo bikes: road bikes, mountain bikes, Tandems, and commuters. They have built and distributed totally 52 bikes globally.

In order to build the bamboo bikes for both local and international ones, the following are necessary components.
1. Two types of bamboo called Wa Seng and Wa ding which is for triangle and rear triangle
2. Some aluminum for head tube, seat tube, bottom bracket and drop out
3. Hemp (fiber strings obtained from Gone Shaw Tree)
4. Epoxy which is a type of glue
5. Jig (in which the bamboo bike frame is mounted)

The contribution of the project was, therefore, measured by 6 ways of Mike Kappel (2017). Kappel’s 6 ways to measure business success are as follows:

1. Look at your business financial statement
2. Check customer satisfaction
3. Average how many new customers you get
4. Conduct performance reviews
5. Stay current on the market
6. Access your own expectation

In surveying the contribution of the project “Burma Bike Partnership”, following the 6 ways of Kappel (2017) mentioned above, one of the Kachin youth leaders gives responses on them. In analyzing his answer for their financial statement, they didn’t have stable income because of some reasons. The first reason is that people didn’t know much about their selling of bamboo bikes. Secondly, they could sell seldomly due to high price which local people couldn’t afford. Thirdly, only natural lovers, and environmentalists who run green businesses bought the bikes. Therefore, monthly income rates through Burma Bike Partnership fluctuated.

In checking the customers’ satisfaction, he gives the message that they must confess that approximately 75% of the customers fulfilled their desire of possessing bamboo bikes. 25% of dissatisfaction might be due to inaccurate measurements for individuals and due to the resilience of bamboo cracks. However, they tried as much as they can to make the customers satisfied themselves. For example, if the customers did not like the bikes they bought, they refund 80% of their money within six months. He said that such kind of cases happened only twice to them and they always requested feedback from their customers.

In surveying how many customers they get, it is found that they have sold 28 mountain bikes and road bikes with international frames, 2 tandems, 22 local bikes around Myanmar. However, they pause their project currently in order to upgrade the skills and to wait the American couples as they are studying in the US.

For conducting performance reviews, he said that the majority of people are concerned about the strength of bamboo bikes which they cannot give the precise answers because they are still searching the weaknesses. Regarding financial cases, they can handle their project very well. If the customers are not happy with their products and they want their money back, they search for the reasons and often refund them. Therefore, they don’t still have bad reputation for their project. When people give suggestions to them, they willingly accept them and upgrade their products.

In marketing, they had a deal with the green economy tourism companies and needed to build totally 40 mountain bikes and the demand is still increasing.

In assessing their own expectation, he said that their environmental friendly project goal is to make a positive change in their community by equipping the local people as highly performing leaders and make Bamboo Bikes as one of Myanmar icons and make everyone proud of it. He also claimed that after 2024,
Burma Bike Partnership will be able to run with stable capacity and make a lot of beneficial things for community.

Findings and Discussion

After analyzing the project of Burma Bike Partnership, following Keppel (2017)’s 6 ways to measure business success, the contribution of the project become impressive at the present situation. According to one of the youth leaders of the project, they don’t have stable income and not many people know well about the project. When the stake-holders from other organizations become interested in their project and have a desire to invest in it and give a substantial contribution towards the project. Keppel (2017) states that money is very important in running a business and in making it grow. He also states that even if a small business, to measure business performance everyone needs to check out the financial statements to see how profitable the business is.

In exploring the customers ‘satisfaction, it was found that 75% of people who bought their bikes are happy to have them. One of the youth leaders says that two substantial common comments are that bamboo bikes are enchanting and they are truly nice to ride because fiber from bamboo can absorb 68% of vibration from road when compared to metal bicycles. However, bamboo they use for the bikes become cracked in hot weather and so they still need to test the strength of bamboo to be durable. It is the issues still questionable for the customers. Within 6 months after buying the bikes, if the customers find some faults, they can receive 80% refund of the price. Up till now, it is obvious that they could do to please their customers.

People from Yangon, Mandalay, and especially in Myitkyina bought the bikes with local frames and this project can distribute the bikes with international frames to Thailand, Austrail, Japan, Taiwan, Korea as well as Canada. The majority who bought the bikes are Americans. One of them is Emily Fishbein, a journalist of Frontier magazine who is currently staying in Myitkyina and her bike is 3 years old now.

The leaders as well as the members in the project should see what they need to improve and be happy under the workload. At present, the project do not have a lot of members to build the bikes and they can manage their work well. However, when the bikes are in demand, the project will need a lot of employees and the leaders need to conduct performance review very often whether the employees are happy or not in the workplace and whether the customers are happy or not to buy their products. Up till now, the project does not have bad reputation regarding financial issues and they often listen to the suggestions of the customers.

Despite the project could build totally 52 bamboo bikes, they pause it at the moment to upgrade the required skills. The reasons why people bought the bikes are that they cherish the nature as well as they appreciate unique Myanmar products. Another reason is that a bamboo bike is enchanting to possess because of premium sense while riding it. The project is not very popular in these days though, they can contribute well for their products. As they had a deal with the green economy tourism companies and needed to build totally 40 mountain bikes and so, the demand is still increasing. Moreover, if they have a way to solve the bamboo crack in intense heat, or if they can reduce the price very reasonable, the bamboo bikes will stand still in the market and it will be used by both the poor and the rich. As the project is currently
using the raw materials with high quality, and it has to import hems and epoxy from abroad, especially from Australia, the bikes are a bit expensive for every customer.

However, as one of the leaders claimed, when they have the required skills in mechanical education and in a complete financial status, they will equip the local people as highly performing leaders and make Bamboo Bikes as one of Myanmar icons and make everyone proud of it. Furthermore, Burma Bike Partnership will be able to run with stable capacity and make a lot of beneficial things for community in the near future.

**Conclusion**

In analysing the contribution of Bamboo Bike Project in Myitkyina, Kachin State, the findings show that this project is a very promising one for Northern Myanmar and it will be sustainable development for the Kachin community. As their goal is aiming at to support the jobless people and to reduce drug users in Kachin state, this project, as they claimed in 2024, could be a great business which can distribute their products to within local areas as well as to abroad whose people, both the poor and the rich, would love to try their bamboo bikes. In the near future, their mechanical education is also to be developed by their contributors, the Parkers and the youth leaders who will distribute to new members in the project to be highly performing leaders as well as to the community to make bamboo bikes as one of the icons of Myanmar.

**References**

Some Medicinal Plants Used for Six Major Priority Diseases in Myanmar Traditional Medicine

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Abstract

Human beings have been utilizing plants for basic preventive and curative healthcare since time immemorial. All culture have been long histories of the use of plants in folk medicine, recorded in ancient herbals from which most of the present-day pharmacopoeias have been derived. Traditional medicines made by plants are very common and people depend on these medicines for long time. Medicinal plants have been used in virtually all cultures as a source of medicine. In recent years, most people in developing countries depend on the direct use of plants for their health care. The medicinal value of the drug plant is due to the presence of chemical substances. Recently, a rich source of promising chemical compounds from medicinal plants, are important for health care of many people. Moreover, the plants from which wonderful chemical compounds can be extracted are able to cure several diseases and are very much popular in medicinal world. In this research, some medicinal plants frequently growing in Mandalay were investigated. Scientific name, local name, family, parts used and uses of these plants have been recorded and presented with color photograph. The present study emphasized on the six plant species used in Myanmar traditional medicine for curing six major diseases (such as Malaria, Tuberculosis, Hypertension, Diabetes, Dysentery and Diarrhea). Medicinal uses of these plants were studied by interviewing the traditional practitioners using structured interviewed type. The use value were calculated to know the application of these studied plants for curing diseases and was found to be highest in Curcuma longa L., followed by Ocimum sanctum Hook., Moringa oleifera Lam., Catharanthus roseus (L.) G. Don., Azadirachta indica A.Juss. and Achyranthes aspera L. in decreasing quantity from use vaule 3.4, 2.3, 2.3, 2.1, 2.0 and 1.7 respectively. Moreover, Fidelity level (FL %) value was calculated for the most frequently reported diseases by informants and was found to be the highest in Curcuma longa L., is the highest followed Ocimum sanctum Hook., Moringa oleifera Lam., Catharanthus roseus (L.) G. Don., Achyranthes aspera L. and Azadirachta indica A.Juss. in decreasing quantity from FL(%) value 87.00, 83.87, 80.64, 74.19, 48.39 to 32.26 respectively.

Keywords: traditional practitioners, informant, Fidelity level
Introduction

Human must have searched from early times for any plant substance that would relieve their suffering. They accumulated medical knowledge and passed on by words of mouth from generation to generation. Holley and Cherla (1998) described that the various estimates suggest that over 9000 plants have known medicinal application in various cultures and countries.

Fyhrquist (2007) also reported that less than 1-10% of the large diversity of 250000-500000 plant species on the Earth have been studied chemically and pharmacologically for their medicinal properties. It is especially true for tropical flora, as at date only 1% of the species in these habitats have been studied for their pharmaceutical potential.

Plants have played an important role in traditional medicine in Myanmar since ancient time. Plants that possess therapeutic properties of exert beneficial pharmacological effects on the human body are generally regarded as medicinal plants.

Traditional medicine involves not only the use of herbal medicines but also use of animal parts and minerals. Most of the formulae are prepared mainly with herbal origin and small portion of mineral which needs in a vital process for the development of traditional medicine that must lead to action and results. There is now more and more work to be done in the field of traditional medicine in Myanmar.

The World Health Organization estimated that 80% of the populations of developing countries rely on traditional medicine, mostly plant drugs for their primary health needs. It is estimated that 10,000 plants species are used in traditional medicine. There is worldwide interest concerning the traditional medicinal plants leading to find the new drugs because today's well established drugs were developed to analyze the plants already obtained information from the traditional medicine. For instance, various famous drugs such as aspirin (for analgesic), colchicine (for gout), papain (for attenuate mucus) and quinine (for malaria) were originated from plants based traditional medicine.

Medicinal plants are a very good source of active ingredients of herbal medicine and provide a safe and effective way to treat diseases. Plants are not only major source of food in most societies but are also curing diseases in the rural regions where the modern drugs are rare.

In rural area, where western medicines are not available, people are still used plant based traditional medicines. Today, by using of Western medicine, peoples can get side effects and very expensive. So, it has now been replaced to use by Myanmar traditional medicine that less side effects and very cheapness. Moreover, the practitioners had traditional used plant parts for the treatment of diseases. However, there are still many plants required to be studied and to record scientifically. So the extensive research works had been done to know the medicinal uses of the plants.

The present research deals with some preliminary study on the medicinal values of wild or cultivated in dicotyledoneae and monocotyledoneae grown in Mandalay. In the study area, traditional medicines made by plants are very common and people depend on these medicines for long time.

Moreover traditional practitioners used to cure several diseases with medicinal plants especially, Achyranthes aspera L., Azadirachta indica A.Juss.,
Catharanthus roseus (L.) G.Don., Curcuma longa L., Moringa oleifera Lam., Ocimum sanctum Hook. There were no scientific proof of its efficacy.

Research Objectives
This research consisted of four objectives
2.1.1. To study and record the medicinal values of plants used to treat for six major diseases by traditional practitioners in study area,
2.1.2. To give useful information and effective utilization of medicinal plants for curing six major diseases in traditional medicine,
2.1.3. To know the Use Value of studied medicinal plants
2.1.4. To examine the Fidelity Level (FL %) value for six major diseases and
2.1.4. To evaluate the medicinal plants used to treat for six major diseases in Myanmar traditional medicine.

Research Methodology
Six medicinal plants (Achyranthes aspera L., Azadirachta indica A.Juss., Catharanthus roseus (L.) G.Don., Curcuma longa L., Morinda oleifera Lam. Ocimum sanctum Hook. are solely used for six major diseases in traditional medicine, growing as wild and cultivated in Mandalay were collected during 2016-2017. Identification of the collected specimens was carried out by referring to the book which was written by Hooker (1875-1879, 1885,1886), Hutchison (1954, 1959), Backer (1962, 1965, 1968), Dassanayake (1987) and Hundley and Chit KoKo (1961). All the collected species were arranged alphabetically.

Medicinal data information were surveyed from literatures and also collected through personal interviews with traditional practitioners by using structured interviews type (Britten 2007). The questions were "Did you use these plant as medicine?" "What disease? "Which parts? How did you prepare?" For each plant recorded on questionaries had to be filled. The data acquired for each plant comprised the local name, part used, its uses and preparation.

Use Value and Fidelity Level (%) value of studied plants were calculated by Phillips (1996) method.

Research Results
4.1. Traditional uses of studied species
4.1.1. Achyranthes aspera L.
Family : Amaranthaceae
Local name : Kyet mauk sue pyan, Nauk po
English name : Chaff flower
Flowering and fruiting period : Throughout the years
This species is most commonly growing throughout the road-side and field as wild plant.
Part used : The whole plant
Traditional uses : Salts of ashes from the whole plant mixed with honey can be used to traditional remedy for dysentery. Five parts of the plant is boiled with pure water, to become 1/3 of the volume. This decoction is used for chronic dysentery.
4.1.2. *Azadirachta indica* A.Juss.

Family : Miliaceae  
Local name : Tama kha  
English name : Neem tree  
Flowering and fruiting period : February to June  
This species is commonly found as wild and as cultivated plant in road-side.  
Parts used : Leaves  
Traditional uses : The metallic juices with lime juice are drunk to cure for tuberculosis. Decoction of leaves is used to treat for tuberculosis. The pounded leaves with warm water can be used in tuberculosis remedy.

4.1.3. *Catharanthus roseus* (L.) G. Don.

Family : Apocynaceae  
Local name : Thinbaw ma hnyo  
English name : Periwinkle  
Flowering and fruiting period : Throughout the year  
This species is most commonly growing throughout the road-side and cultivated as ornamental plant.  
Part used : Leaves, stem  
Traditional uses : According to traditional practitioners, the leaves and stems are boiled with pure water to obtain $\frac{1}{3}$ of volume. This decoction is drunk to decrease high sugar level in blood. So it can be used to treat diabetes.

4.1.4. *Curcuma longa* L.

Family : Zingiberaceae  
Local name : Na nwin  
English name : Tumeric  
Flowering and fruiting period : September to December  
This species is widely cultivated throughout Myanmar.  
Part used : Rhizome  
Traditional uses : The rhizomes of turmeric were dipped into the boiling water. These rhizomes were taken from boiling water immediately and are dried in open-air. Dried rhizome is ground. Pounded rhizomes with warm water are drunk as a remedy for diarrhea. Pounded rhizomes and calcium oxide (CaO) are mixed with boiling water. Then, one heated iron infused into the htone-nanwin water. This htone-nanwin-Iron water is traditional used for chronic diarrhea. In bottle, Nanwin and calcium oxide (CaO) mixed with boiling water and then this bottle was shaken. After some time, calcium oxide and nanwin settle down at the base of the bottle and then as liquid and suspension. The liquid can be used to treat for diarrhea.

4.1.5. *Moringa oleifera* Lam.

Family : Moringaceae  
Local name : Dant tha lun  
English name : Drum stick  
Flowering and fruiting period : Throughout the year  
This species grow wild and also cultivated plant.  
Part used : Leaves, root bark, seed  
Traditional uses : The leaves possess diuretic properties. The leaves can be applied as soup for daily vegetable to relief hypertension. Metallic juice from leaves is popular
remedy for hypertension. Pounded roots with warm water can be applied to cure for hypertension. Pounded seeds with boiled water drunk to decrease in high blood pressure. The root and seed powder are slinked in water and this supernatant is taken as hypertension.


Family : Lamiaceae  
Local name : Pin zein net  
English name : Sacred basil  
Flowering and fruiting period : September to December  
This species grow wild along the road-side and in field and cultivated in medicinal garden.  
Part used : Leaves  
*Traditional uses* : The leaves are boiled and then this vapor inhale. Moreover, this decoction is drunk to relief for malaria. It is very effective remedy for malaria in Myanmar. Pounded leaves buds with boiled water can be drunk for malaria remedy.

4.2. Use Value of studied species

To calculate the Use Value of studied species

\[
UV = \frac{\sum u_i}{n}
\]

UV = Use Value  
\( u_i \) = the number of uses mentioned by each informants for a guven species  
\( n \) = total number of informants.  

Eg. Use value of *Curcuma longa* L.

\[
UV = \frac{5 + 5 + 4 + 4 + 3 + 3 + 2 + 2 + 2 + 2}{10} = \frac{34}{10} = 3.4
\]

3.0 and above = 1\textsuperscript{st} group  
2.0 - 2.9 = 2\textsuperscript{nd} group  
1.0 - 1.9 = 3\textsuperscript{rd} group

**Table 1**

*List their arrangement of use value in traditional medicine by ascending order.*

<table>
<thead>
<tr>
<th>No</th>
<th>Botanical name</th>
<th>Local name</th>
<th>Use Vaule</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><em>Curcuma longa</em> L.</td>
<td>Na nwin</td>
<td>3.4</td>
<td>1\textsuperscript{st}</td>
</tr>
<tr>
<td>2</td>
<td><em>Ocimum sanctum</em> Hook.</td>
<td>Pin zein net</td>
<td>2.3</td>
<td>2\textsuperscript{nd}</td>
</tr>
<tr>
<td>3</td>
<td><em>Moringa oleifera</em> Lam.</td>
<td>Dant tha lun</td>
<td>2.3</td>
<td>2\textsuperscript{nd}</td>
</tr>
<tr>
<td>4</td>
<td><em>Catharanthus roseus</em> (L.) G.Don.</td>
<td>Thinbaw ma</td>
<td>2.1</td>
<td>2\textsuperscript{nd}</td>
</tr>
<tr>
<td>5</td>
<td><em>Azadirachta indica</em> A.Juss.</td>
<td>Tama kha</td>
<td>2.0</td>
<td>2\textsuperscript{nd}</td>
</tr>
<tr>
<td>6</td>
<td><em>Achyranthes aspera</em> L.</td>
<td>Kyet mauk sue pyan, Nauk po</td>
<td>1.7</td>
<td>3\textsuperscript{rd}</td>
</tr>
</tbody>
</table>
4.3. Fidelity level (FL %) value of studied species
To calculate the FL% value of studied species
\[ \text{FL\%} = \left( \frac{N_p}{N} \right) \times 100 \]

Np = number of informants that claim a use of a plant species to treat a particular disease
N = number of informants that use the plants as a medicine to treat any given disease

Table 2
Most frequently used plants for different ailment categories based on highest FL(%) in each ailment category (Total informants, \( N = 31 \), \( N_p / N \) x 100)

<table>
<thead>
<tr>
<th>No</th>
<th>Botanical name</th>
<th>Ailment categories</th>
<th>Citation for particular disease (use report) (Np)</th>
<th>Fidelity Level (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Curcuma longa L.</td>
<td>Diarrhoea</td>
<td>(27/31) x100</td>
<td>87.00</td>
</tr>
<tr>
<td>2</td>
<td>Ocimum sanctum Hook.</td>
<td>Malari</td>
<td>(26/31) x100</td>
<td>83.87</td>
</tr>
<tr>
<td>3</td>
<td>Moringa oleifera Lam.</td>
<td>Hypertension</td>
<td>(25/31) x100</td>
<td>80.64</td>
</tr>
<tr>
<td>4</td>
<td>Catharanthus roseus (L.) G.Don</td>
<td>Diabetes</td>
<td>(23/31) x100</td>
<td>74.19</td>
</tr>
<tr>
<td>5</td>
<td>Achyranthes aspera L.</td>
<td>Dysentery</td>
<td>(15/31) x100</td>
<td>48.39</td>
</tr>
<tr>
<td>6</td>
<td>Azadirachta indica A.Juss.</td>
<td>Tuberculosis</td>
<td>(10/31) x100</td>
<td>32.26</td>
</tr>
</tbody>
</table>

Discussion
In this discussion, a comparison has been made between the studied species in this work on their traditional uses and literature uses and those of the same species recorded by other researchers.

Today, six major diseases found in Myanmar. Among them, dysentery is one of the six major diseases in Myanmar. Craig (1926) has estimated that more than 10 percent of world population is suffering from the infection of this disease. According to traditional practitioners and local peoples, *Achyranthes aspera* L. are used as dysentery remedy which agree with James (1929). Phar et.al (1999) mentioned that the leaf juice is effective against dysentery. Kapoor (2001) reported that the decoction of powdered leaves with honey or sugar candy can be used in the early stage of dysentery.

Tuberculosis is one of the six major priority diseases in Myanmar. It is still a major unsolved health problem of worldwide dimension. Magnitude of the tuberculosis problem is staggering. As a single infection disease, tuberculosis is the biggest cause of death in the world, afflicting all age group. It is a caused by a microbacterium known as *Tubercle bacillus*. Tuberculosis, especially, pulmonary tuberculosis is a major health problem. In this study, *Azadirachta indica* A.Juss. is used to treat for tuberculosis by traditional pretitioners and local peoples. James
(1929) discussed that this plant had antibacterial activity and can be applied to cure for tuberculosis.

Figure 1. A. Inflorescences of Achyranthes aspera L.  
B. Inflorescences of Azadirachta indica A. Juss.  
C. Inflorescences of Catharanthus roseus (L.) G.Don.  
D. Inflorescences of Curcuma longa L.  
E. Inflorescences of Moringaoleifera Lam.  
F. Inflorescences of Ocimum sanctum Hook.

Diabetes is one of the most important human diseases. More than 2000 years ago, the ancients noticed that some people produced copious amount of strangely sweet-testing urine that attractend ant (Tasting urine was a diagnostic tool in many culture). Thus named condition diabetes mellitus. Diabetes mellitus is worldwide in distribution. It is one of the six major diseases in Myanmar. In this research, Catharanthus roseus (L.)G.Don. is used to treat for diabetes by traditional pretitioners and local peoples. Padua (1999) described that the decoction of all parts of the plant is used to treat for diabetes which agree with those stated by Myint Myin Swe and et al. (2005). Wiart (2000) mentioned that the roots of the white variety used for diabetes. Chiej(1988) stated that Periwinkle has been used in the treatment of diabetes.
According to Mya Bwin and Sein Gwan (1967), the Periwinkle plant used as remedy for diabetes.

Diarrhea is one of the six major diseases in Myanmar. It is the most prevalent disease and may be caused by microorganisms which are endo-pathogenic. This disease has a wide distribution being in Myanmar. In this study, traditional pretitioners and local peoples were recorded that the Curcuma longa L. can be used as medicine for diarrhea which agree with Padua (1990), James (1929) and Ministry of Health (2003). According to Ah-shin-Na-Ga-Thein (1972), Nanwin, Lime and jiggery are boiled. This decoction drunk as a remedy for diarrhea. Pounded rhizome and lemon juice are make into small ball (about plum) are used as chronic diarrhea.

Hypertension is one of the six major diseases in Myanmar and it now stands prioritized disease have been problem and leading cause of death. In this work, Moringa oleifera Lam. is used to treat for hypertension by traditional pretitioners and local peoples. Kapoor (2001) also reported that the tender leaves of M. oleifera Lam. are given in diuretic. The bark of the stem can be used for hypertension.

Malaria is one of the most serious tropical disease has been called the World’s greats killer because it has causeed more death throughout recorded history than any other diseases. In this research, Ocimum sanctum Hook. is used to treat for malaria by traditional pretitioners and local peoples. Pound ed leaves buds with boiled water can drink for malaria remedy (Yu Yu Khaing 2006). Kapoor (2001) described that the infusion of leaves is given in malaria which agree with those stated by Myint Myint Swe et.al. (2005). Accordind to Mya Bwin and Sein Gwan (1967), decoction of roots are given as a diaphoretic in malaria fever. Decoction of whole plant is used to cure malaria by oral administration (Effective plants of traditional medicine vol.1.2002).

The highest use value was observed in Curcuma longa L. and showed the first rank. Ocimum sanctum Hook., Moringa oleifera Lam., Catharanthus roseus (L.) G. Don., Azadirachta indica A.Juss., showed second ranking group and use value between 2.0 to 2.3. Use Value of Achyranthes aspera L. showed use value of 1.7 and the third ranking.

The Fidelity Level (%) of Curcuma longa L., showed the highest followed Ocimum sanctum Hook., Moringa oleifera Lam., Catharanthus roseus (L.) G. Don., Achyranthes aspera L. and Azadirchta indica A.Juss. respectively.

**Conclusion**

In Myanmar, traditional medicine has been used for ages and is well accepted by a large number of the population to meet their primary health needs. Due to this long history, the Government has recognized the important role of traditional medicine and its practitioners. As in most developing countries, herbal medicines still play significant role, with more than 80% of the population using herbal remedies. Our government has established FAME factory to manufacture herbal medicines.

Therefore, this research emphasizes the importance studying of plants used for six major diseases. These plants are Achyranthes aspera L., Azadirchta indica A.Juss., Catharanthus roseus (L.) G. Don., Curcuma longa L., Moringa oleifera Lam., and Ocimum sanctum Hook. These medicinal plants are mostly used to treat for six major diseases by many traditional practitioners and local people in study area.
These medicinals plants are widely distributed in Mandalay. Moreover, these plants are grown in other regions of Myanmar. It comprises some cultivated plants and mostly grows wild on road-sides and in fields. So, these medicinal plants can be easily obtained to use as home remedy. In addition, these herbal medicines have rare side effects and they are cost-effective. These plants can be safely used as medicine in traditional medicine.

Plants are still on overwhelming source of novel chemical structures and substances within plants are widely used by humans are less likely to be seriously toxic than synthetic chemical. Many poisonous plants are used medicinally; at lower doses their toxic constituents are often beneficial. Although herbal medicine is extremely safe, the fact that it is natural does not necessarily mean it is harmless (Padua et al. 1999).

There is worldwide interest concerning the traditional medicinal plants for leading to fine the new drugs because today's modern medicines were based on the information of the traditional medicines. Therefore, the most efficacious plants were scientifically chosen to use for six major diseases in Myanmar traditional medicine.

The Use Vaule and the FL vaule (%) resulting data, it can be conculated that the species used in remedies for the diseases categories with high Use Value and FL% value could be considered as high healing potential.

The results of this study provide to know an efficacious traditional remedy for six major diseases in traditional medicine.

The present research will provide information on medicinal plants for other researchers and for the Pharmaceutical Industry in Myanmar and other countries.

It is hoped this research, will give useful information and effective utilization for poor people in areas where there are no doctors and medicines not easily available.

Recommandations
For this research, the following recommendations are suggested:

7.1 Traditional uses of these medicinal plants were no evidence of its efficacy. So, should be systematically recorded.

7.2 These medicinal plants can be used as home remedy for six major deseases. So, local people should plant these wild and cultivate of medicinal plants in and around their homes.

7.3 The present findings may be support the traditional medicinal knowledge of local users. The combination of knowledge with the results of present research will provide new application of plant-derived drugs.

7.4 It is need to work a better understanding of Myanmar medicinal plants for more penetrating research and appoiication.

7.5 Plants with higher Use Vaule and Fidelity Level (FL %) value are the prospective ones for next investigation of their pharmacological properties.

7.6 Above the resulting data, Curcuma longa L. observed highest Use Value and Fidelity Level (FL %). So, this plant should be planted in the length and breadth of Myanmar.

7.7 The further research should be studied, emphasize on phytochemical test, preclinical studies for the safety, tolerability and acute toxicity by testing mice or rabbit used for six major diseases in traditional medicine.
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Diversity and Conservation of Water Birds in Southern Shan State of Myanmar

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Abstract

A study was carried out to assess the occurrence and diversity of waterbird species in Nong-khan Lake at Laikha, southern Shan State, and the relation between diversity indices and microclimatic conditions. There are many wetland areas providing as habitats for waterbirds in Myanmar. Out of which, Nong-khan Lake is important habitat for waterbirds and famous in southern Shan State. A total of 20 waterbird species under six families were recorded using point count method. Out of six families, family Ardeidae had the highest number of species (10 species) followed by Rallidae (four species), Anatidae and Jacanidae (two species each) and Podicipedidae and Charadriidae (one species each). Out of 20 waterbird species, *Mesophoyx intermedia* outnumbered all other species. Diversity indices of waterbird species were highest in April and May while Pielou's evenness index high in April. Microclimatic parameters were found not to affect on the diversity of waterbird species during the study period. The outcomes of this study may provide the information concerning with the waterbird status in Nong-khan Lake at Laikha and lead to conservation of ecosystem and waterbird species.

Keywords: occurrence, diversity, waterbirds, conservation

Introduction

Wetlands International (2012) states waterbird population estimates of 2,304 populations of 871 species of waterbird from 32 families. Under the IUCN Red List criteria, 79% of all waterbird species considered to be extinct, Extinct in the Wild, Critically Endangered, Endangered or Vulnerable, belong to six families. According to Wetlands International (2010), the most serious threats to waterbirds are land claim, water regulation and agricultural intensification, human disturbance and current threat of climate change. Myanmar is one of the countries in the world which are listed to be covered with forests and therefore it boasts 1062 species of birds. Of which 51 species are globally threatened (Wikipedia, 2011).

Birds and their diversity constitute a main part of the natural environment and play a functional role as agents of flower pollination, seed dispersal and source of food chain (Nason, 1992). Waterbirds are an important component of wetland landscapes. Their beauty, rich diversity, abundance and migratory habits are closely linked to many of our cultural values and social practices (Wetlands International, 2012). Sustaining or restoring the distribution, diversity, and abundance of waterbirds is often target of land and water management and, in particular for environmental water management (Wen *et al*., 2011). The waterbirds status of Nong-Khan Lake had
not been performed formerly. Studying the occurrence and diversity of waterbird species not only can lead to conservation of these species but also provide a useful indication of environmental change.

**Objectives of the Study**
1. to explore the waterbird species and the numbers
2. to find out the diversity indices and the status of waterbirds
3. to investigate the relationship between the waterbird diversity and microclimatic conditions

**Previous Studies**
Several waterbird research projects have been documented to provide environment healthy and conserve ecosystem services. The findings of some scholars regarding with waterbirds and wetlands, diversity and importance of waterbirds are described below. Hartman *et al.* (2016) conducted the influence of island characteristics within wetlands on waterbird nest success and abundance. They found that coastal waterbird populations are threatened by habitat loss and degradation from urban and agricultural development and forecasted sea level rise associated with climate change. Harebottle *et al.* (2015) studied assessing the value of wetlands to waterbirds and pronounced that species richness, species diversity, total count, biomass, energy consumption and the Ramsar ‘1% threshold’ have been used to assess the importance of wetlands for waterbirds. Guareschi *et al.* (2014) learned assessing the value of waterbirds as surrogates of macroinvertebrate biodiversity and commented that waterbirds are commonly used as flagships of biodiversity and are the subject of major conservation initiatives.

**Methodology**
**Study Site and Study Period**
Nong-Khan Lake situated at Laikha, Southern Shan State and lies at 21° 16' 20" N Latitude and 97° 39' 10" E Longitude (Figure 1).
The study was conducted from March 2017 to February 2018.

**Figure 1:** Map of the study site, Nong-Khan Lake at Laikha

**Collection Process and Identification**

Observation on bird species was carried out with the help of binocular once a month. Birds were taken photographs by digital camera and environmental factors were noted. Then the numbers of bird populations were counted monthly using point count method. The detection of birds was accomplished early in the morning from 0730 to 1100 h. The recorded bird species was identified according to Smythies (1953) and Robson (2015).

**Statistical analysis**

The diversity indices such as Margalef’s species richness, Simpson’s diversity index and Shannon-Wiener diversity index of bird species were calculated using excel. The values of diversity indices were assessed with respect to microclimate factors (temperature, humidity and rainfall) which were acquired from meteorological station of Loilem.

**Results**

A total of 20 waterbird species under six families (Anatidae, Podicipedidae, Ardeidae, Rallidae, Jacanidae and Charadriidae) were recorded in Nong-khan Lake at Laikha, Southern Shan State (Table 1, Figure 7, 8, 9 & 10). Among the 20 waterbird species recorded, *Dendrocygna javanica* (Lesser whistling duck) and *Anas zonorhyncha* (Chinese spot-billed duck) were observed throughout the study period while *Nycticorax nycticorax* (Black crowned night heron), *Ardea alba* (Great egret), *Mesophoyx intermedia* (Intermediate egret) and *Vanellus cinereus* (Grey headed lapwig) were detected in only one month during the study period (Table 2). According to the family-wise species composition, family Ardeidae is the highest species composition (50%) followed by Rallidae (20%), Anatidae and Jacanidae (10% each), Podicipedidae and Charadriidae (5% each) (Figure 2).

Based on the Margalef and Simpson diversity indices, waterbird diversity was found to be highest in April (1.92 and 4.82 respectively) while in May as said by Shannon-Wiener index (1.86) (Figure 3). Pielou's eveness index showed that waterbird species occurred to be more equitable in August (0.91) than in all other months during the study period (Figure 4). All diversity indices are the lowest in June including Pielou's eveness index.
With respect to microclimatic conditions (temperature, humidity and rainfall), these parameters did not influence on the diversity of waterbird communities in Nong-khan Lake (Figure 5 and 6).

Table 1
Waterbird species recorded from Nong-khan Lake, Laikha

<table>
<thead>
<tr>
<th>No.</th>
<th>Scientific Name</th>
<th>Local name</th>
<th>No.</th>
<th>Scientific Name</th>
<th>Local name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><em>Dendrocygna javanica</em></td>
<td>Sit-sa-li</td>
<td>11</td>
<td><em>Ardea alba</em></td>
<td>Byaing-ngan</td>
</tr>
<tr>
<td>2</td>
<td><em>Anas zonorhyncha</em></td>
<td>Be-gya</td>
<td>12</td>
<td><em>Mesophoyx intermedia</em></td>
<td>Tharrawaddy-byaing</td>
</tr>
<tr>
<td>3</td>
<td><em>Tachybaptus ruficollis</em></td>
<td>Ta-si-hmoke</td>
<td>13</td>
<td><em>Egretta garzetta</em></td>
<td>Waithale-byaing</td>
</tr>
<tr>
<td>4</td>
<td><em>Ixobrychus sinensis</em></td>
<td>Sat-byaing</td>
<td>14</td>
<td><em>Amaurornis phoenicurus</em></td>
<td>Ye-kyet-yin-phyu</td>
</tr>
<tr>
<td>5</td>
<td><em>I. cinnamomeus</em></td>
<td>Sat-byaing</td>
<td>15</td>
<td><em>Gallinula chloropus</em></td>
<td>Ye-kyet</td>
</tr>
<tr>
<td>6</td>
<td><em>Nycticorax nycticorax</em></td>
<td>Lin-wet</td>
<td>16</td>
<td><em>Fulica atra</em></td>
<td>Ye-kyet-don</td>
</tr>
<tr>
<td>7</td>
<td><em>Ardeola grayii</em></td>
<td>Byaing-auk</td>
<td>17</td>
<td><em>Porphyrio poliocephalus</em></td>
<td>Me-nyo</td>
</tr>
<tr>
<td>8</td>
<td><em>Ardeola bacchus</em></td>
<td>Byaing-auk</td>
<td>18</td>
<td><em>Hydrophasianus chirurgus</em></td>
<td>Kya-bet-nin (bi-gya)</td>
</tr>
<tr>
<td>9</td>
<td><em>Bubulcus ibis</em></td>
<td>Kyew-kyuang-byaing</td>
<td>19</td>
<td><em>Metopidius indicus</em></td>
<td>Kya-bet-nin (bi-gya)</td>
</tr>
<tr>
<td>10</td>
<td><em>Ardea cinerea</em></td>
<td>Nga-hit-mwe</td>
<td>20</td>
<td><em>Vanellus cinereus</em></td>
<td>Tit-ti-du</td>
</tr>
<tr>
<td>Family</td>
<td>Scientific Name</td>
<td>Common Name</td>
<td>Status</td>
<td>Mar</td>
<td>Apr</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------</td>
<td>----------------------</td>
<td>--------</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>Anatidae</td>
<td><em>Dendrocygna javanica</em></td>
<td>Lesser Whistling Duck</td>
<td>LC</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><em>Anas zonorhyncha</em></td>
<td>Chinese Spot-billed Duck</td>
<td>LC</td>
<td>45</td>
<td>23</td>
</tr>
<tr>
<td>Podicipedidae</td>
<td><em>Tachybaptus ruficollis</em></td>
<td>Little Grebe</td>
<td>LC</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><em>Ixobrychus sinensis</em></td>
<td>Yellow Bittern</td>
<td>LC</td>
<td>-</td>
<td>-</td>
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<tr>
<td></td>
<td><em>I. cinnamomeus</em></td>
<td>Cinnamon Bittern</td>
<td>LC</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td><em>Nycticorax nycticorax</em></td>
<td>Black-crowned Night Heron</td>
<td>LC</td>
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<tr>
<td>Ardeidae</td>
<td><em>Ardeola grayii</em></td>
<td>Indian Pond Heron</td>
<td>LC</td>
<td>4</td>
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</tr>
<tr>
<td></td>
<td><em>Ardeola bacchus</em></td>
<td>Chinese Pond Heron</td>
<td>LC</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td><em>Bubulcus ibis</em></td>
<td>Cattle Egret</td>
<td>LC</td>
<td>4</td>
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</tr>
<tr>
<td></td>
<td><em>Ardea cinerea</em></td>
<td>Gray Heron</td>
<td>LC</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><em>Ardea alba</em></td>
<td>Great Egret</td>
<td>LC</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td><em>Mesophoyx intermedia</em></td>
<td>Intermediate Egret</td>
<td>LC</td>
<td>85</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td><em>Egretta garzetta</em></td>
<td>Little Egret</td>
<td>LC</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td><em>Amaurornis phoenicurus</em></td>
<td>Whit Breasted Waterhen</td>
<td>LC</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td><em>Gallinula chloropus</em></td>
<td>Common Moorhen</td>
<td>LC</td>
<td>-</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td><em>Fulica atra</em></td>
<td>Common Coot</td>
<td>LC</td>
<td>55</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><em>Porphyrio poliocephalus</em></td>
<td>Gray-headed swamphen</td>
<td>NE</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Family</td>
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<td>Status</td>
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<td>----------------------------------</td>
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<td>-------</td>
<td>----</td>
<td></td>
</tr>
<tr>
<td>Jacanidae</td>
<td><em>Hydrophasianus chirurgus</em></td>
<td>LC</td>
<td>8</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Metopidius indicus</em></td>
<td>LC</td>
<td>4</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Charadriidae</td>
<td><em>Vanellus cinereus</em></td>
<td>LC</td>
<td>23</td>
<td>1%</td>
<td></td>
</tr>
</tbody>
</table>

LC – Least Concern  
NE – Not Evaluated

**Figure 2: Family-wise species composition of waterbirds from Nong-khan Lake**
Figure 3: Month-wise diversity indices of waterbirds collected from Nong-khan Lake

Figure 4: Month-wise evenness index of waterbirds collected from Nong-khan Lake
Figure 5: Relation between diversity indices and temperature, and humidity

Figure 6: Relation between diversity indices and rainfall
A. *Dendrocygna javanica*  
B. *Anas zonorhyncha*  
C. *Tachybaptus ruficollis*

D. *Ixobrychus sinensis*  
E. *Ixobrychus cinnamomeus*  
F. *Nycticorax nycticorax*

**Figure 7:** Waterbird species of families Anatidae, Podicipedidae and Ardeidae recorded in Nong-Khan Lake

A. *Ardeola grayii*  
B. *Ardeola bacchus*
C. *Bubulcus ibis*  

D. *Ardea cinerea*  

E. *Ardea alba*  

F. *Mesophoyx intermedia*  

*Figure 8: Waterbird species of family Ardeidae recorded in Nong-Khan Lake*
A. *Egretta garzetta*

B. *Amaurornis phoenicurus*

C. *Gallinula chloropus*

D. *Fulica atra*

E. *Porphyrio poliocephalus*

F. *Hydrophasianus chirurgus*

*Figure 9: Waterbird species of families Ardeidae, Rallidae and Jacanidae recorded in Nong-Khan Lake*
Discussion

Among 20 waterbird species recorded in Nong-khan Lake at Laikha, Southern Shan State only two species were observed throughout the study period. The result of the present study with regard to species composition in which family Ardeidae is highest is similar to that of Anoop et al. (2015) in which family Ardeidae had the highest number of species and *M. intermedia* in that family outnumbered all other species. This may be because the studied habitat is suitable for members of family Ardeidae and the presence of food regularly for those species. But, the result of Anoop et al. (2015) is not alike to the present study in the fact of monthly occurrence of *M. intermedia* which was observed in only one month of March during the study period. 

Out of 20 waterbird species recorded in the present study, the occurrence of *Dendrocygna javanica* and *Anas zonorhyncha* throughout the study period may indicate the status that is not be threatened; otherwise their habitat may be to provide their nesting and feeding all time. Smythies (1953) stated that *D. javanica* is widespread in the oriental region. It is found in most parts of Burma, but is much persecuted by every villager with a gun and is less common than it used to be. It is much more in evidence in the rains than at other times. This more observation in the rains was similar to the present study in which *D. javanica* was more found in June and July.

*Nycticorax nycticorax* (Harbour heron) was frequently shot at nesting and roosting sites for its plumes and as food and was in a state of threatened. *A. alba* species were killed in great quantities for their feathers which were used to decorate ladies hats (Information Fact Sheets). In the present study, *Vanellus cinereus* was observed in only one month (March) and this finding is in contrast with that of Roshnath (2017) who revealed they are found in Kerala, India from October to April, with a maximum number of sightings in January. On the basis of these two findings, it may be concluded this contrast may be due to the differences of food availability and weather pattern in these two study sites during the study period. Some species of birds were observed throughout the study period and some not. This fact may be concerned to the disturbances of humans for the aim of food around the studied site. The second
reason may be the former species can hide themselves in their habitats from disturbances while the latter are sensitive and exposed to disturbances.

Microclimatic conditions were found not to relate with the diversity of waterbird communities in Nong-khan Lake. This postulation may be explained by the fact that the highest diversity of waterbirds was established in April and May and the temperature was also high in these months. But June with higher temperature was found to be lowest in diversity. Similarly, the months of highest humidity (July and August) and highest rainfall (July) were found not to be highest or lowest diversity of waterbirds. Somveille *et al.* (2013) revealed that one of the most important environmental variables affecting the migration strategies is temperature, which is exemplified by the increase of the proportion of migratory bird species towards the poles. In the present study, the fact that bird diversity was not affected by microclimatic conditions may be explained due to small variations in these factors during the study period.

In this study, the high diversity indices (Margalef, Simpson diversity indices and Shannon-Wiener index) of waterbird species in April and May may indicate that attributes relating to water quality, disturbance and food acquirement in the study site are good during these months. Concerning to eveness index, high eveness value in August may indicate occurrence of all 20 species of waterbirds is equal in this month and this may be caused by the condition in which varieties of food, suitable temperature and habitat requirements are organized for the recorded bird species.

It is concluded that there was only two waterbird species occurred throughout the study period and therefore the studied site may be incident to human disturbances in which the waterbirds were shot for food, income and decoration. The recorded 20 waterbird species are under the Least Concern status according to IUCN Red List criteria. But, there is no favourable conservation to waterbirds like the present study site, and Myanmar undergoes current practices of forest fragmentation and climate change. Therefore, these waterbird species can experience quantity and quality decline and there is urgent need to effective management of waterbirds in the present study site and Myanmar. Boere *et al.* (2006) revealed waterbird monitoring programs that the organization of regular international counts of waterbirds has provided an immense amount of information, not only of scientific value, but also of strategic importance for wetland conservation. Monitoring the changes in waterbird numbers at specific wetlands of critical importance can also serve as an “early warning system” that can be used to mobilize authorities to take appropriate measures before it is too late. The development of ecological networks is a present-day priority.

The results of the present study lead to awareness of human society regarding with bird species richness, diversity and threatened status and in turn human community in the local environment may do protection of these beneficial bird species.
Recommendations

The study site accompanying with its waterbirds may be conserved for future ecosystem. By conserving these pollinator and indicator waterbird species using the following ways, not only local environment but also related environments can be conserved and made healthy for human society. Although the government set the laws and there are non-government organizations to protect waterbirds, local people around the habitats in which birds host do be aware and increase education about bird advantages, disturbances on them, population status and ecology. To get the conservation strategy, local and state stakeholders, and local people do cooperate based on knowledge of protection methods including the collection and sharing of basic information relevant to waterbird- and habitat conservation which should be communicated by orate, TV programs, radio, circulation of a newsletter and media such as twitter, face book.

For further study, the followings would like to be suggested.
1. Occurrence and population status of waterbirds in the current study site should be studied at least two years for more sound results of conservation efforts.
2. Ecological status, breeding, feeding and behavior of waterbird species should be studied for conservation efforts.

References


The Effect of Stock Density on the Growth Rate of *Barbonymus gonionotus* (Bleeker, 1850)

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Abstract

To evaluate the effect of stocking density on survival and growth rate of silver barb (*Barbonymus gonionotus*), the experiment was conducted for six months from December 2017 to May 2018. The present study was carried out to find out the efficiency of different stocking density in *B. gonionotus*. These silver barbs were fed with commercial small pellets (Tokyu) every day. A total of 90 healthy looking fingerlings were selected and used. They were divided into three groups of GI (5 density), GII (10 density) and GIII (15 density) per group and reared in glass aquaria of 40 liter capacity. During experiment, standard length (cm), body weight (g), specific growth rate and weight gain of each group were taken every two weeks. Mortality and survival rates in each tank were checked every day. During the studied period, the survival rate was the highest in GI (100%) followed by GII (93.33%) and GIII (86.67%) respectively. The result in this project shows that GI is the best population density for the growth and survival rates of common carp. GI (5 density) could be expressed as optimal density. Therefore, stocking rate of 0.13 fish/L would be suggested as optimal rate.

Keywords: *Barbonymus gonionotus*, growth, survival rates

Introduction

Stocking density is an important factor that affect on growth, efficiency and reproductive performance in fish. Specific stocking density can have positive and negative effect on fish growth (Merino, 2007).

Knowing the optimal stock density is one of the basic factors of intensive fish culture. This density should be the resultant value of the environmental requirements of a given fish species and broadly understood economic efficiency (Holm *et al.*, 1990; Kuipers and Sum-merfelt1994; Szkudlarek and Zakes2002). Fish stocking density is the most sensitive factor determining the productivity of aquaculture system as it affects growth rate, size variation and mortality (Kaiser *et al.*, 1997).

The silver barb, B. gonionotus is a fish of the family Cyprinidae. It is distributed in Asian countries including: Bangladesh, China, India, Indonesia, Malaysia, Myanmar and Thailand. This fish species is a major source of animal protein and macronutrients in the diet of people and use as food fish. This species is an important target species for small-and large-scale. This species has become increasingly popular for its high growth, good taste and bright silvery appearance. (Huang, 1997).
Growth and survival rates of *B. gonionotus* (fingerlings) in glass aquaria depend on the stocking density and commercial (Tokyu) feed provided. To obtain maximum economic return it would be necessary to stock the ponds at optimum stocking densities for desired growth and survival of fingerling. However, there is very little available report on the effects of stocking density on the growth and production of *B. gonionotus* in our country.

To understand the effect of each factor, for example density in the present work, variation in the population of growth the animal concerned is made while other factors kept almost constant. This can be achieved by keeping all groups of different population sizes in the same room under similar environmental conditions. A thorough understanding of the fish growth is a prerequisite for conducting experiment on the effects of such environmental factors.

**Objectives of this study**

1. To determine the optimum population size for an optimum volume of culture medium (water here)
2. To examine various stocking densities on growth and survival rate of common carp within glass aquaria.

**Methodology**

**Collection of the specimens**

Randomly selected, one hundred and fifty fingerlings of *Barbonymus gonionotus* were obtained from Shwebo Fishery Department. The fingerlings were brought to the laboratory and kept in glass culture tank 45 cm x 135 cm x 45 cm with ample supply of water until they become acclimatized to their new surroundings. During this period, they were fed with co Selection for specimens to study.

Among the one hundred and fifty *B. gonionotus*, 90 active fingerlings were selected and used throughout the course of the experiment. Examined the fingerlings were approximately from 0.5g to 1.6g in weight and 2.2cm to 4.9cm in standard length.

**Procedure of the experiment**

The fingerlings were divided into three groups of 5 fish individuals (Group I), 10 fish individuals (Group II) and 15 fish individuals (Group III) per group. Each group was assigned and allocated in to each aquarium according to the numbering given by random numbers of Fisher and Yates (1963). Each aquarium was filled with 40 Liter of water.

Nine glass aquaria with the dimension of 30 cm x 45cm x 30 cm in each were used in this experiment. Each aquarium of 40 L capacity was covered with the size of 140 cm x 50 cm mosquito net to prevent the fish jumping out of water. All aquaria were kept in the same room so as to alleviate the effects of environment variable. About half of water with feces and uneaten food were siphoned off and refilled with tap water three times per week. Three replicate tanks were made for each stocking density.
Selection for specimens to study

When the fingerlings were approximately from 0.5 g to 1.6 g in weight and 2.2 cm to 4.9 cm in standard length, a total of 90 healthy looking fingerlings were selected and used throughout the course of the experiment.

Procedure of the experiment

The fingerlings were divided into three groups of 5 fish individuals (Group I), 10 fish individuals (Group II) and 15 fish individuals (Group III) per group and each group was kept in a glass aquarium (Plate 1). Each aquarium was filled with 40 liters of water.

Nine glass aquaria with the dimension of 45 cm x 45 cm x 45 cm in each were used in this experiment. Each aquarium of 40 L capacity was covered with the size of 140 cm x 50 cm mosquito net to prevent the fish jumping out of water. All aquaria were kept in the same room so as to alleviate the effects of environmental variable. About half of water with faeces and uneaten food were siphoned off and refilled with tap water three times per week. Three replicate tanks were made for each stocking density.

Feeding

The fingerlings were fed with commercial small pellets (Tokyu) every day. Feeding was made twice a day, one in the morning 7:00 am and another in the evening 5:00 pm. The food was provided up to the 5% of the total body weight.

Collection of data

Body weight (g) was taken with a digital balance (Rai, BB0811). Standard length (cm) and total length (cm) were measured with a plastic ruler every two weeks (Plate 1).

Water analysis

Water quality parameters such as pH and temperature were recorded during the experimental period. Measuring the water temperature (°C) was carried out by mercury in glass thermometer and carry on the water level pH with pen type pH meter (ROHS, China). Measuring the dissolved oxygen (D.O) was carried out by D.O. Test Kit (AQUA D.O), Advance Pharma Co., Ltd, Thailand.

Analysis of data

Using the data collected during the study, growth parameters and survival rate were determined based on the following formulate according to Mohanta et.al.,(2008) ; Mollah et.al.,(2011); Hussain et.al.,(2014) (% = 100 x (Final number of fish/ Initial number of fish)
Weight Gain (WG) = FW - IW
Specific Growth Rate (SGR) % = 100 (LnW2-W1)/t
IW = Initial mean weight (g), FW = Final mean weight (g), W1: initial live body weight W2:final live body weight  Ln = Natural logarithm reading, t: culture period (days)
Survival rate (%) =100 (Final number of fish - Final number of fish)

For the statistical analysis the parameters used were specific growth rate (SGR) and survival rate (SR). In order to find significant differences among groups, different density data analysis was performed by using ANOVA (Critical value of p<0.05 was set as the limit of significance). Data were analyzed by one way SPSS (version 21).
Result

Duration of the studied period lasted for six months. Allocations of fish to three different groups GI, GII and GIII are given in the research (Table 1). During this period, the specific growth rate (SGR), the mean standard length (MSL) and mean body weight (MBW) were observed and they were shown in (Fig. 1, Table 2). No significant difference was observed in the initial weight of all densities groups.

From September 2017 to January 2018, the studied fish attained final specific growth rate (SGR), weight gain(WG) and mean body weight(MBW) and mean standard length (MSL)by different density groups (Table 2, Fig.1, 2).

Food was provided at the rate of total body weight of 5%. Rearing medium was 40 liter of water; faeces and uneaten food were siphoned off. The mean body weight increase was 7.25g, 5.63 g and 5.16 g for GI (density 5), GII (density 10) and GIII (density 15). Specific growth rate showed the highest in GI individuals followed descending order by GII (density 10) to GIII (Table 2, Fig. 2).

Mean body weight comparison between GI and GIII showed significance (p<0.05) (Appendix). There was no statistical difference in the mean body weight of the GI and GII and then GII and GIII. The maximum growth rate was observed in GI when compared with GII and GIII. GI (5 density) revealed the highest weight gain of 5.68 g, and GII (10 density) and GIII (15 density) were 4.51 g and 4.13 g respectively (Table 3). At the end of the experiment, survival rate of fish in all experiment glass aquaria were (86.67-100%). The survival rate was the highest in GI (100%) followed by GII (93.33%) and GIII (91.11%) (Table 3).

Water analysis

During the study period, water temperature was range from 18°C to 27 °C. The pH values ranged from 6.7 to 8.4. Dissolved Oxygen (DO) values ranged from 3mg/L to 5mg/L was recorded in this experiment (Table 4.5).

| Table 1 |
| Allocation of fish in different groups |

<table>
<thead>
<tr>
<th>Group number</th>
<th>Stocking density</th>
<th>Total volume of water (Liter)</th>
<th>Effective volume of water (Liter)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fish/L</td>
<td>Fish/Tank</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>0.13</td>
<td>5</td>
<td>40</td>
</tr>
<tr>
<td>II</td>
<td>0.25</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td>III</td>
<td>0.38</td>
<td>15</td>
<td>40</td>
</tr>
</tbody>
</table>
Table 2
Biweekly means body weight, Weight gain and Specific growth rate of Cyprinus carpio under three different density groups during studied period

<table>
<thead>
<tr>
<th>Bi-weekly</th>
<th>GI</th>
<th>GII</th>
<th>GIII</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MBW</td>
<td>WG</td>
<td>SGR%</td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>1.57</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>1.73</td>
<td>0.16</td>
<td>1.07</td>
</tr>
<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>1.86</td>
<td>0.13</td>
<td>0.87</td>
</tr>
<tr>
<td>4&lt;sup&gt;th&lt;/sup&gt;</td>
<td>1.98</td>
<td>0.12</td>
<td>0.8</td>
</tr>
<tr>
<td>5&lt;sup&gt;th&lt;/sup&gt;</td>
<td>2.62</td>
<td>0.64</td>
<td>4.27</td>
</tr>
<tr>
<td>6&lt;sup&gt;th&lt;/sup&gt;</td>
<td>3.16</td>
<td>0.54</td>
<td>3.6</td>
</tr>
<tr>
<td>7&lt;sup&gt;th&lt;/sup&gt;</td>
<td>4.05</td>
<td>0.89</td>
<td>5.93</td>
</tr>
<tr>
<td>8&lt;sup&gt;th&lt;/sup&gt;</td>
<td>4.15</td>
<td>0.1</td>
<td>0.67</td>
</tr>
<tr>
<td>9&lt;sup&gt;th&lt;/sup&gt;</td>
<td>5.06</td>
<td>0.91</td>
<td>6.07</td>
</tr>
<tr>
<td>10&lt;sup&gt;th&lt;/sup&gt;</td>
<td>6.01</td>
<td>0.95</td>
<td>6.33</td>
</tr>
<tr>
<td>11&lt;sup&gt;th&lt;/sup&gt;</td>
<td>6.18</td>
<td>0.17</td>
<td>1.13</td>
</tr>
<tr>
<td>12&lt;sup&gt;th&lt;/sup&gt;</td>
<td>7.25</td>
<td>0.6</td>
<td>4</td>
</tr>
<tr>
<td>Mean</td>
<td>3.81</td>
<td>0.47</td>
<td>3.16</td>
</tr>
</tbody>
</table>

MSL = mean standard length, MBW = mean body weight,

Table 3
Growth performance of silver barb, B.gonionotus at different stocking densities in glass aquaria during 6 months.

<table>
<thead>
<tr>
<th>Growth Parameters</th>
<th>Population Density</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Initial mean weight</td>
<td>1.57 ± 0.77</td>
</tr>
<tr>
<td>Final mean weight</td>
<td>7.25 ± 1.65</td>
</tr>
<tr>
<td>Weight gain</td>
<td>5.68 ± 0.88</td>
</tr>
<tr>
<td>SGR %</td>
<td>3.16</td>
</tr>
<tr>
<td>Survival %</td>
<td>100</td>
</tr>
</tbody>
</table>
### Table 4

*Bi-weekly pH and water temperature during the studied period*

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Bi weekly (Date)</th>
<th>pH</th>
<th>Water temperature</th>
<th>D.O</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>26.12.2017</td>
<td>6.7-8.3</td>
<td>19°-26°C</td>
<td>3.0</td>
</tr>
<tr>
<td>2</td>
<td>8.1.2017</td>
<td>7.8-8.4</td>
<td>19°-23°C</td>
<td>3.5</td>
</tr>
<tr>
<td>3</td>
<td>22.1.2018</td>
<td>7.7-8.4</td>
<td>18°-22°C</td>
<td>4.0</td>
</tr>
<tr>
<td>4</td>
<td>5.2.2018</td>
<td>7.9-8.4</td>
<td>20°-23°C</td>
<td>4.0</td>
</tr>
<tr>
<td>5</td>
<td>19.2.2018</td>
<td>8.0-8.4</td>
<td>21°-24°C</td>
<td>4.5</td>
</tr>
<tr>
<td>6</td>
<td>5.3.2018</td>
<td>8.0-8.4</td>
<td>22°-24°C</td>
<td>3.8</td>
</tr>
<tr>
<td>7</td>
<td>19.3.2018</td>
<td>8.0-8.4</td>
<td>24°-26°C</td>
<td>3.9</td>
</tr>
<tr>
<td>8</td>
<td>2.4.2018</td>
<td>8.2-8.4</td>
<td>23°-27°C</td>
<td>4.5</td>
</tr>
<tr>
<td>9</td>
<td>16.4.2018</td>
<td>8.2-8.4</td>
<td>23°-27°C</td>
<td>4.7</td>
</tr>
<tr>
<td>10</td>
<td>30.4.2018</td>
<td>8.2-8.4</td>
<td>25°-27°C</td>
<td>4.8</td>
</tr>
<tr>
<td>11</td>
<td>14.5.2018</td>
<td>8.1-8.4</td>
<td>25°-27°C</td>
<td>5.0</td>
</tr>
<tr>
<td>12</td>
<td>28.5.2018</td>
<td>8.0-8.3</td>
<td>25°-27°C</td>
<td>4.0</td>
</tr>
</tbody>
</table>

*Figure 1: Comparison of mean body weight of different density groups from December (2017) to May (2017)*
Figure 2: Specific growth rate and weight gain of different density growth of silver barb in 10th interval weeks

Discussion

The result is made on the basic of increase in body weight taken for five months by different density on *B. gonionotus*. The present work took six months from December 2016 to May 2017. In the experiment, survival rate of silver barb fingerlings had been observed between (86.67-100%). Group I had no mortality among the different density groups. However, Group II and Group III had a few mortality, but were not significant. Probably, the fishes, handing for weighing and measuring length interval weekly could have exerted stress on them. Similarly, Kay Thi Myint (2002) reported a few mortality. Forty liters of diffusible volume of water which works to be 2.66 (40/15) liters for each in Group III of 15 fingerlings did not seem to affect on the health of the fish and may have on the growth rate. According to Kyaw Sann Win (2004), forty litres of diffusible volume of water which works to be 2(40/20) litres for each tank of 20 fingerlings did not seem to affect on the health of fish, but did have on the growth rate.

Swann (1993) reported that fish population was generally categorized into warm and cold water temperature. Based on the optimal growth temperature, the range of general temperature is 24 °C to 32 °C for warm water, 18 °C to 24 °C for cool water and 12 °C to 18 °C for cold water. During the study period, the range of water temperature was from 18 °C to 27 °C that was within the optimal range of warm and cool water. In the present study, water temperature variation is not strongly variation for laboratory study site in the same month but monthly variation was found in laboratory study site.

In the present study, the highest value of pH was 8.4 and lowest value of 6.7. The recorded value of pH in laboratory study sites during study period ranged from pH 6.7 to 8.4. According to Buttner (1993), this value is suitable for fish survive.
and grow best in water with pH between values 6-9. Therefore, this research is relevant place for fishes to survive and thrive.

Bera et al. (2014) reported that the life candle of aquatic organisms depend on dissolved oxygen (DO) which governs to the aquatic life fruitfully. According to Bera (2014), DO ideal levels are about 7-9 mg/L and most fish cannot survive levels below 3 mg/L. Yeole and Patil (2005) reported a high population load may also decrease the DO value to a considerable level. In the present findings, DO concentrate 3 to 5 mg/L in laboratory. This DO value is within the permissible level.

During the studied period, the final mean length and weight were 7.37 cm and 7.25 g in G I, in G II, 6.48 cm and 5.63 g and 6.39 cm and 5.16 g in G III respectively. Statistically significant difference between growth rate of different densities was observed as density increasing (density of 15, G III), growth rate was significantly lower In mean body weight comparison, G I and G III were highly significant (p<0.05) but G I and G II, G II and G III were not statistically significant. The mean specific growth rate for three density groups of 5, 10 and 15 were 2.69%, 1.86% and 0.33% respectively. Comparison of the interval weekly mean weight gain between the density of Group I and II showed a difference of 0.14 g and Group I and III of 0.24 g in favour of the former.

The mean specific growth rate (SGR) and weight gain (WG) for three density groups were revealed in a line graph.

Mean SGR and WG declined imperceptibly from Group I to II and II to III, but from G I to III it declined drastically. This was the result of decrease in weight gain. The same trend has been expressed by Kay Thi Myint (2002), where density groups of 3, 6, 9 and 12 were apparently decreased spectacular. Imanpoor et al. (2009) obtained similar result in common carp. Stocking density is one of the most important factors affecting growth yield and survival of cultured fish (Smith et al., 1778). As fish density increased, competition for food and living space was intensifier. Culture can be either density-dependent or density-independent. When stocking density negatively affects fish growth, the culture is density-dependent (Huang and Chiu, 1997). Gholipour et al. (2007) reported that increasing density has a negative effect on growth and specific growth rate in rainbow trout. In this study, the results appear to be density-dependent.

Ellis et al., 2002 expressed that stocking density is an important factor for fish welfare, but cannot be seen in separation from other environmental factors. To achieve desirable size at harvesting, stocking density must be systematically regulated. These factors can be easily measurable and can be useable as an indicator of population stress. Therefore, a stocking rate of 0.13 fish/L would be suggested as optimal in this research.

**Conclusion**

From the data obtained, it can be concluded that the best growth and survival rate for silver barb, *B. gonionotus* under laboratory condition is recommended to stock density of 0.13 fish/L. At the end of experiment, mean body weight comparison G I and G III is highly significant (p<0.05) but G I and G II, G II and G III are not statistically significant.

In the present work, it could be concluded that increasing density (density of 15) has a negative effect on growth, weight gain and specific growth rates on
Cyprinus carpio, common carp. G I (5 density) could be expressed as optimal density. The result of this study can be useful in evaluating the effects of density on some biological parameters.

Recommendations

Based on the findings of this study, G! (5 density) is the best for the growth and survival rate of B. gonionotus. A stocking rate of 0.13 fish/ L would be suggested as optimal in this research. Thus , this research can be provided information for fishery sector.

For further study, the researcher has the following suggestions:
(1) The effect of population density on growth performance of different species should be investigated.
(2) Different diffusible volume of culture medium for same number of fish should be worthwhile to known minimum amount of water for growth of fish fry.

Acknowledgements

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Comparative Susceptibility among Three Hatchery Stocks of Common Carp, *Cyprinus carpio* (Linnaeus, 1785) to Myxosporean Parasites

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Abstract

Fish of three hatchery stocks were obtained from Thayetkone Fishery Department, Nandwin Fish Farm and Bukone Fish Farm. Three hatchery stocks of common carp, *Cyprinus carpio* were studied by experiment for susceptibility to myxosporean parasites. The level of susceptibility varied among hatchery stocks. In both short and long-term exposure, Thayetkone hatchery stock was highly susceptible to the parasite (36.6 %) and (53.8 %) respectively, while the Nandwin hatchery stock was low (10 %) in short-term and high (41.5 %) in long-term exposure and Bukone hatchery stock was low (34.4%) in long-term exposure. *Thelohanellus* sp.1, *Myxobolus* sp.1 and *Myxobolus* sp.2 were found in gill, brain, muscle, swim bladder and kidney.

Keywords: susceptibility, *Cyprinus carpio*, *Thelohanellus*, *Myxobolus*

Introduction

The myxosporean parasites are important in fish culture because it can cause economic losses through mortalities in fry, fingerlings and adults. For example, Ceratomyxosis is a disease of salmonid fishes caused by the myxosporean *Ceratomyxa shasta*. Whirling disease caused by *Myxobolus cerebralis* caused losses in fish culture. These parasites cause high mortality in susceptible strains of salmonids. Salmonids infected with *Ceratomyxa shasta* have been found in Canada (Margolis and Evelyn, 1975).

Chemotherapeutic agents effective against this parasite have not been developed (Leith and Moore, 1967; Sanders et al., 1972; Wood, 1974; Udey et al., 1975). However, Schafer (1968) and Sanders *et al.*, (1970), noted differences in susceptibility among salmonid species and the level of resistance among hatchery strains of the same salmonid.

Ibarra *et al.*, (1990) described that no vaccine have been developed and chemotherapeutant has been effective in preventing or controlling development of ceratomyxosis. The most widely used approach for managing the disease in enzootic area is to raise resistant salmonids for stocking into waters containing the infectious stage of the parasite (Zinn *et al.*, 1977; Buchanan *et al.*, 1983). The susceptibility to infection by *C. shasta* in progeny produced from crosses between resistant and susceptible coho salmon is intermediate between that of the parental stocks (Hemmingsen *et al.*, 1986).
For this reason, the present study was carried out to know the susceptibility of three hatchery stocks of carps and to know the differences in susceptibility of three hatchery stocks.

**Objectives of the study**

1. To compare the variation in susceptibility of three hatchery stocks to myxosporean parasites and
2. To compare the resistance to infection by myxosporean parasites.

**Research Methodology**

**Study Site**

All fish were randomly selected for this study. Three hatchery stocks of *Cyprinus carpio* were obtained from Thayetkone Fishery Department (T), Nandwin Fish Farm (N) and Bukone Fish Farm (B). All groups of fish, by placing in net cage, were exposed to parasite in fish pond where the parasites were present (Fig 1). The age of fish in this study range 2 to 6 months. The fish were stocked in each separate net cage, Thayetkone (100), Nandwin (100) and Bukone (60) respectively.

**Study Period**

Three hatchery stocks were tested for their susceptibility to parasites. The susceptibility of three hatchery stocks was compared in term of parasite prevalence. Two experiments were conducted; a short-term exposure period of 10 days (16 September to 26 September 2003) and a long-term exposure period of 143 days (16 September 2003 to 5 February 2004).

For short-term exposure, after 10 days exposure, 30 fish from each group were transferred to the laboratory. Then, five fish from each group were examined for the presence of parasites.

In long-term exposure, at the end of the experiment, five fish from each group were examined for the presence of spores using wet mount and Diff-Quik stained slides and fixed in 10% formalin. Some dead fish were also collected and processed for wet mount examination for the presence of parasites. Some fish were lost during processing.

The organs examined for parasites were gill, brain, muscle, heart, liver, intestine, stomach, swim bladder and kidney. Control carp could not be conducted because of lack of specific pathogen free water at the experimental site.

**Results**

The results of short-term (10 days) and long-term (143 days) exposures are shown in (Table 1 & 2) respectively. In both experiments, three species of myxosporean parasites were found in common carp, *Cyprinus carpio* and identified as *Thelohanellus* sp.1, *Myxobolus* sp.1 and *Myxobolus* sp. 2 (Fig 2, 3, 4). In this study, the variation in susceptibility to myxosporean parasites was found within three hatchery stocks.

In the short-term exposure, the group of Bukone hatchery stock, the susceptibility of myxosporean parasites was not occurred, the Thayetkone hatchery stock was high susceptibility to myxosporean parasites (36.6 %) and highly infected than the other groups. The Nandwin hatchery stock was low susceptible to parasites.
(10 %) and low infected. Dead fish were not found in short-term exposure. Five surviving fish from each group were examined at the end of the experiment for the distribution of spores in their tissue and organs. Spores were present in gill, brain, muscle and kidney. Prevalence of *Thelohanellus* sp.1 in T, N and B were 26.6 %, 6.7 % and 0 % respectively, those of *Myxobolus* sp.1 were 13.3 %, 3.3 % and 0 %, respectively, and those of *Myxobolus* sp. 2 were not occurred in all groups (fig. 5).

In the long-term exposure, the susceptibility of myxosporean parasites was 53.8 % (T), 41.5 % (N) and 34.4 % (B) respectively. The group of Thayetkone hatchery stock was highly infected and more highly susceptible to myxosporean parasites than other groups. Nandwin hatchery stock was moderately susceptible to parasite and infected by myxosporean parasites and Bukone hatchery stock was low susceptible to parasite and low infected. Prevalence of *Thelohanellus* sp.1 was 38.5 % (T), 19.5 % (N) and 21.9 % (B), respectively. *Myxobolus* sp.1 were 10.3 %, 14.6 % and 9.4 % and *Myxobolus* sp.2 were 5.1 %, 7.3 % and 3.1 %, respectively(fig. 6).

In both experiment, long-term exposure were high susceptibility than the short-term exposure because long-term exposure was highly infected and highly susceptible than the short-term exposure to myxosporean parasites. Moreover, the Bukone hatchery stocks may be more resistant to infection than the other hatchery stocks.

**Discussion**

Three hatchery stocks used in both experiments showed susceptible to three species of myxosporean parasites. But the level of susceptibility varied among three groups.

Present results showed that Bukone hatchery stock was of low susceptible to parasites in long-term, none occurred in short-term, Nandwin hatchery stock was of moderate susceptible in long-term, low susceptible in short-term. Thayetkone hatchery stock was the most susceptible in both short and long-term exposure.

The prevalence of myxosporean parasites were 36.6 % (short) and 53.8 % (long) of them. Nandwin and Bukone hatchery stocks were low in prevalence (41.5 % and 34.4 %), respectively in long-term. In this study, gill, brain, muscle and kidney were mostly parasitized.

In short-term exposure, Thayetkone hatchery stock was highly infected by *Thelohanellus* sp.1 and Nandwin hatchery stock was low. Similarly, Thayetkone hatchery stock was highly infected by *Thelohanellus* sp.1 and Nandwin and Bukone hatchery stocks were low infected by *Thelohanellus* sp.1 in long-term exposure.

Thayetkone hatchery stock was highly infected by *Myxobolus* sp.1, Nandwin hatchery stock was low infected by *Myxobolus* sp.1 in short-term exposure. Similarly, Nandwin hatchery was highly infected by *Myxobolus* sp.1, Thayetkone and Bukone hatchery stocks were low infected by *Myxobolus* sp.1 in long-term exposure. Furthermore, Thayetkone, Nandwin and Bukone hatchery stocks were low infected by *Myxobolus* sp.2 in long-term exposure.

In prevalence of parasite compared to short-term and long-term exposures, the prevalence was higher in long-term exposure than the short-term exposure, because long-term exposure had enough time to be infected by myxosporean parasites. Ratliff (1981) described that the effect of exposure time on infection, mortality increased in direct relation to length of exposure. Zinn *et al.*, (1977) also
described that chinook salmon exposed to the infectious stage of *Ceratomyxa shasta* for 1, 5, 10 and 25 d suffered 2, 18, 40 and 70 % mortality, respectively.

In the present study, Bukone hatchery stock was not susceptible to myxosporean parasite and it may be highly resistant to infection. Thayetkone hatchery stock was most susceptible and the prevalence of myxosporean parasites occurred in 53.8 %. Nandwin hatchery stock was intermediate susceptibility 4.5%. Some fish were lost, because unexpected net damages occurred during the study period, for example, pieces of net cutaway by small crabs.

Three hatchery stocks were tested for their susceptibility to myxosporean parasites by natural exposure. Among them, Thayetkone and Nandwin hatchery stocks were high susceptibility to myxosporean parasites as indicated by high mortality (21/70) during the study period. Similarly, Bukone hatchery stock was low mortality (8/40) in long-term exposure.

Bartholomew *et al.*, (1989) described, since *C. shasta* infections are not transmitted directly between fish, outbreaks of the disease in hatchery fish occur only as a consequence of introducing the infective stage through the water supply. Because no chemotherapeutic agent yet tested has been useful in controlling ceratomyxosis, the most effective means of disease prevention in a hatchery situation is avoidance of water supplies containing the infective stage. In hatcheries, alternative water supplies are unavailable. Bedell (1971) found that ultraviolet irradiation or chlorination of water supplies reduced the number of *C. shasta* infections but did not eliminate them. However, the most successful approach for control of ceratomyxosis in both hatchery and wild population is the introduction of resistant salmonids (Buchanan *et al.*, 1983).

**Recommendations**

In conclusion, from data obtained in this study, Thayetkone hatchery may be low resistant to infection, those of Nandwin hatchery was moderate and those of Bukone hatchery was high resistant. These exposure experiments showed that the different degree of resistance of fish from three hatchery stocks. This information would lead to measures of controlling parasites. Therefore, the fish which has high resistance to parasites would be selected to breed in fish farm. The fisheries sector plays a vital role in the culture and socio-economic life of Myanmar. Traditionally Myanmar people prefer freshwater fish to marine fish. It is therefore suggested that join effort of government fisheries and private sector should make an effort in realizing the huge aquaculture potential for the nation and people and to provide a consistent supply of high quality yield and healthy seed for the future development of the fishery sector.

**Acknowledgements**

I am greatly obliged to Acting Rector, Banmaw University for his consent to present this paper. Special gratefulness goes to Professor/Head, Department of Zoology, Banmaw University for her permission to present this paper.

I am very greatly indebted to Rector, Taungoo University, for his suggestion of the topic, close supervision and critical reading of the manuscript throughout the research.
References


Figure 2: Thelohanellus sp.1
Figure 3: Myxobolus sp.1
Figure 4: Myxobolus sp.2

Figure 5: Prevalence of myxosporean parasites in short-term exposure
T = Thayetkone, N = Nandwin, B = Bukone
Figure 6: Prevalence of myxosporean parasites in long-term exposure
T = Thayetkone, N = Nandwin, B = Bukone

Table 1
Susceptibility of three hatchery stocks of common carp, Cyprinus carpio, exposed to parasites in the fish pond, for 10 days, from 16 September to 26 September 2003.

<table>
<thead>
<tr>
<th>Hatchery stock</th>
<th>No. Fish exposed</th>
<th>Age (month)</th>
<th>Exposure days</th>
<th>No. fish recovered</th>
<th>Parasite prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thayetkone</td>
<td>30</td>
<td>3-6</td>
<td>10</td>
<td>30</td>
<td>11/30 (36.6%)</td>
</tr>
<tr>
<td>Nandwin</td>
<td>30</td>
<td>3-6</td>
<td>10</td>
<td>30</td>
<td>3/30 (10%)</td>
</tr>
<tr>
<td>Bukone</td>
<td>20</td>
<td>2-4</td>
<td>10</td>
<td>20</td>
<td>0/2 (0%)</td>
</tr>
</tbody>
</table>

Table 2
Susceptibility of three hatchery stocks of common carp, Cyprinus carpio exposed to parasites in the fish pond, for 143 days, from 16 September 2003 to 5 February 2004.

<table>
<thead>
<tr>
<th>Hatchery stock</th>
<th>No. fish exposed</th>
<th>Age (month)</th>
<th>Exposure days</th>
<th>No. fish recovered</th>
<th>Parasite Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thayetkone</td>
<td>70</td>
<td>3-6</td>
<td>143</td>
<td>39</td>
<td>21/39 (53.8%)</td>
</tr>
<tr>
<td>Nandwin</td>
<td>70</td>
<td>3-6</td>
<td>143</td>
<td>41</td>
<td>17/41 (41.5%)</td>
</tr>
<tr>
<td>Bukone</td>
<td>40</td>
<td>2-4</td>
<td>143</td>
<td>32</td>
<td>11/32 (34.4%)</td>
</tr>
</tbody>
</table>
Sustainable Development Based on Reproductive Efforts of Three Freshwater Prawns from Ayeyarwady River, Myanmar

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Abstract

The present study was carried out to analyze the reproductive biology of Macrobrachium inflatum, Macrobrachium lanchesteri and Macrobrachium idella from Ayeyarwady River at Mandalay section. Comparisons on some reproductive efforts of three freshwater prawns were conducted from April 2017 to March 2018. With regards to the relative fecundity of these prawns, the values were significantly different among the groups, \(F = 60.56\) (\(p<0.05\)) and the highest value is observed in \(M.\ inflatum\) (474.06± 181) followed by \(M.\ lanchesteri\) (343.45± 110) and \(M.\ idella\) (262.22± 140). Concerning with the egg measurement, long axis is defined as the longest part of the egg and short axis the widest part of the egg. The largest egg size were observed in \(M.\ lanchesteri\) (0.86 mm long axis, 0.70 mm short axis and 0.23 mm³ egg volume), the medium size in \(M.\ inflatum\) (0.78 mm long axis, 0.60 mm short axis and 0.15 mm³ egg volume) and the smallest size in \(M.\ idella\) (0.71 mm long axis, 0.58 short axis and 0.13 mm³ egg volume). Reproductive output was highest in (10.20%) followed by \(M.\ lanchesteri\) (9.63%) and \(M.\ idella\) (5.43%). Knowing the reproductive features could help to culture potentially these prawns and to also manage the wild population of natural water body, which leads to conservation of Myanmar’s aquatic fauna and to promote the income of aqua farmers.

Keywords: egg size, fecundity, reproductive output, freshwater prawns, Myanmar

Introduction

Ayeyarwady is an important river for Myanmar Nation and it provides valuable resources for human as well as animals and ecosystem. Now a day human beings have an impact on ecosystem of Ayeyarwady River and its aquatic fauna are threaten to be endanger. To check and maintain the river’s health system, recording its species and studying the nature of biology of these prawns are vitally important.

The prawns are important component of the fisheries and local consumption. Unlike marine shrimps, the females carry their egg until spawning time and it is restricted to freshwater. Some species need brackish water on the onset of their life cycle.

There are two groups of species within Macrobrachium regarding adaptations to riverine environments (Holthuis, 1952): 1) species that complete larval development entirely independently from estuarine waters, with juveniles and adults living in freshwater habitats (Bueno & Rodrı´guez, 1995); 2) species with early life stages that depend on estuarine or brackish waters to complete their development (Holthuis, 1952; Gamba, 1982; Pereira and Garci´a, 1995). Species of the first group generally produce large but few eggs, and an abbreviated larval development (Pereira
In contrast, representatives of the second group carry relatively small but numerous eggs with larvae passing through a series of zoeal stages before reaching the juvenile stage (Choudhury, 1971a; Pereira & García, 1995) cited by Lara & Wehrmann (2009).

Interspecific variations in morphological, reproductive, and behavioral features of the majority of the species have been extensively studied around the world. The biology of many species with large distribution areas still needs to be examined at a regional scale.

The successful culturing of any animal requires a basic understanding of its key biological processes. The most important of these biological processes was the reproductive cycle and formation of gametes (Olele, et al., 2015).

Aquaculture is an economic activity with great potential for food production under a sustainable scheme. In addition, the knowledge of reproductive biology (fecundity and fertility) of palaemonid prawns is important tool to evaluate the potential candidates for biodiversity preservation (Mossolin & Bueno, 2002).

Now a day, the shrimps and prawns culture in Myanmar is economically important for aqua farmers and that partially provides for Nation’s economy. But available of the seeds for shrimps and prawns culture is depend on the wild population, so sustainability to wild population is needed.

**Objectives**

The reproductive aspects of the three freshwater prawns in Mandalay Segment of Ayeyarwady River were compared in order to focus on interspecific variability. The objectives of the present study are;

1. to analyze and compare the some reproductive efforts of three freshwater prawns from Ayeyarwady River
2. to contribute this knowledge to aqua farmers of Myanmar for sustainable development of inland fisheries.

**Methodology**

**Sampling of the prawns**

A total of 285 berried freshwater prawns used in this research were collected in Mandalay segment of Ayeyarwady River, Myanmar, from April 2017 to March 2018.

Berried females were fixed in 70% alcohol and identification was made after Holthuis (1950), Jayachandran (2001) and Guo & He (2008).

**Measurement of specimens**

Total length of individuals (from the tip of the rostrum to the tip of the telson) were measured to the nearest mm. Individual body weight was measured to nearest 0.001 g. The egg masses were removed from the brood pouches for weight and the determination of individual fecundity. Egg masses and females were weighed separately and wet weight values were used in this research.
Absolute fecundity

In this study, fecundity is considered as the number of embryonated eggs attached under the abdomen of females. For *M. lanchesteri* individual fecundity was determined from the total egg counting under stereo microscope with magnification (x20). For *M. inflatum* and *M. idella* a subsample of the egg is weighed (g) and counted (n) then determined the absolute fecundity by the following formula.

\[ F = \frac{W_g}{W_{ss}} \times n \]

(Boguhe et al., 2016), where \( W_g \) is weight of egg total mass (g), \( W_{ss} \) is weight of subsample, \( n \) is number of eggs of subsample.

Relative fecundity

The relative fecundity is the number of egg per unit weight (g) of individuals. Relative fecundity is calculated by the equation,

\[ RF = \frac{F}{TW} \]

where \( F \) is absolute fecundity and \( TW \) is total weight of female.

Measurement of eggs

The long and short axes of the eggs were measured using ocular micrometer and optical microscope. The number of eggs to be measured from each female was determined by the following equation,

\[ N = 1.96 s/l \]

(Mullar et al., 2004), Where \( s \) is standard deviation of the initial sample \( (n = 5) \), \( l = 10\% \) of the average of the initial sample.

Egg volume

The egg volume was calculated using the following formula:

\[ EV = \frac{\pi lh^2}{6} \]

(Odinetz-Collart & Rabelo, 1996)

Where \( EV \) is egg volume, \( l \) is long axis, \( h \) is short axis.

Reproductive output

Reproductive output was analyzed based on berried females those carrying newly extruded eggs and calculated using a modified version of the following formula given by Janas & Mankucka (2010).

\[ RO = \frac{\text{total mass of egg batch}}{\text{wet mass of female}} \]

Where RO = Reproductive output, Total mass of egg batch = Total wet weight of entire egg batch.

Data analysis

Differences of three freshwater prawns based on fecundity, relative fecundity, egg measurements and reproductive output were analyzed using one-way analysis of variance (ANOVA). Multiple comparison post hoc tests were made based on Tukey test (SPSS Version-17.0). The significant level was set at 0.05 for all tests. Correlation and linear function were used to relate between fecundity and total length of the prawns.
Results

This research was conducted to analyze and compare the reproductive biology based on fecundity, egg size and reproductive output of three freshwater prawns in Mandalay segment, Ayeyarwady River.

Absolute fecundity analysis

Absolute fecundity was described based on total length and body weight of the prawns (Table 1). There are significantly different among the groups $F=137.99$ ($p<0.05$), *M. idella* possessed the highest number of fecundity (1301.54 ±751) and followed by *M. inflatum* (550.76 ± 282) and *M. lanchesteri* (277.56±130). The absolute fecundity of two prawns were strongly correlated with the total length, $r=0.562$ ($p<0.05$) for *M. inflatum* and $r=0.684$ ($p<0.05$) for *M. lanchesteri*, whereas *M. idella* is weakly correlated between fecundity and total length $r=0.077$ ($p<0.05$).

Relative fecundity analysis

Since the size range of females did not overlap completely with the size range of the other females, relative fecundity was alternating chosen for a comparison among the three species of the prawns.

Relative fecundity of three freshwater prawns are significantly different among the groups $F=60.56$ ($P<0.05$), the highest value is observed in *M. inflatum* (474.06 ± 181) followed by *M. lanchesteri* (343.45 ± 110) and *M. idella* (262.22±140) Figure 1.

Egg measurements

In the egg measurements, the long axis was defined as the longest part of the egg and the short axis is the widest part.

In the long axis, the egg of *M. lanchesteri* is the largest (0.86± 0.09) and followed by *M. inflatum* (0.78± 0.10) and *M. idella* (0.71± 0.07). The long axis of eggs are significantly different among the groups $F=64.56$ ($P<0.05$) Table 2.

In the short axis, the largest egg (0.70± 0.06) is observed in *M. lanchesteri* and the medium (0.60± 0.06) in *M. inflatum* and the smallest (0.58± 0.07) in *M. idella*. The short axis of eggs are significantly different among the groups $F=102.27$ ($P<0.05$) Table 2.

There are significantly different in egg volume of three freshwater prawns, $F=99.07$ ($P<0.05$). The largest egg volume (0.23± 0.07) is observed in *M. lanchesteri* followed by *M. inflatum* (0.15± 0.05) and *M. idella* (0.13± 0.04) Table 2.
Table 1
Fecundity of three freshwater prawns based on total length and body weight

<table>
<thead>
<tr>
<th>Species Name</th>
<th>Total Length (cm)</th>
<th>Body Weight (g)</th>
<th>Fecundity (Mean ± SD)</th>
<th>Reproductive Output (%o)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Absolute</td>
<td>Relative</td>
</tr>
<tr>
<td><em>M. inflatum</em></td>
<td>4.66 ± 0.59</td>
<td>1.19 ± 0.50</td>
<td>550.76 ± 282</td>
<td>474.06 ± 181</td>
</tr>
<tr>
<td><em>M. lanchesteri</em></td>
<td>4.14 ± 0.63</td>
<td>0.81 ± 0.28</td>
<td>277.56 ± 129b</td>
<td>343.45 ± 110b</td>
</tr>
<tr>
<td><em>M. idella</em></td>
<td>7.12 ± 0.43</td>
<td>3.036 – 7.414</td>
<td>1301.54 ± 751c</td>
<td>262.22 ± 140c</td>
</tr>
</tbody>
</table>

Different superscripts in the same column are significantly different (p<0.05).

Table 2
Comparisons on egg sizes and reproductive output of three freshwater prawns

<table>
<thead>
<tr>
<th>Species Name</th>
<th>Short axis (mm)</th>
<th>Long axis (mm)</th>
<th>Egg volume (mm³)</th>
<th>Reproductive output (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>M. inflatum</em></td>
<td>0.60 ± 0.06</td>
<td>0.78 ± 0.10</td>
<td>0.15 ± 0.05a</td>
<td>10.20 ± 2.73a</td>
</tr>
<tr>
<td></td>
<td>(0.46-0.82)</td>
<td>(0.56-1.05)</td>
<td>(0.06-0.35)</td>
<td>(3.74-17.08)</td>
</tr>
<tr>
<td><em>M. lanchesteri</em></td>
<td>0.70 ± 0.06</td>
<td>0.86 ± 0.09</td>
<td>0.23 ± 0.07b</td>
<td>9.63 ± 2.73a</td>
</tr>
<tr>
<td></td>
<td>(0.56-0.89)</td>
<td>(0.70-1.13)</td>
<td>(0.13-0.42)</td>
<td>(2.67-16.26)</td>
</tr>
<tr>
<td><em>M. idella</em></td>
<td>0.58 ± 0.07</td>
<td>0.71 ± 0.07c</td>
<td>0.13 ± 0.104</td>
<td>5.43 ± 1.69b</td>
</tr>
<tr>
<td></td>
<td>(0.43-0.73)</td>
<td>(0.50-0.90)</td>
<td>(0.05-0.25)</td>
<td>(2.12-8.01)</td>
</tr>
</tbody>
</table>

Different superscripts in the same column are significantly different (p<0.05).

The reproductive output of the present species are significantly different among the groups F=14.128 (p<0.05). The highest mean reproductive output (10.20 ± 2.73) is observed in *M. inflatum* (range 3.74-17.08) followed by *M. lanchesteri* (9.63 ± 2.73) from 2.67 to 16.26 and *M. idella* (5.43 ± 1.69) from 2.12 to 8.01 (Figure 2).
Figure 1: Comparisons on relative fecundity and absolute fecundity of three freshwater prawns

Figure 2: Comparisons on reproductive outputs of three freshwater prawns
Figure 3: Relationship between total length and absolute fecundity of *M. inflatum*  
\[ y = 267.3x - 694.4 \]
r = 0.562

Figure 4: Relationship between total length and absolute fecundity of *M. lanchesteri*  
\[ y = 140.9x - 305.5 \]
r = 0.684

Figure 5: Relationship between total length and absolute fecundity of *M. idella*  
\[ y = 144.1x + 275.8 \]
r = 0.077
Discussion

Comparisons of some reproductive efforts based on fecundity, egg measurements and reproductive output were conducted on three freshwater prawns namely *M. inflatum*, *M. lanchesteri* and *M. idella*.

In regard to absolute fecundity, *M. inflatum* and *M. lanchesteri* are strongly related to their body sizes. Corey and Reid (1991) pointed out that in Carideans, female body size was the principal determinant of number of eggs per brood which is in agreement with absolute fecundity of *M. inflatum* and *M. lanchesteri* investigated in the present study. Although the number of absolute fecundity is highest in *M. idella*, there is not significantly related between fecundity and total length. Most specimens of *M. idella* possessed the mature eggs which are ready to hatch and these conditions favored weakly correlation between fecundity and total length.

The egg loss during incubation is a general character for palaemonid prawns. Phone et al. (2005) stated that mechanical stress, increase of egg volume during incubation, natural loss or any potential changes in the incubation period may contribute to reduction in brood size.

Inter and intraspecific differences in the egg production of decapods are not only influenced by size differences (Ching & Velez, 1985; Da Silva et al., 2004), but also by temperature, quality and quantity of food, which may vary within the latitudinal range of the species’ distribution (Odinetz-Collart & Rabelo, 1996; Fransozo et al., 2004).

Although the relative fecundity of *M. idella* is lower than that of *M. inflatum* and *M. lanchesteri*, the species *M. idella* is relatively larger size prawns compared to the latter two species. This condition indicated the poor reproductive efforts of this species. Due to the low relative fecundity of *M. idella*, this species occurred rarely and seasonally in the study area. When comparison based on numbers between *M. idella* and the two species (*M. inflatum* and *M. lanchesteri*), the latter species occurred in large number throughout the study period.

In palaemonid prawns, fecundity is important for a species to maintain and increase the population density and also vital role in estimating the reproductive potential of brood prawns which in turn helps to management strategies of prawn hatcheries (Rashid et al., 2013). The evaluation of fecundity becomes necessary because it is considered as a measure of the reproductive fitness of crustacean (Nazari et al., 2003).

With respect to egg measurements the largest egg measurement was observed in *M. lanchesteri* and the smallest in *M. idella*. In general, the production of large eggs reflects an enhanced maternal energy investment at the cost of reduced fecundity (Allen et al., 2008).

Chen et al., (2009) revealed that egg size varied with a general trend that as populations reside further inland, their eggs are larger. Increase in egg size during the shifting of habitats from the coastal to inland water (freshwaterization) is well-
recognized from interspecific comparison in Caridian shrimps and prawns. Egg size is also very important factor in embryonic development, and consequently for the duration of the egg stages (Muller et al., 2004).

The energy that females invest in reproductive processes is one of the most interesting factors on the reproductive biology of crustaceans (Hernáez & Palma, 2003).

Concerning with reproductive output (RO), the highest reproductive efficiency is observed in *M. inflatum* and the lowest in *M. idella*. The RO of *M. inflatum* is 10.20% (range between 3.74-17.08%), *M. lanchesteri* 9.63% (range 2.67-16.62%) and *M. idella* 5.43% (range 2.12-8.01%). These results were similar to the RO of other species 8.5% (4.1-16) in *M. tenellum* (Vargas-Ceballos, et al., 2018), 10% (4.0-17) in *M. hainananse* (Mantle & Dudgeon, 2005), 11.7% (4.8-21.8) in *M. amazonicum* (Lima, et al., 2014), but lower than *M. acanthus* (19.1±4.5) and *M. olfersi* (21.7±4.5) (Anger & Moreira, 1998). Higher RO of prawns found in the present study area may be adaptive to increase in the survival rate of offspring.

In the present study, the RO of *M. idella* is distinctly lower while *M. inflatum* and *M. lanchesteri* are slightly lower than other *Macrobrachium* species. These results indicated the poor investment on the reproduction of those species. Low efficient reproduction may lead to endanger the population decline. Clarke (1991) pointed out that the nutritional conditions, the numbers of broods per reproductive station, population structure and density, and temperature or mortality to modulate the energetic investment are influence on reproductive output. Therefore, not only reproductive biology should be investigated but also ecological conditions of prawns’ habitats, the Ayeyarwady River required to check and protect.

**Recommendations**

In the perspective of sustainable development and biodiversity conservation, knowledge of the reproductive biology is principally required to help the management of wild population.

The results of the present study could provide the information that related to reproductive biology and this information gives the benefit for aqua farmers.

For further research, it will be needed to work out the breeding season of the prawns, to observe the relationship between reproductive strategies and their ecological factors. In addition, it is required to check and protect the ecological conditions of their habitat, the Ayeyarwady River.
References


Assessment on Infrastructure of Indigenous Groups in Resettlement Area of Upper Paunglaung Hydropower Project (Myanmar)

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Abstract

Myanmar has lots of natural resources to implement hydro power projects because of four main rivers were possessed, in doing so, it is successfully focused on the infrastructure of the resettlement area according to the adherence of promoting CSR (Corporate Social Responsibility) in the Upper Paunglaung Hydropower project by analyzing the real standard of infected people in the resettlement area regarding SDGs in order to sustain natural resources as well as develop socio-economic condition of local indigenous groups by focusing on environmental sensitivity and socioeconomic responsibility surveys are being emphasized as essential elements of the growing industrialization accompanying development in Myanmar. Adherence to a Corporate Social Responsibility (CSR) policy ensures that development projects take full account of the needs of communities impacted. Taking socioeconomic survey includes housing, education, health care, community development, water and electricity supplies, land intending cultivation and livelihood safeguards as effective infrastructure regarding SDGs. Where relocation is necessary, CSR rules cover the acquisition of land, construction of housing and public buildings and the award of compensation. In the context of an urgent need to increase the supply of electricity, the implications of CSR policy concerning SDGs for hydro-power projects are considered and objectives as research and development for a land acquisition and resettlement plan listed.

Keywords: natural resources, socio-economic responsibility, compensation, livelihood safeguards, corporate social responsibility (CSR) policy
Introduction

There observed a case study of the application of CSR policy in the 140 MW Upper Paunglaung Hydro-power project in central Myanmar. The 98 meter high concrete dam, associated infrastructure and reservoir (2540 km2), impacted a population of about 10000 living in 23 villages. In consultation with the concerned villagers, detailed resettlement and compensation plans were agreed in line with Myanmar Sustainable Development Plan (2018), Food and Agriculture Organization (FAO), SDGs, CSR and World Bank policy. Myanmar Sustainable Development Plan (2018) mentioned the Government of Myanmar (GoM) is committed to mitigating poverty throughout the country, and has developed comprehensive strategies to address the issue, beyond simply stimulating economic growth. As a consequence of these efforts, poverty has already steadily declined – from nearly a third of the population in 2005, to just over a quarter in 2009, and to below 20 per cent in 2015. However, here the rural urban divide remains stark – with rural poverty at a still significant 23 per cent in 2015, compared to an urban poverty rate of nine per cent. Along with the steady reduction of poverty, resilience to economic shocks has also improved, although there still is a long way to go, as in so many other areas.

Migration has played a significant role in rural development and poverty reduction, hence, the GoM also strives to develop legal, convenient, affordable and secure channels of migration from which not only migrants themselves, but also their left-behind families and communities, will benefit. As Myanmar continues down the path towards sustainable socio-economic development, it is imperative that all source of development finance are harmonized, coordinated and complementary. There was the implementation of new resettlement area because of instruction of Upper Paunglaung hydropower project, it was essential to carry on meeting and discussing with local village leaders and local inhabitants in the resettlement area of the upper Paunglaung Hydropower project in order to understand the real situations of their daily challenges and difficulties. The situations may be worse than the old place (origin) in the transition period but it is sure getting better situation as more developed in the economic, social, and environmental sectors. UN-DESA International Migration Report (2015) described although the migration and development nexus has been the subject of much attention recently, it is only with the adoption of the SDGs—that included migration in mainstream development discussions at the global level. The above mentioned Migration Governance Framework represents an international standard on the main migration policy areas that need attention regarding the central SDG target on migration, namely SDG target 10.7. Significant gaps remain in terms of quantity, accuracy, timeliness, disaggregation, comparability (over time and across countries) and accessibility of migration-related data. Timely and quality disaggregated data on migration are often scarce or incomplete, making it challenging for decision-makers to develop effective and informed migration policies. Data on stocks and flows of migration population seldom provides detail of the development circumstances of migrants and their families, including their access to health, education, social protection or standard of living to ensure that they are not left behind. Moreover, most official data systems also fail to capture the number of migrants who are in an irregular situation, as well as their living and working conditions. It can be solved the big challenges to negotiate to be narrow the gap between the authorized persons and local inhabitants with stakeholder mapping in...
order to be overcome challenges such as infrastructure developments, implementation mechanisms, conservation of natural resources, communications between reviewing resettlement area and monitoring on project development.

Research Objectives

This research work aims to achieve two goals:

The first goal; Research – ensuring better understanding of the infrastructure of new resettlement area that is directly affect indigenous groups in accordance with SDG criteria.

The second goal; Development – achieving more development of socioeconomic conditions as wellbeing of local indigenous groups with stakeholder mapping with local, regional, national, and global key stakeholders are aware of and knowledgeable about the benefits and potential of community development with interdisciplinary approach.

Three objectives were pursued to achieve these goals:

1. To observe the main sources possibilities of socio economic incomes as ecosystem services in the resettlement area regarding SDGs
2. To analyze the impacts on natural resources in the vicinity of hydropower project areas in order to explicit SDG targets with innovative solutions
3. To provide the acquired information and knowledge with stakeholder mapping to key stakeholder groups and enable a knowledge-based evaluation of opportunities to environmentally sustainable socioeconomic development regarding SDGs.

Research Methodology

In accordance with SDGs, it was taken the creation of Survey Record of Socio-economic condition in the project area for check and balance task including 18 points, (1) Education Standard, (2) Health Care, (3) Economic Growth, (4) Personal Income, (5) Housings Standard, (6) Access Roads, (7) Religious Buildings Construction, (8) Supply System, (9) Water Sanitation, (10) Community Development, (11) Electricity Supply System, (12) The Standards of Farmlands and Cultivation Lands, (13) Job Opportunities, (14) Livelihood Safeguards, (15) Relocation Standards, (16) Standards of Livings, (17) Environmental Conservation Standards, and (18) have got Equal Financial Compensation or not and are systematically recorded with their name, national registration number, occupation, and address on this Survey Record for about 2500 households in resettlement area due to the implementation of upper Paunglaung HP project. Indeed, it took the assessment on comparison of survey record results of new villages before and after the implementation of the Upper Paunglaung Hydropower project focusing on three situations (1) better than the original situation, (2) same with the original situation, (3) worse than the original situation concerning total collection of “Survey Record of Socio-economic condition in the Project area” for each household in the resettlement area of Upper Paunglaung Hydro-power project, where 23 new villages involve 2115 dwellings, 2524 households, and about 10000 are inhabited in these area by making data analysis of each village in detail and compile all villages into one, through data assessment, data analysis, focusing on weak points as well as good points and it is implemented as well as provided requirement facilities. Infrastructure of new
resettlement area is accomplished with new housing in accordance with the same building as the origin places, better public buildings and village infrastructure, enough water sanitation and new electricity supplies that are leading towards for the assistance on relocation and support for the restoration of livelihoods such as credit facilities, job training and prepared cultivation land was also provided accordance with the criteria of SDGs. This assessment will be largely accomplished through a follow-up socioeconomic survey. The survey results helped in determining the need, if any, for follow-up efforts; it also provided a useful basis for designing them by improving the knowledge gained from other lending, resettlement, practitioner, academic, and research organizations. Here a balance has to be struck between the situation of people impacted by a project and communities that stand to benefit from a new supply of electricity. There are also often many conflicts between considerations related to saving the environment and those concerned with the advancement of civilization by the provision of a clean, readily available source of energy. Before, during, and after the implementation of hydropower projects, major impacts on natural resources are definitely faced on a small or large scale, depending on the size of the project. Thus, before as well as during implementation it is essential that sustainable environmental policies are followed, including EIA (Environmental Impact Assessment), environmental quality analysis, pollution control management and natural resources conservation. Organizational arrangements and design criteria must ensure the conservation of the natural resources of the area to be sustainable state. Clear social policies must also be followed, including SIA (Social Impact Assessment); detailed resettlement plans based on established resettlement and compensation principles; CSR policy (Corporate Social Responsibility); and the implementation of a Resettlement and Land Acquisition Arrangement Plan. At the same time it is necessary to ensure adherence to relevant criteria set forth in the guidelines of the World Commission on Hydropower Dams, conventions of the International Hydropower Association (IHA), the standards of the Myanmar Government’s policy, and the standard of the World Bank group, and in particular International Finance Corporation (IFC) Performance Standards and Environment Health and Safety Guidelines. By carefully paying attention to all these various planning guidelines comprehensive environmental and social policies, that take account of any weak points and incorporate many good points, will be developed for use in future hydropower projects in Myanmar.

Discussions

In Myanmar, it is only one main law on Environment, namely, Myanmar Forest Policy (1995) and The Environmental Conservation Law (2012). Depending on this works, it is necessary to categorize Group A, Group B, and Group C. Group A stands for the policy are regarded as the original one, Group B stands for new creative additional policy, and Group C stands for deleting policy which are not relevant with current situations. Therefore, it takes time to create new environmental sustainable policy by on going to report to relevant departments step by step. In implementation of this, permission to make the discussion as well as sharing the environmental knowledge with local public is vital important in order to search real points by surveying ground check in detail. It is successfully done educating on the local public especially local hunters to change their livelihood; it is regarded as conflicts in present
and future. It is successfully collected invaluable points by making workshop and seminar with positive discussion, suggestions, and comments among many stakeholders of Ministry of Transportation, Ministry of Environmental Conservation and Natural Resource, Ministry of Home Affairs, Ministry of Science and Technology, Ministry of Education, and Ministry of Electricity and Energy intending to the best way to achieve the destination in time as well as to solve the challenges with innovative ideas and critical thanksgiving with stakeholder mapping. It is focused on Myanmar Forest Policy (1995) and The Environmental Conservation Law (2012) by analysing of a lot of idea of the stakeholders to be more information, education and communication materials as well as develop networking and capacity building enhancement for public awareness is the best way to intend the positive results of every challenges. In Myanmar, it is vital important to conserve natural resource as well as to develop Hydro power sector; in implementing so, there is essential to have compact link as well as ensure connection between and among different groups, different department, and ministries. Sometimes, the ordinary conflicts can be changed to powerful conflicts, at that time; it can be faced unwanted difficulties and terrible problems because of the implementation of developmental projects. Therefore, it is essential to have compact link between different groups as well as stakeholders to meet their needs in time. If not, it can definitely be led opposite effects in particular. It is essential to have effective stakeholder mapping to communicate smoothly for their community development with capacity engagement that can manage to be good link between and among different level of people, various departments, and related Ministries. Regarding technical points of this project, it can be successfully solved by making Workshops for Hydro power Engineer Group in order to implement next new projects to grasp their goals without any challenges. Concerning EIA and SIA sector, it can be surely overcome by making skilful deployment between local inhabitants and government authorized persons to conserve sustainable environment as well as to meet suffered local inhabitants’ need in time. In accordance with informative of Education sector, it can be successfully solved by distributing updated environmental knowledge to all levels within the nation widely and speedy in time as well as having good link between & among them. Adhering administrative issues, it can be smoothly solved by cooperating higher officials, decision makers, and township officers in the respective area where the developmental project is implemented. It is basically implemented by making an effort for interdisciplinary approach and capacity building enhancement for the conduct of EIA, SIA related to the conservation of natural resources including aquatic freshwater, terrestrial, aerial ecosystems and its pollution control management framework. As a consequence, doing critical assessment on these practical findings are totally intended to the development of sustainable environmental policy in order to conserve the Biodiversity related to hydropower projects step by step in detail. According to SDGs and CSR sector policy, on the completion of the activities included in the Upper Paunglaung Hydropower Project Resettlement and Land Acquisition Arrangement Plan, further assessment was needed to determine the extent to which the personal incomes and standards of living of settlers was improved or at least restored.
Recommendations

Myanmar suffers from a chronic shortage of electricity with load shedding being imposed routinely. In addition, regarding future electricity demand, the government lays emphasis on electric power development, especially with regard to hydropower. Indeed, the Upper Paunglaung Hydropower Development Project brought economic improvement nationwide, especially during the dry season and benefitted local inhabitants with respect to industry sector development; and further contribution toward developing the local economy is expected. Electricity generated by the Upper Paunglaung Hydropower station was supplied with precedence to the local area, and certainly contributed to the promotion of local small scale factories and rural industrialization. There is no doubt that it contributes greatly to the development of the overall regional economy. This assessment was largely accomplished through a follow-up socioeconomic survey. The survey results helped in determining the need, if any, for follow-up efforts; it also provided a useful basis for designing them. It was observing on the basis for the development of options for the implementation of a Resettlement Policy Framework, with regard to CSR activities, that is used for environmental and social screening, and assessment of hydropower project components which are funded regarding SDGs framework with significant socio-economic challenges that is facing in many hydropower development projects is the need for involuntary resettlement framework by balancing has to be struck between the situation of people impacted by a project and communities that stand to benefit from a new supply of electricity. There are also often many conflicts between considerations related to saving the environment and those concerned with the advancement of civilization by the provision of a clean, readily available source of energy. Before, during, and after the implementation of hydropower projects, major impacts on natural resource are definitely faced on a small or large scale, depending on the size of the project. Thus during implementation, it is essential that sustainable environmental policies are followed, including EIA (Environmental Impact Assessment), environmental quality analysis, pollution control management and natural resources conservation. Organizational arrangements and design criteria must ensure the conservation of the biodiversity of the area in a sustainable state. Clear social policies must also be followed, including SIA (Social Impact Assessment); detailed resettlement plans based on established resettlement and compensation principles; CSR policy (Corporate Social Responsibility); and the implementation of a Resettlement and Land Acquisition Arrangement Plan. At the same time it is faced to ensure adherence to relevant criteria set forth in the guidelines of the World Commission on Hydropower Dams, conventions of the International Hydropower Association (IHA), the standards of the Myanmar Government’s policy, and the standard of the World Bank group, and in particular International Finance Corporation (IFC) Performance Standards and Environment Health and Safety Guidelines. By carefully paying attention to all these various planning guidelines comprehensive environmental and social policies, that take account of any weak points and incorporate many good points, are surely developed for use in future hydropower projects in Myanmar. These policies are ensuring a sustainable approach to environmental issues that leads to the proper conservation of natural resources in the vicinity of hydropower projects that is leading to local indigenous groups’ socioeconomic development. Within this general framework, it is concerned with
natural resource conservation in relation to Environmental & Social Policy in Hydropower projects in Myanmar. Major issues constituting threats to natural resources; include aquatic as well as terrestrial habitat destruction, land, soil, and sound pollution, and illegal hunting. Additional challenges may be arising from the implementation of hydropower projects include difficulties for local inhabitants, resettlement plans and land acquisition. This issue is part of an assessment of the overall electricity plans for the expansion of capacity by hydro-power and other developmental projects. These research works will ensure a sustainable approach with innovative solutions towards environmental issues that leads to the proper conservation of natural resources as well as socioeconomic development of local indigenous groups in the vicinity of hydropower projects in Myanmar.

References


Appendix

Figure 1: Official Interview with Executive Engineer, Upper Paunglaung Hydropower project

Figure 2: Monastery in the resettlement area of Upper Paunglaung Hydropower project
Figure 3: Elementary School in the resettlement area of Upper Paunglaung Hydropower project

Figure 4: Speech by Dr Mie Mie Kyaw about SDGs at State high School in the resettlement area of Upper Paunglaung Hydropower project

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Figure 6: Remembrance with indigenous in the resettlement area of Upper Paunglaung Hydropower Project

Figure 7: Education on SDGs at State High School in the resettlement area of Upper Paunglaung Hydropower Project

Figure 8: Natural rice field in the resettlement area of Upper Paunglaung Hydropower Project
Figure 9: *Wildlife products in the resettlement area of Upper Paunglaung Hydropower Project*

Figure 10: *Wildlife products in the resettlement area of Upper Paunglaung Hydropower Project*

Figure 11: *Wildlife products in the resettlement area of Upper Paunglaung Hydropower Project*
Figure 12: Discussion with Village Leader in the resettlement area of Upper Paunglaung Hydropower Project

Figure 13: Discussion with Village Leader in the resettlement area of Upper Paunglaung Hydropower Project

Figure 14: Discussion with Village Leader in the resettlement area of Upper Paunglaung Hydropower Project
Figure 15: Natural View in the resettlement area of Upper Paunglaung Hydropower Project

Figure 16: Water storage tank in the resettlement area of Upper Paunglaung Hydropower Project

Figure 17: Upper Paunglaung Hydropower Project (Dam site)
Figure 18: Overview of the resettlement area of Upper Paunglaung Hydropower Project
Species Composition and Diversity of Freshwater fishes in Haipa Waterfall, Southern Shan State, Myanmar

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Abstract

The study was conducted to assess the composition and diversity of fishes in Haipa waterfall from November, 2018 to May, 2019. The Haipa waterfall is one of the natural resource and a natural habitat for various species of wildlife and birds including fishes. A total of 18 species of fishes were recorded using the gill nets during the study period. These fish species including Near Threatened species Neolissochilus hexagonolepis were under 15 genera belonging to nine families and four orders. Among the nine families, the highest species composition was observed in Cyprinidae (38.89%) while the lowest (5.56%) occurred in Cobitidae, Mastacembelidae, Synbranchidae, Osphronemidae, Cichlidae and Channidae. Among the recorded 18 species, Oreochromis sp. and Cyprinus carpio were more abundant than other species. During the collected period of three months, species diversity based on Margalef’s and Shannon-Wiener’s index was higher in February. Taxonomic research support the biodiversity associated with surveys, distribution and ecosystem services, and is also the basic knowledge for other fish related subjects. Therefore the present study support to point out whether waterfall is healthy by judging the composition and diversity of fishes and by doing so, can help local people and conserve the species richness in this area.

Keywords: Species composition, Diversity, Freshwater fishes, Haipa waterfall, Fish community

Introduction

Flowing-water (fluvial) ecosystems are valuable to human societies for many reasons, including aesthetics, recreation, food production, water supply, and waste disposal. Their value derives, to some degree, from their biological diversity, including genetic, species, and community diversity (Angermeier and Schlosser, 1995).

The flowing ecosystems of Haipa waterfall is a very attractive and interesting place of Southern Shan State in Myanmar. The Haipa waterfall is appear from the Num Pang River. There are many kinds of fish species at Num Pang River in Haipa waterfall environ.

Fish species are also an important indicator of ecological health. The abundance and health of fish will show the health of water bodies. Fish species diversity can be used as a biological indicator to show the level of aquatic pollution contributing to environmental quality. (Hashemi et. al., 2015). In freshwater
environments, species may show a preference for lakes or streams. Variations in preferences may exist over the range of a species. A great many species of freshwater fishes occur in tropical Africa, southeastern Asia, and the Amazon River—by far the world’s largest river. In all, the greatest numbers of fish species in the world inhabit the southeastern Asian region (Nelson, 2006). Freshwater ecosystems are exceptionally diverse, and face a multitude of threats, from both freshwater and terrestrial land use. Biodiversity can be monitored through constant reviews of species abundance and species composition with protected areas serving as control areas in terms of biodiversity (Muzvondiwa et al., 2013).

The freshwater fish fauna of Myanmar is one of the least known in Southeast Asia (Kullander et al., 2004). A total of 31,800 fish species were recorded in the world while 727 species were listed in the checklist of Myanmar (Fish wise, 2010).

Studies of distribution and species composition of freshwater fishes are useful to examine factors influencing the structure of the fish community (Galactos et al., 2004). The structure of a fish community is determined by the species present, their relative abundance, their life stages and size distributions and their distribution in space and times (Meador et al., 1993).

In aquaculture history of Myanmar, people had little interest on farming and more likely to harvest from wild sources since the country was rich in ample fishery resources. In the early 1960, seed production by breeding techniques has proved success and the freshwater aquaculture started to spread countrywide. Tilapia is one of the species that are being cultured in Myanmar. The seeds of Tilapia have been produced by the fish hatchery under the department of fishery (DOF, 2011).

Myanmar is a country with rich biodiversity, much attention had been focused on fishes in Central and Lower Myanmar but few researches had been conducted on fishes in the Southern Shan State. There are no previous records on the fish species in Haipa waterfall of Mongue Township. It is important to know the composition of fish species in order to develop management and conservation programs. Thus, the present study was focused on species composition of fishes in Haipa waterfall of Mongue Township in the Southern Shan State.

Objectives of the Study
1. to point out the fish species of Haipa waterfall in Mongue Township
2. to evaluate the species composition and diversity of fish species in Haipa waterfall of Mongue Township

Methodology

Study area
The study was undertaken at Haipa waterfall of Mongue Township in the Southern Shan State. It is located at latitude 21° 47’ 19.63” N and longitude 98° 18’ 39.01” E. The elevation is at 683 m above sea level (Figure 1).

Study period
The study period lasted from November, 2018 to May, 2019.

Collection and preservation
Sampling species were collected from Haipa waterfall environs. Fish were collected with the aid of local fishermen during the study period. The morphological
characters and coloration of each specimen were noted down and photographed by
digital camera immediately at fresh state. The number of individual for each species
encountered during the sampling time was recorded. The fish community of Haipa
waterfall was captured by using the gill nets. The common used of mesh size were 15,
20, 30 and 40 mm. The specimens were preserved in 10 percent formalin solution for
identification and detailed study. The collected fishes were brought to the Department
of Zoology, for further study.

Identification of fish species
The taxonomic characters of the collected fishes were examined in detail
including fin counts and scales counts. Identification of fish was made according to
Talwar and Jhingran (1991), and Jayaram (2013). Technical terms and measurement
were followed by Vidthayanon et al. (2005), Jayaram (2013).

Data Collection and Analysis
Data collection was made by interviewing questionnaire about the names
of fishes, their abundance and then fish species were recorded. Diversity indices
(Margalef, Shannon-Wiener) were calculated by using field course calculated excel.

![Figure 1: Map of Haipa waterfall environs](image)

Result
A total of 1199 individuals in 18 fish species belonging to four orders, nine
families and 15 genera were recorded from the study area (Table 1). Out of the total
individuals, the highest number (424) were found in April, followed by (393) in
November and (382) in February. Based on each recorded species, the highest
individual numbers were found in Oreochromis sp. (169) and the second highest in
Cyprinus carpio (123) while the lowest number in Monopterus albus (4) (Table 2,
Figure 3). Among the 18 species, Oreochromis sp., Cyprinus carpio and Clarias
gariepinus were introduced species and the remaining native species (Table 1).

Based on families, Cyprinidae was highest in species composition
(38.89%), followed by Nemacheilidae (16.67%), Claridae (11.11%) and the rest of
the families (Cobitidae, Mastacembelidae, Synbranchidae, Osphronemidae, Cichlidae
and Channidae) were represented by composition of 5.56%. Based on diversity indices (Margalef and Shannon-Wiener), the diversity of freshwater fishes were highest in February (2.859 and 2.738 respectively) while Pielou’s evenness index was highest in December (0.958).

Table 1
Freshwater fish species with conservation status recorded in Haipa Waterfall environs

<table>
<thead>
<tr>
<th>No</th>
<th>Family</th>
<th>Scientific name</th>
<th>Common name</th>
<th>Red List</th>
<th>Native/Introduced</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Cyprinidae</td>
<td>Neolissochilus stracheyi</td>
<td>Nga-gyin</td>
<td>LC</td>
<td>Native</td>
</tr>
<tr>
<td></td>
<td>Neolissochilus hexagonolepis</td>
<td></td>
<td>Nga-gyin</td>
<td>NT</td>
<td>Native</td>
</tr>
<tr>
<td></td>
<td>Garra nasuta</td>
<td></td>
<td>Kyauk-ngan-gyin</td>
<td>LC</td>
<td>Native</td>
</tr>
<tr>
<td></td>
<td>Crossocheilus burmanicus</td>
<td></td>
<td>Nga-din-lone</td>
<td>LC</td>
<td>Native</td>
</tr>
<tr>
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<td>Mystacoleucus argenteus</td>
<td></td>
<td>Nga-phu</td>
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</tr>
<tr>
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<td></td>
<td>Shwe-war-ngang-yin</td>
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<tr>
<td></td>
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<td></td>
<td>Myat-sar-ngi</td>
<td>NE</td>
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<td></td>
<td>Cobitidae</td>
<td>Lepidocephalus guntea</td>
<td>Nga-tha-le-doe</td>
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<td>Native</td>
</tr>
<tr>
<td></td>
<td>Nemacheilidae</td>
<td>Schistura nicholsi</td>
<td>Kyauk-ngan-tha-le-doe</td>
<td>LC</td>
<td>Native</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Schistura callidora</td>
<td>Kyauk-ngan-tha-le-doe</td>
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<td>Native</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pteronemachilus lucidorsum</td>
<td>Kyauk-ngan-tha-le-doe -ni</td>
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<td>2.</td>
<td>Clariidae</td>
<td>Clarias batrachus</td>
<td>Lal-ngu-khu</td>
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<td>Native</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clarias gariepinus</td>
<td>Africa-ngu-khu</td>
<td>LC</td>
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</tr>
<tr>
<td>3.</td>
<td>Mastacembeliidae</td>
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</tr>
<tr>
<td></td>
<td>Synbranchidae</td>
<td>Monopterus albus</td>
<td>Nga-shiht</td>
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<tr>
<td>4.</td>
<td>Osphronemidae</td>
<td>Colisa fasciatus</td>
<td>Nga-phn-thalet</td>
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<tr>
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<td>Cichlidae</td>
<td>Oreochromis sp.</td>
<td>Talapia</td>
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<tr>
<td></td>
<td>Channidae</td>
<td>Channa striata</td>
<td>Nga-yant-auk</td>
<td>LC</td>
<td>Native</td>
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</table>

NT – Near threatened, LC – Least concern, NE – Not evaluated
Table 2
Recorded individual number and diversity of fish species in Haipa Waterfall Environs

<table>
<thead>
<tr>
<th>Species</th>
<th>December</th>
<th>February</th>
<th>April</th>
<th>Total</th>
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<td>Neolissochilus stracheyi</td>
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<td>20</td>
<td>23</td>
<td>65</td>
</tr>
<tr>
<td>Neolissochilus hexagonolepis</td>
<td>-</td>
<td>9</td>
<td>14</td>
<td>23</td>
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<td>Garra nasuta</td>
<td>8</td>
<td>11</td>
<td>7</td>
<td>26</td>
</tr>
<tr>
<td>Crossheilus burmanicus</td>
<td>25</td>
<td>28</td>
<td>26</td>
<td>79</td>
</tr>
<tr>
<td>Mystacoleucus argenteus</td>
<td>21</td>
<td>23</td>
<td>24</td>
<td>68</td>
</tr>
<tr>
<td>Cyprinus carpio</td>
<td>37</td>
<td>38</td>
<td>48</td>
<td>123</td>
</tr>
<tr>
<td>Ctenopharyngodon idella</td>
<td>32</td>
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<td>28</td>
<td>38</td>
<td>37</td>
<td>103</td>
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<td>Schistura nicholsi</td>
<td>21</td>
<td>23</td>
<td>18</td>
<td>62</td>
</tr>
<tr>
<td>Schistura callidora</td>
<td>26</td>
<td>21</td>
<td>22</td>
<td>69</td>
</tr>
<tr>
<td>Pteronemachilus lucidorsum</td>
<td>32</td>
<td>22</td>
<td>23</td>
<td>77</td>
</tr>
<tr>
<td>Clarias batrachus</td>
<td>19</td>
<td>12</td>
<td>21</td>
<td>52</td>
</tr>
<tr>
<td>Clarias gariepinus</td>
<td>25</td>
<td>23</td>
<td>34</td>
<td>82</td>
</tr>
<tr>
<td>Mastacembelus armatus</td>
<td>4</td>
<td>6</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Monopterus albus</td>
<td>-</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Colisa fasciatus</td>
<td>16</td>
<td>18</td>
<td>14</td>
<td>48</td>
</tr>
<tr>
<td>Oreochromis sp.</td>
<td>58</td>
<td>49</td>
<td>62</td>
<td>169</td>
</tr>
<tr>
<td>Channa striata</td>
<td>19</td>
<td>16</td>
<td>21</td>
<td>56</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>393</td>
<td>382</td>
<td>424</td>
<td>1199</td>
</tr>
<tr>
<td><strong>Margalef’s index</strong></td>
<td>2.511</td>
<td>2.859</td>
<td>2.810</td>
<td></td>
</tr>
<tr>
<td><strong>Shannon-Wiener index</strong></td>
<td>2.655</td>
<td>2.738</td>
<td>2.693</td>
<td></td>
</tr>
<tr>
<td><strong>Pielou’s index</strong></td>
<td>0.958</td>
<td>0.947</td>
<td>0.932</td>
<td></td>
</tr>
</tbody>
</table>
Figure 2: Percentage of fish species composition in Haipa waterfall environs

Figure 3: Comparing the individual number of fish species in Haipa waterfall environs
Discussion

The study was conducted to evaluate the freshwater fish species in Haipa waterfall. Out of the total 18 fish species, Oreochromis sp., Cyprinus carpio and Clarias gariepinus are introduced species. According to the local fishermen, these were introduced for the purpose of fish farming by local Fishery Department. The most abundant species were Oreochromis sp. (169) and Cyprinus carpio (123) in which this may be explained due to high fertility and resistance to environmental factors. Kampanat, et al. (2018) mentioned that the freshwater aquaculture was commenced in Myanmar at 1954 by the introduction of exotic species such as tilapia, gourami and common carp. Tilapia is one of the first kinds of fish farmed as freshwater aquaculture in Myanmar.

During the study period, the highest individual numbers (424) were found in April. This finding was in line with Divina and Geraldine (2014) in which the time of April and June, when fishes are on their most abundant time of the year. Juveniles and young adult fishes, and all stages of fish life go out because it is summer time. Despite the highest individuals were observed in April, the evenness of the species is the lowest (0.93). This fact may be postulated high differences in individual numbers turn to lowest evenness of the fish species.

Concerning with species diversity, occurrence of lowest diversity indices (2.511 of Margalef and 2.655 of Shannon-Wiener) in December may be assumed that only 16 species occurred and there were no observation to N. hexagonolepis and M. albus. The former species occurred more abundant compared to the latter species but this species was designated as Near Threatened in Red List. Therefore N. hexagonolepis should do to conserve urgently in the present study area. The latter species M. albus was less common in the study area and this may be due to the habit of this species which search and live in the deeper habitat during the cold month of December.

The Haipa waterfall fish populations were dominated by Cyprinid fish which were highest in species composition (38.89%). Kottelat, et al. (2012) revealed that in Indo- Burma region, Cyprinidae is the numerically most abundant primary freshwater family.

From the conservation point of view, the most abundant species was observed in Oreochromis sp. (tilapia). This species can be found in Haipa waterfall environs anytime of the year in large quantities. The International Union for
Conservation of Nature (IUCN) defines invasive/introduced species as any organism introduced by humans in places outside their native range that was established and dispersed, causing a negative impact on other species or ecosystem (ISSG, 2011). Moreover, Groombridge, (1992) reported that the introductions of non-native fish species can reduce biodiversity and modify local community dynamics in freshwater systems. Exotic species have been identified as the third leading cause of extinction of vertebrate species in aquatic environments. Therefore, the present study aims to identify the species composition and abundance of fishes in Haipa waterfall and to conserve the species richness in this area.

**Recommendations**

Based on the findings of this study, there was very limited time for the study of fish species composition in Haipa waterfall environs, because their environs are only free to travel between November to May of the year due to farming and communication. For further study,

1. Seasonal occurrence and richness of fishes in Haipa waterfall environs should be studied.
2. Diversity of fishes recorded from different study sites should be compared for more information of conservation status.
3. Relation of species composition and abundance of fish with that of physico-chemical parameters of water should be studied.

**References**


Muzvondiwa, J.V., Chiwara, J., Ngwenya, M.M. (2013). Fish Abundance and Species Composition between Fished and Non-fished Areas of Lake Chivero, Zimbabwe. International Journal of Science and Research (IJSR) India Online. 6(2)


Primate Conservation in Relevance of Modeling; Habitat and Feeding Habit in Human-Modified and Fragmented Landscape: Case Study in Mandalay Region

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Abstract

The role of primates within ecosystem is vital importance to link all living things through food chains as well as food webs, in doing so, their habitats and niches are necessary to conserve for sustainable population. In Myanmar rhesus macaques (Macaca mulatta) is found in forested habitats and urban areas, from 2017 to 2019. We studied the feeding habit and of the urban Rhesus Macaque following their relocation in the Mandalay region. Direct counted method. We observed the Macaques fed on (41) plant species site A. Among the species plant preferred to feed on Moraceae (10%) and Fabaceae (10%). Site B, the Macaque fed on 50 plant species. Among the species plant preferred to feed on Combretaceae (12%) and Moraceae (10%) on the natural plant resources. This study showed that Macaque adopted different foraging strategies based on the availability of resources in their new environment and that variety in food resources. Information on their feeding pattern will help in developing management rule guideline for the primates in local urban environments.

Keywords: primates conservation, habitat and feeding habit in human-modified

Introduction

The Union of Myanmar is situated in the north west of the Indochina peninsula, and is the largest country in mainland South East Asia. Ohdachi et al., 2010 stated that rhesus macaque is widely distributed in Afghanistan, India, the southern part of China, and the northern part of the Indochinese Pen. The role of primates within ecosystem is vital importance to link all living things through food chains as well as food webs, in doing so, their habitats and niches are necessary to conserve for sustainable population. Singh et al., 2013 stated that Primates, because of their physical resemblance to humans, have always fascinated people. The interest of scientists in primates primarily began in the field of physical anthropology and evolutionary biology tracing human evolution from primate fossils. A systematic study of primate behavior started in 1940s. Primates are largely distributed in the tropics. With a variety of ecosystems and habitats, India is a home to about 30 species and subspecies, representing lorises, macaques, langurs and apes of the world’s 612 extant species/subspecies of primates. These primate species range throughout India with several of the taxa being endemic to rather small regions. Two of the world’s biodiversity hotspots, the Western Ghats and the North-Eastern Himalayan ranges, harbor rich primate diversity.
The rhesus macaque is a diurnal species occurring in a variety of habitats occupying both terrestrial and arboreal niches. They inhabit the Rajasthan, agricultural plains of the Genetic basin, the tropical forests of southeastern Asia, the temperate pine forests of the Himalaya, and the ragged mountains of north central China (Southwick et al., 1994 cited by Pragatheesh, 2011).

Rhesus macaques are the most adaptable of all non-human primates and have learned to live amidst human habitations. In India, 80 to 90% of Rhesus Macaques live in close association with human populations, and are therefore highly dependent on people for food (Southwich et al., 1965, 1976 cited by Pragatheesh, 2011). Rhesus macaques (Macaca mulatta) is the most common non-human primate in the forested and urban area of Asia (Hasan et al., 2013). Flexibility in diet patterns plays a pivotal role in the survival of non-human primate species in urban and peri-urban ecosystems through resource sharing and competition and has evolutionary implications in the long-term. Primates are known to adopt several foraging strategies (Fleagle & Gilbert 2006).

In some cases, macaques depend on humans for being fed (Strum 1994) the feeding patterns of primates that live in tourist sites and temples are often influenced by provisioning of food by humans. Urban macaques have also acquired behavioral adaptations in food-acquisition technique (Mangalam & Singh 2013). Urban habitats, in contrast to natural ones, have a more direct influence on primate behaviors associated with competitive resource utilizations and foraging techniques. Several anthropogenic barriers and disturbances interfere with the feeding ecology of primate in urban environments.

The negative interactions between humans and macaques due to food provisioning and other anthropogenic drivers possess major challenges for the survival and persistence of the species. The need for translocation of Rhesus Macaques and the consequences were due to it proliferation in urban areas of India was suggested studied earlier (Malik & Johnson 1991, 1994; Southwick et al. 1998).

Mandalay Region, the study hills are a natural lime-stone, steep and also found with forested area. Temples and pagodas also constructed on the hill, is one of the habitats of rhesus monkey. Present study was focusing on food and feeding habits of Rhesus monkey in study site.

Objectives
1. To examine of plant species in the study area
2. To assess food and feeding habits of the rhesus macaque at the study area

Methodology

Study area
The present study was studied at the Mandalay region. Mandalay region was situated at $21^\circ 59' 14.55''$ N and $96^\circ 06' 55.559''$ E.
Study site

The present study was conducted at the Yedaguntaung, Patheingyi Township. It is situated in the Central Dry Zone at 21°57.955 – 21°57.938 N and 96°12 .809 - 96°12.671’ E. The highest peak of Yedaguntaung has an elevation of 212 m above the sea level and the base of hill has 108m (Site A). The present study was conducted at the Popa Taungkalat Kyaukpadaung Township. It is situated in the Central Dry Zone at 20°54’ 41.305” N and 95°12’ 24.1 8” E. The highest peak of has an elevation of 1518 m (4981 feet’s) above the sea level (Site B).

Study period

The present study is conducted during the period from January to June 2019(Site A), the present study is conducted during the period from October 2017 to January 2018(Site B).

Identification

Plant species were identified and verify by Botany Department, Mandalay University and based on Kress et al., 2003.

Collection of Data

The food and feeding habits of Rhesus macaques in the study area was estimated by using direct content method (Barwer, 1972 cited in Chopra, G and Kumar, A., 2012). The study area has a stairway, which is 400m long and facilitated location of groups. Each site was followed and monitored in study phases of the day i.e morning phase (6:00 AM – 11:00AM), afternoon phase (11:00AM -3:00PM) and evening phase (3:00PM- 6:00PM). The feeding sites of rhesus monkey were marked and subsequently scanned to identify the feeding objects (plant parts i.e bark, gum, leaves, inflorescences etc, or animals, if any). We compiled a lists of the all plants species (leaves, shoots, fruits, flower) (Islam and Feeroz., 1992) (Ahsan., 1994 Cited in Muzaffar et al., 2007).

Data analysis

Data were analyzed using Microsoft Excel program and were presented as table and graphs.
Figure 1: Map showing the study sites (Source from Geography Department Mandalay University)

Site A

Site B
Results

**Systematic positions**

- **Phylum**: Chordata
- **Class**: Mammalia
- **Order**: Primates
- **Family**: Cercopithecidae
- **Genus**: Macaca
- **Species**: *M. mulatta* (Zimmermann, 1780)
- **Common name**: rhesus macaque, rhesus monkey

Food plants, plant families, parts eaten and feeding and each plant species are showed in Table (1,2). In study Site (A), Population size of rhesus were found to total of range, 200-300 individuals. The rhesus food at Yedaguntaung consisted of natural food and food offered by the visitors as well as indigenous people.

**Natural foods**

In the study site A, the rhesus fed on a total of four plant species. Among them 30 were tree species six were small tree, one was shrub, one was grass and one was bamboo. (Table 1)

In the study sites were eating of leaves observed the highest number (41) plant species, (8) plant flower, (14) plant fruit and (2) plant bark. The leaves composed the highest proportion (51%) of the natural food, flower (16.3%), fruit (28.6%) and bark (4%) (Fig -3). In the study site A area, a total of 41 plants species were countered under family Moraceae comprises those were. *Ficus religiosa* (Bawdi-nyaung) *Ficus hispida* (Kadat) *Artocarpus heterophyllus* (Peinne) *Ficus glomerata* (Tha phan). The rhesus preferred to feed family Moaceae.

In the study site B- Popa Taungkalat the population size were found to rang in 500-900 individuals during the study period.

**Natural food**

In the study area site B, the rhesus fed on a total of 50 plant species were countered under 27 families, composing 34 trees, four small tree species (Table-2). In the study sites were eating of leaves the highest number (44) plant species fruit (21) species, and flower seven plant species. The leaf composed of the highest proportion (61.1 %) of the natural food, flower (9.7%) and fruit (29.1%) respectively (Fig- 4).

Site B area, A total of 50 plants were observed under family Combretaceae (12%) and Moraceae (10%). Their liked food to eat under family Combretaceae.

**Composition of plant species**

Site A, a total of 42 plant species and site B a total of 50 plant species were collected identified. The hole plant species recorded and were distributed among family with 41 species and family with 50 species plant site A preferred to feed family Moraceae (10%) and Fabaceae (10%), site B preferred to feed family
Combretaceae (12%) and Moraceae (10%) on the natural plant resources. So study site preferred to feed family Moraceae comprised in two study area.

**Provisioned foods**

In Site A, the rhesus macaques are dependent on various kind of provisioned food from villager and pilgrims. Provisioned foods include banana, guava, peanut, chick-pea, maize, mango, juices and sunflower seed. During the study period provisioned foods were most abundant are found. In Site B, monkeys were also dependent on 16 kinds of provisioned foods offered by pilgrims and local people. In this area were very attractive to monkeys because of the abundance of provisioned food offered by people. Provisioned food offered to monkeys consisted groundnut, rice, chick-pea, bananas, juices, sunflower seeds, water melons, biscuits, cake, fried potato, maize and popcorns.
Figure 1: Natural food and provisioned food recorded in the study sites
Figure 2: Natural food recorded in the study sit
Table 1
Vegetative parts of different species of plants used by Macaca mulatta as food in Yedaguntaung (Hill) during January to June (2019)

<table>
<thead>
<tr>
<th>No.</th>
<th>Tree species</th>
<th>Local name</th>
<th>Family</th>
<th>Plant parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Azadirachta indica</td>
<td>Tama</td>
<td>Meliaceae</td>
<td>L, F</td>
</tr>
<tr>
<td>2</td>
<td>Chukrasia tabularis</td>
<td>Yin ma</td>
<td>Meliaceae</td>
<td>L, B</td>
</tr>
<tr>
<td>3</td>
<td>Delonix regia</td>
<td>Sein ban</td>
<td>Coealpiniae</td>
<td>L, F, Fl, B</td>
</tr>
<tr>
<td>4</td>
<td>Tamarindus indica</td>
<td>Magyi</td>
<td>Coealpiniae</td>
<td>L, F, Fl</td>
</tr>
<tr>
<td>5</td>
<td>Ficus religiosa</td>
<td>Bawdi-nyaung</td>
<td>Moraceae</td>
<td>L, F</td>
</tr>
<tr>
<td>6</td>
<td>Ficus hispida</td>
<td>Ka dat</td>
<td>Moraceae</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>Artocarpus heterophyllus</td>
<td>Peinne</td>
<td>Moraceae</td>
<td>L</td>
</tr>
<tr>
<td>8</td>
<td>Ficus glomerata</td>
<td>Tha phan</td>
<td>Moraceae</td>
<td>L, F</td>
</tr>
<tr>
<td>9</td>
<td>Mangifera indica</td>
<td>Thayet</td>
<td>Anacardiace</td>
<td>L, F, Fl</td>
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<tr>
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<td>Cocos nucifera</td>
<td>Ohn</td>
<td>Areccaceae</td>
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<td>Mimusops elengi</td>
<td>Khayay</td>
<td>Sapotaceae</td>
<td>L, Fl</td>
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<td>Mezali</td>
<td>Fabaceae</td>
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<td>Padauk</td>
<td>Fabaceae</td>
<td>L</td>
</tr>
<tr>
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<td>Dalbergia glomeriflora</td>
<td>Thit pagan</td>
<td>Fabaceae</td>
<td>L, F, Fl</td>
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<td>L, Fl</td>
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<td>F</td>
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<td>Dahat</td>
<td>Verbenaceae</td>
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<td>Thetyingyi</td>
<td>Euphorbiace</td>
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<tr>
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<td>Diospyros embvoyteris</td>
<td>Te</td>
<td>Ebenaceae</td>
<td>-</td>
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<tr>
<td>29</td>
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<td>Oleaceae</td>
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<tr>
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<td>Thanüüt</td>
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<td>-</td>
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<td></td>
<td>Small Tree</td>
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<td>Balanitaceae</td>
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<tr>
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<td>Thanakha</td>
<td>Rutaceae</td>
<td>L</td>
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<tr>
<td>3</td>
<td>Bauhinia acuminata</td>
<td>Swe-daw</td>
<td>Caesalpiniae</td>
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<tr>
<td>4</td>
<td>Annona squamosal</td>
<td>Awzar</td>
<td>Annonaceae</td>
<td>L</td>
</tr>
<tr>
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<td>Yone</td>
<td>Arecaceae</td>
<td>L, Fl</td>
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<td>No.</td>
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<td>Local name</td>
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<td>Annona squamosal</td>
<td>Awzár</td>
</tr>
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<td>Leucomeris decora</td>
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<td>7.</td>
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<td>Kyawn sha</td>
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<td>Htau kyunt</td>
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<td>Terminalia bellirica</td>
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<td>14.</td>
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<td>Phan gar</td>
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<td>17.</td>
<td>Dipterocarpus tuberculatus</td>
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<tr>
<td>18</td>
<td>Dipterocarpaceae</td>
<td>18.</td>
<td>Shorea obtuse</td>
<td>Thit yar</td>
</tr>
<tr>
<td>19</td>
<td>Ebenaceae</td>
<td>19.</td>
<td>Diospyros embryopteris</td>
<td>Te</td>
</tr>
</tbody>
</table>

Leaves, F = Fruit, Fl = Flower, B = Bark

Table 2
Vegetative parts of different species of plants used by Macaca mulatta in Popa Taungkalat during October (2017) to January (2018)
<table>
<thead>
<tr>
<th>No.</th>
<th>Family</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Type</th>
<th>Type</th>
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<tr>
<td>12.</td>
<td>Euphorbiaceae</td>
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<td>Thityingyi</td>
<td>Tree</td>
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<tr>
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<td>Rat-na baung</td>
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Figure 1: Composition of plant species in each family from Yedaguntaung

Figure 2: Composition of plant species in each family from PopaTaungalat
Figure 3: Percentage of plant parts eaten by rhesus monkeys in Yedaguntaung

Figure 4: Percentage of plant parts eaten by rhesus monkeys in Popa Taugkalat
Discussion

Rhesus macaques found in forested area and urban. Wenjuan et al (1993) stated that rhesus monkeys are found in elevation between 240 and 1962 m asl (above sea level) in the deciduous forest. Aye Mi San (2007) also reported that long-tailed macaques inhabited at elevation of 122 m asl in evergreen lowland forest. In the study area, they inhabited an elevation site A and site B 657m dry forest. She stated that long-tailed Macaques at BayinNyiNaung Mountain are folivores and among 23 plant species five of tree plant are the most important for macaques especially Ficus glomerata (Thapan) which offers not only annually available fruits, but also leaves and buds.

Nwe Nwe Win (2013) recorded that Rhesus macaques in Pho Win Taung are primarily frugivores in feeding habit. These monkeys are found to utilize at the least 30 food plant species of 45 plant species in the study area. Naw Phaw Phaw Say (2005) also reported that favorite fruits of macaques are Ficus hispida (Ka dat) Grewia microcos (Myaya) and Ficus glomerata (Tha phan) in Hlawga wildlife park.

Present study site A observed to feed in family Moraceae Ficus hispida (Kadat), Ficus religiosa (Bawdi-nyaung), Ficus glomerata (Tha phan) and Artocarpus heterophyllus (Peinne). Site B reported to feed in family Combretaceae and Moraceae Ficus religiosa (Tha phan), Ficus hispida (Ka dat), Ficus infectoric (Nyaung chin), Ficus spp. (Nyaung) and Artocarpus heterophyllus (Peinne). Study site compared to preference Ficus religiosa (Tha phan) in the Mandalay region.

By reducing forest size and quality, habitat destruction leads to the reduction of food sources for forest-dwelling primates and, in some case, threatens them with local extinction (Lee&Hauser 1998; Muoria et al.2003). The increasing population of Rhesus Macaques living in proximity to human habitations has become a major issue in India. Rapid urbanization, deforestation, and habitat fragmentation altered the natural living spaces of animals and their natural behavior in the wild. Most primate species were severely affected by threats in anthropogenic landscapes (Sinha&Vijayakrishnan 2017). The translocation of Rhesus Macaques from city areas to forest situated at close proximity with human settlements might not reduce the conservation threats for the taxa.

The dietary habits of Rhesus Macaques were totally different in a human-dominated forest land. Previous studies showed that the species thrived in eight diverse habitats (temple, urban, village, village-cum-pond, pond, roadside, canal side, and forest) having varying degrees of human interaction in India (Seth et al. 1986) cited in Ganguly et al., 2018. The feeding practice seemed to increase the urban threats, diseases, and anthropogenic stress in the Rhesus Macaque population.

In our study, the species was observed to spend maximum time on the ground instead of on the trees and their dependency on supplementary, provisioned, and anthropogenic food sources did not indicate conservation success. Understanding the feeding ecology in this sanctuary would help in planning the management of macaques in other urban areas.
Recommendations

Mitra, (2000) stated in the absence of natural predators and very high birth rate the population of rhesus monkey is multiplying every year. This has led to increase in commensal monkey population and so the man-monkey conflicts. Basically the problem of monkey nuisance lies attempts to fetch food and space in human habitats. Monkey problem is directly related with the people’s life, health and property, and has a great social relevance, it is very important to undertake this problem as a subject matter for further investigation. In addition commensal rhesus macaques show a high degree of behavioral flexibility in response to habitat and resource variability, and knowledge of these differences is important for the conservation and management of highly commensal primate.

References


Impact of Environmental Pollution on Fish Fauna, *Systomus sarana* (HAMILTON, 1822) in Paleik Lake, Sintkaing Township, Myanmar

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Abstract

Paleik Lake was chosen as the study area to conduct the present work. Paleik Lake is rich in flora and fauna. Many farmlands, houses and agricultural have seen around the Paleik Lake. Farmer is using pesticides, herbicides and inorganic fertilizer that runoff to the Paleik Lake. The uncontrolled discharge of these pollutants into the water directly affects aquatic organisms, including fish. In the present study, fish samples of *Systomus sarana* were used for histological investigations from December, 2017 to July 2018. Histology is extensively used as indicator of environmental pollution. Histological changes in gill tissues of *S. sarana* were included blood congestion, deformed cartilage, hyperplasia, aneurysm, fusion of lamellae, parasite cysts and parasites. Histological changes in liver tissues of *S. sarana* were recorded such as hemorrhage, hemosiderin, blood congestion, degeneration, fibrosis, lipid vacuolization, necrosis, hypertrophy and parasite infection. Therefore, it can be concluded the evidence of histological changes in gill and liver tissues of studied fish may cause metabolic disturbance and cellular disorder due to environmental contaminations.

Keywords: farmer, pesticides, pollutants, fish, histology, gill, liver

Introduction

Aquatic ecosystems are exposed to excessive input of pollutants and contaminants from domestic and industrial sewage, agricultural processes, heavy metals and others. It diminishes the aesthetic quality of lakes and rivers. More seriously, contaminated water destroys aquatic life and reduces its reproductive ability. Aquatic organisms including fish accumulate pollutants directly from contaminated water and indirectly via the food chain. The uncontrolled discharge of these pollutants into the water directly affects aquatic organisms, including fish, which are considered a bioindicator of environmental pollution or contamination (Santos et al., 2014).

Pollution of water is mainly due to contamination with hazardous chemicals from agricultural runoff and wastewater from household and industries (Magar and Shaikh, 2013). Begum et al., 2005 reported polluted water is not suitable for drinking, recreation, agriculture and industry. Eventually, it is a hazard to human health. Fishes are considered as one of the most significant bios- monitors in an aquatic system for the estimation of water pollution concentration
Sabra and Mehana, (2015) reported histopathology are an essential tool in fish pathology, physiology and aquatic toxicology in fishes. Histopathological examination is widely recognized as a reliable method for disease diagnosis. The histopathological changes in fish tissues used as a biological indicator for pollution with pesticides with special reference to insecticides. Gill histology is therefore extensively used as indicator of environmental pollution.

In addition, liver of fish is responsible for the digestion, filtration and storage of glucose. The liver is considered as the principal organ of detoxification in vertebrate and particularly in fish. The organ most associated with the detoxification and biotransformation process is the liver and due to its function, position and blood supply, it is also one of the organs most affected by contaminant in water (Mohamed, 2009). Liver histology is therefore extensively used as indicated of environmental pollution.

In this study, Paleik Lake is located in Sintkaing Township, Mandalay Region near Mwe Pagoda in Myanmar. It is 16 km away from the Mandalay. Paleik Lake is a seasonal lake by the flooding of Myitnge River during the rainy season of each year. Paleik Lake is rich in flora and fauna. Many researchers investigated any of view. But many farmlands, houses and agricultural have seen around the Paleik Lake. Farmer is using pesticides, herbicides and inorganic fertilizer that runoff to the Paleik Lake.

**Objectives of the study**

1. to examine the histological changes in gills and liver tissues of fish as bioindicators
2. to study the anthropogenic activities in study area

**Previous Studies**

Several research works have been documented anthropogenic activities and impact of environmental pollution on aquatic fauna, fish. The findings of some researcher are described below.

Kock et al., (1996) reported fish are relatively sensitive to change in their surrounding environment including an increase in pollution. Fish health may reflect and give a good indication of the health status of a specific aquatic ecosystem. Fish are widely used to evaluate the health of aquatic ecosystem and their physiological changes serve as biomarkers of environmental pollutions.

Altinok and Capkin (2007) reported the exposure of fish to sublethal concentration of pesticides or other chemical contaminates in their environment may result in various histological alterations in tissues.

Fuat –Gulhan et al. (2013) reported that shortening, fusion of lamellae and elastic cartilage of lamellae in the gill tissues of rainbow trout exposed to various concentrations of cypermethrin pesticides.

Tayel et al. (2014) who reported that the exposure of liver to fertilizers, salts and sewage may be marked hemorrhage, hemosiderin, degeneration necrosis and such
lesions might be due to some heavy metal were containing in pesticides and fertilizer that used by local farmers from the agricultural area near study sites.

Methodology

Study Site and Study Period

Paleik Lake is located at Mandalay Region, Sintkaing Township near Mwe Pagoda. It is 16 km away from the south of Mandalay. This lake lies between 21.50’N and 96.03’ E. The length of Paleik Lake is 2.3 km and the width about 2.1 km. This study was carried out from December 2017 to July 2018. (Fig. 1, A).

Sample collection and preparation

Specimen collection was made once a month from fisherman during December, 2017 to July 2018. The morphological characters and coloration of fish specimens were noted down and photographs were taken immediately at fresh state. Identification of the specimen was followed by Joyaram (2013). Forty specimens of fish were preserved in 10 percent formalin for histological studies. (Fig 1, B and C). Fishing gears were recorded. (Fig 2).

Agricultural pesticides and Fertilizers used by local farmers during the recession period of Paleik Lake

Pesticides were used by the farmer around the field in Paleik Lake which were recorded such as Awba force 10 EC pesticides including Cypermethrin, Pyrethroid (cadmium, copper, iron, mercury, lead, organometallic compound), Ya Shi Jing pesticide including Imidacloprid 10%WP (carbon, hydrogen, nitrogen, and oxygen, chlorine). Armo and Pa-laee fertilizers included nitrogen, phosphate, potassium and sulphur with micronutrient. (Fig 3).

Specimen preparation for histology

Fish were dissected directly in the field. After dissection of fish samples, parts of gill and liver were carefully removed. Liver fixed in 10% formalin and gill preserved in Burin’s solution in plastic box for histological studies.

Histological procedures

The procedures generally include the following steps: (1) tissue processing, (2) embedding into paraffin wax and (3) sectioning by microtome. Tissue processing was made in the present study. Both wax sections of gills were cut at 10-12 µm and livers were cut at 5-7µm using a rotary microtome (RMT- 20 Radical microtome, India).

Wax sections affixed to the slides were subjected to heat stained with Hematoxylin (Gurr, BDH Chemical lab, England) and Eosin yellowish (Merck Mumbai, India), India.

Examination of the histological changes

Histopathological changes in the gill and liver were examined under a binocular microscope (MT 4300H, Meiji Techno Co., Ltd, Japan). Microphotographs of histological changes were manually taken by mobile phone camera (Redmi Note3, Android version 5.0.2 LRX22G, China). Histological changes were examined in detail under the magnification of X400.
Figure 1: Study site, Paleik Lake and Fish specimen

A. Location map of study area (Source: MIMU 1092v3&Google)

Figure 2: Fishing gears used in Paleik Lake

A. Cast net (Let Pyit Con)  B. Man push net (Yin Tun)  C. Plunge basket (Saung)

Figure 2: Fishing gears used in Paleik Lake

B. Fish caught in a man push net

C. Fish specimen, Systomus sarana
Fig. 3: Agricultural fertilizers (A, B) and pesticides (C, D) used by local farmers during the recession period of Paleik Lake

Results

Histological changes in gill tissues of *Systomus sarana* from Paleik Lake

The groups of histological changes were observed blood congestion, elastic cartilage, deformed cartilage, separation of lamellae, dilation, hyperplasia, aneurysm, fusion of lamellae, shortening, damage of secondary lamella and parasite infection. Histological changes in gill tissues of *S. sarana* were attributed blood congestion in primary lamella and secondary lamella, dilation and elastic cartilage in primary lamella were observed with fusion and hyperplasia of secondary lamella, deformed cartilage in primary lamella, hyperplasia of secondary lamella, separation of secondary lamellae and hyperplasia, aneurysm, damaged and shortening of secondary lamellae. Parasite cysts and parasites were occurred in gill tissues. (fig.4).

Histological changes in liver tissues of *Systomus sarana* from Paleik Lake

The histological changes in liver showed hemorrhage, hemosiderin, blood congestion, blood infiltration, dilation, degeneration, detachment, fibrosis, lipid vacuolization, necrosis, hepatocyte hypertrophy, melanomacrophage and parasite infection. The histological alterations in the liver tissues of *S. sarana* were detected hemorrhage among hepatocytes and around portal vein, hemosiderin in hepatocytes and in portal vein, blood congestion in portal vein, blood infiltration around hepatopancreas, detachment of hepatopancreas, blood infiltration and fibrosis around bile duct, fibrosis in blood vessel, lipid vacuolization in hepatocytes and around bile duct, necrosis of hepatocytes and melanomacrophage. Parasite infections included
Figure 4: Histological changes in the gill tissue of Systomus sarana from Paleik Lake.

(A – E, x100. F – L, x400)
Figure 5: Histological changes in the liver tissue of Systomus sarana from Paleik Lake. A-H (x 100), I-L (x400)
Discussion

In this study, several histological alterations in the gill tissue of *S. sarana* were recorded. Blood congestion, separation, dilation, elastic cartilage and fusion were remarkably occurred in monthly. Osman *et al.* (2010) who similarly reported that the aquatic pollution of fish also caused blood congestion, elastic cartilage and dilation of lamellae in the gill tissues. Fuat–Gulhan *et al.* (2013) who reported that shortening, fusion of lamellae and elastic cartilage of lamellae in the gill tissues of rainbow trout exposed to various concentrations of cypermethrin pesticides. The similar findings were occurred in the present study due to these pesticides were using by the local farmers around study site that could discharged into Paleik Lake. In the present study, deformed cartilage of irregular chondrocyte was also occurred in the gill tissues of *S. sarana*. These results were similar finding by Lovy *et al.* (2011) who reported that several types of lesions were observed affecting in gill lamellae. In the present study, histological examinations were revealed that parasite infection, including parasite cysts with hyperplasia and aneurysm. Parasites infection was occurred in March to July. These results were assumed by Shoaibi-Omrani *et al.* (2009) who histopathology examination of the infected fish gills revealed cartilage proliferation around parasite cysts with hyperplasia and fusion in the gill lamellae.

In the present study, the most common histological changes in the liver of *S. sarana* were remarkably observed hemorrhage, hemosiderin and blood congestion in monthly. The similar findings with Tayel *et al.* (2014) who reported that the exposure of liver to fertilizers, salts and sewage may be marked hemorrhage, hemosiderin, degeneration necrosis. In this study, these alterations such as blood infiltration, detachment, vacuole, fibrosis, rupture and melanonmacrophage were also observed in liver tissue. Sayed *et al.* (2012) who also reported that histopathological alterations were degeneration, necrosis, melano macrophage, rupture, blood infiltration and aggregation of fibrosis in liver tissue of adult *Clarias gariepinus* exposed to 4-Nong phenol pesticides. The similar histological changes in this study might be due to the pollution of heavy metal, cypermethrin pesticides. These
pesticides were used by local farmers that likely discharged by wastewater into Paleik Lake.

In the present study, histopathological changes were also observed parasite infection, including parasite cysts and parasite in May to July. Ashry et al. (2013) were reported that aggregate of parasitic forms, parasite cysts in liver tissues in relation to water quality criteria (nitrogen, ammonia, oxygen). In the present study, parasite was only observed in July. The present findings have been assumed by Rim et al. (2008) who reported that fish borne trematode parasites.

**Recommendations**

In the present study, many farmlands, agricultural areas were seen around the Paleik Lake. Farmler is using pesticides, herbicides and inorganic fertilizer that runoff to the Paleik Lake. Their manner caused the polluted water in Paleik Lake. To get the conservation of aquatic ecosystem, local people need to know knowledge concerned impact of water pollution and pesticides on fish fauna. For further study, the followings would like to be suggested.

1. Further studies on histological analysis of fishes need to be carried out based on polluted water enough to represent the whole water body of Paleik Lake.
2. Stakeholders and local people need to be education and awareness to do cooperate for conservation of aquatic ecosystem.

**References**


Effect of *Spirulina* Biofertilizer on Nutritional Value of *Vigna mungo* (L.) Hepper. in Field Experiment

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Abstract

*Spirulina* power has been used as biofertilizer in *Vigna mungo* (L.) Hepper, black gram, Mat-Pe. In field experiment, 7gl⁻¹ *Spirulina* suspension were tested on black gram. Black gram were harvested from field experiment and analyzed nutritional value. According to field experiment results, 7gl⁻¹ of *Spirulina* suspension treatment was higher nutritional value compared to control. *Spirulina* treatment of black gram contain protein 25.82%, carbohydrate 48.70%, lipid 2.12%, ash 3.35% and moisture 8.26%. Control of black gram contain protein 23.57%, carbohydrate 42.01%, lipid 1.78%, ash 3.65% and moisture 9.08%. The result showed that protein, carbohydrate and lipid content of *Spirulina* biofertilizer treatment was higher than control.

Introduction

In Myanmar, agricultural sector is the backbone of its economy. Myanmar is a leading country of pulses production among ASEAN member countries. Major exportable pulses are black gram, green gram, soybean, cowpea, kidney bean and pigeon pea. Myanmar is one of the top ten exporters of peas and beans. Among ten cultivars of peas and beans exported from Myanmar, black gram is found at the top exported crop in every year. These legumes are great importance in Myanmar agriculture and occupy the second largest position of crop cultivation due to the increasing demands for domestic consumption and exports. Algae are two thirds of the Earth's biomass. Thousands of algal species covering the Earth are now being identified for food, pharmaceuticals, biochemical and fertilizer. Utilization of algae in agriculture has a long history are suggested by early records for the nitrogen-fixing cyanobacteria (N₂-fixing blue green algae) and seaweeds. Cyanobacteria are morphologically the most diverse and implicated of the prokaryotes and species with potential as biofertilizer. Microalgae are used in agriculture as biofertilizers and soil conditioners by adding innocula to the soil (Metting 1988).

The modern pioneer scientific of Myanmar Microalgae Biotechnology was Professor Dr Than Htun, Department of Botany, University of Mandalay. In 1958, he studied photosynthesis and nitrogen fixation of *Anabaena cylindrica*. He started the application of Blue Green Algae Biofertilizer extensively on a country wide basis. The pioneer scientist was Professor Dr Min Thein who was an undergraduate student of Professor Dr Than Htun. In 1988, he started that Myanmar microalgae biotechnology on an industrial scale was realized with an edible blue green algae *Spirulina* growing naturally in Twin Taung which is a volcanic creater lake. Science 1997, long term technical cooperation has been ongoing between IGV, Germany and MPF (Myanmar *Spirulina* Factory). Professor Dr Otto Pulz has continuously and relentlessly contributed on Myanmar Microalgae Biotechnology.

Aye Mya Nyein (2012) has studied the effect of Spirulina on germination, growth, yield and nutritive value of snap bean. Mar Lar (2012), Khaing Khaing (2012), Win Mar (2012) and San San Aye (2012) also studied the effect of Spirulina fertilizer on soybean, lima bean, cow pea and lab lab bean respectively. They had also found the same effect of fertilizer on seed germination, plant growth and nutritional value.

In the present study, the focus is the effect of Spirulina biofertilizer on nutritional composition of black gram. This research conducted with the following objectives, to determine the proper Spirulina treatment for maximum nutritional value of black gram and to know the effect of Spirulina on protein and some nutritional composition.

**Materials and Methods**

Field experiment was conducted at Yathit Village, Taung Thar Township, Mandalay Region during November 2010 to February 2011 in winter season. The black gram cultivar used in this experiment was obtained from Department of Agricultural Research (DAR), Yezin, Naypyitaw. Spirulina powder were obtained from Myanmar Pharmaceutical Factory (MPF), Ye Khar, Sagaing Region and used as biofertilizer.

Spirulina suspension of 7gl⁻¹ was prepared by dissolving in pure water for 24 hours. And then, 7gl⁻¹ Spirulina suspension were obtained. Black gram seeds were soaked in Spirulina suspension for 8 hours. The untreated condition (control) were soaked in pure water. Then seeds were sown by hand in each row at the depth of approximately 1-2cm.
Figure 1: Materials and Methods

Harvesting was done when pods mature and analyzed nutritional value. The plant specimens were collected from field experiment and morphological characters were described.

Determination of nutrient composition of black gram seeds

The crude protein and some nutrient composition of black gram seeds were determined by Quality Control Department, Myanmar Pharmaceutical Factory (MPF), Ye Khar, Sagaing Region. Protein content of seeds was analyzed by Kjeldahl method. Determination of water soluble carbohydrate by phenol-sulphuric colorimetric method was made. Moisture content was determined by moisture analyzer (XM.60) and determination of lipids was done by Soxhlet Extraction method of IGV, GmbH. The content of ash was determined by combustion of in Muffle Furnace.

Results

Plant specimens were collected from field experiment and described morphological character. Morphological characters of black gram were shown in figure 2.

Morphological Characters of Vigna mungo(L.) Hepper.

- **Family**: Fabaceae
- **Scientific Name**: Vigna mungo(L.) Hepper.
- **Myanmar Name**: Mat Pe
- **English Name**: Black gram, Urd bean

The plants are annual erect herbs, hairy, about 60 cm tall. The plant have a well develop tap root and many lateral roots with smooth rounded nodules. The stem is diffusely branched from the base and furrowed, reddish brown, pubescent. Leaves are alternate, trifoliate compound, petiolate; leaflets ovate or rhombic ovate, entire, based rounded, acute at the apex. Inflorescence is axillary or terminal racemcs, cluster of 5 to 6 small yellow flowers on short and hairy peduncle. Flowers are bisexual, zygomorphic, hypogynous, complete, 1-2 cm across at the anthesis, pale yellow, pedicellate, bracteate, bracteolate, bract ovate. Calyx is campanulate, tubular with two upper and three lower unequal lobes, persistent. Corolla consists of 5 petals, yellow glabrous, unequal; standard orbicular; wings oblong; keel boat shaped. Stamens are
10, they may be in two bundles of 9+1, diadelphous, staminal tube white, glabours, free filaments filiform; anthers dithecous, dorsifixed, extrorse. Ovary is oblong flattened, unilocular, marginal placentation, style flattened, stigma simple. Pod are slender, erect, dark brown, normally cover with hair. Seeds are oblong, rounded, cylindrical, blackish, brown, grey in colour.

Figure 2: Morphological characters of Vigna mungo (L.) Hepper.
Effect of *Spirulina* biofertilizer on nutritional value of black gram in field experiment

In this study, the effect of *Spirulina* biofertilizer on nutritional value of black gram were conducted. Protein and some nutrient composition of black gram with *Spirulina* biofertilizer treatment and control were analyzed and compared in Table 1. The high protein, carbohydrate and lipid content were observed in *Spirulina* suspension treatment except moisture and ash content. The result showed that protein, carbohydrate and lipid content of *Spirulina* biofertilizer treatment was higher than control.

*Figure 3: Field experiment at Yathit Village, Taung Thar Township in Mandalay Region*
Figure 4: Nutritional value analysis result of Vigna mungo (L.) Hepper

Table 2
Comparison on some nutritional composition of black gram treated with Spirulina suspension treatment and control (Field experiment)

<table>
<thead>
<tr>
<th>Items</th>
<th>C (Control)</th>
<th>T (7 g⁻¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein (%)</td>
<td>23.57</td>
<td>25.82</td>
</tr>
<tr>
<td>Moisture (%)</td>
<td>9.08</td>
<td>8.26</td>
</tr>
<tr>
<td>Carbohydrate (%)</td>
<td>42.01</td>
<td>48.70</td>
</tr>
<tr>
<td>Lipid (%)</td>
<td>1.78</td>
<td>2.12</td>
</tr>
<tr>
<td>Ash (%)</td>
<td>3.65</td>
<td>3.35</td>
</tr>
</tbody>
</table>

Discussion and Conclusion
The result of this study showed that effect of Spirulina biofertilizer on the nutritional value of Vigna mungo (L.) Heper., black gram (Mat-pe). In field experiments, the effect of Spirulina suspension on nutritional value were studied. Nutritional composition were significantly different between Spirulina suspension
treatment and control were showed in Table. The protein content of Spirulina treatment was 25.8% and control was 23.57%. Protein content of Spirulina treatment was 2.39% increase than control. Carbohydrate content of Spirulina treatment was 48.70% and control was 42.01%. Carbohydrate content of Spirulina treatment 6.69% increase than control.

Khin Lay Nandar Aung (2010) stated that 7gl\(^{-1}\) Spirulina suspension produced the high yield, nodule number and carbohydrate content of green gram. Aye Mya Nyein (2012), Mar Lar (2012), Khaing Khaing (2012), Win Mar (2012) and San San Aye (2012) stated that Spirulina biofertilizer treatment produced high yield and nutritional value of snap bean, soy bean, Lima bean, cow pea and lab lab bean respectively. They had also found the same effect of Spirulina biofertilizer on yield and nutritional value.

It can be concluded that Spirulina biofertilizer is potential biofertilizer actually improved nutritive value of V. mungo (L.) Hepper. Therefore, Spirulina biofertilizer applications were suitable in using for agriculture. According to literature and studying continuous use of biofertilizer result increased soil organic matter, reduce erosion and higher soil biological activity and increased year after the year of application. The heavy application of agricultural chemicals to increase production has result decline in soil fertility and consequently in lower soil productivity.

Using Spirulina suspension as the biofertilizer can be beneficial to local farmers in many ways such as cost effect and limitation of input, it is being environmental friendly method which checking the soil-degradation by using inorganic fertilizer. Another thing is that utilizing small amount of suspension treatment can be effective to have high yeldings and also have the nutritive value. This research finding recommend that Spirulina suspension must be produced and utilized as the commercial scale for sustainable organic farming. Further experiments are carried out to test the effect of more microalgal strains on the growth and yield not only V. mungo (L.) Hepper. but also other plant's seeds too.

Acknowledgements
I wish to express my greatful thanks to Dr Than Htut Lwin of Principal, Taunggoke Degree College. I am deeply indebted to Dr Ohn Maung, Professor and Head, Department of Botany, Taunggoke Degree College with special thanks for giving good advices and encouragement of this research work. I am deeply grateful to my supervisor Dr Min Thein, Managing Director (Rtd), Myanmar Pharmaceutical Factory (MPF), Ye Khar, Sagaing, for his supervision, invaluable advice, kind understanding and help for success of this research.

References


Studies on the Characterization and Optimization of Hydroxyapatite Biocement for Orthopedic and Dental Application

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Abstract

Study has been made on the preparation, characterization and optimization of hydroxyapatite biocement from available local raw material. Its feasibility as an orthopedic and in dental application has also been conducted. The present research also describes its characteristic properties including results of biocompatibility studies. Hydroxyapatite has been prepared by precipitation method, using local raw material (limestone) which is an easily available resource in Myanmar. The nature of the precipitated hydroxyapatite cement was analyzed through XRD and FTIR spectrometry. The results showed the phase to be hydroxyapatite. The microstructure analysis, using SEM showed hydroxyapatite crystallite structure with particle size of a few micrometers. The strong evidence for the formations of the carbonate apatite composite was achieved from MALDI-TOF-MS spectra of the composites. The prepared cements do not show appreciable dimensional or thermal changes during setting. The optimization of the prepared hydroxyapatite cements were done by the variation of disodium hydrogen phosphate concentration, setting time, hardening time as well as compressive strength. The injectability was estimated by extruding through needle, and cohesive property was assessed by water contact method. The prepared hydroxyapatite cements passed the toxicological screening which was done by haemolysis test. Hence, physico-chemical properties of prepared hydroxyapatite cement showed clinically relevant value, it may be used in the orthopedic and dental applications.

Keywords: Hydroxyapatite biocement, precipitation method, XRD and FTIR, SEM and MALDI-TOF-MS measurement, haemolysis test

Introduction

Calcium phosphate based biocements have received considerable attention as bone graft substitutes, primarily because of their excellent biocompatibility, bioactivity and osteoconduction characteristics. These ceramics are used in porous, granular and dense forms. Porous calcium phosphate ceramics are quite effective in substituting for and regenerating damaged bones. The appropriate porosity, coupled with the bioactivity of the mineral, allow in-growth of the bone tissue to achieve full integration with the living bone (Vander, 2003). The most widely used calcium phosphate based bioceramics are hydroxyapatite (HA), β-tricalcium phosphate (β-tcp) and octacalcium phosphate (Ocp). Although they have similar chemical composition, they differ in their biological resorbing capacity. The dense HA ceramic which is used as bone implant is almost non-resorbable and bioinert. While porous β-tcp containing
ceramics display affinity for high speed biological degradation, Ocp is a well-recognized precursor of apatite which gradually transforms into apatite in physiological fluid and they are bioactive and bioresorbable materials. The main attractive feature of bioactive bone graft materials is their ability to form a strong direct bond with the host bone resulting in a strong interface compared to bioinert or biotolerant materials which form a fibrous interface. The bioactivity relies on physical and chemical properties of calcium phosphate ceramics (Lin H. F., 1988).

Research Objective

To develop a processing route to make bioactive ceramic of hydroxyapatite with respect to calcium phosphate bone cement suitable for orthopedic and dental applications

Research Methodology

This chapter deals with all the experimental procedures. The chemicals used were from the chemical suppliers; 'British Drug House Chemicals Ltd., Poole, England' and 'Kanto Chemical Co., Ltd., Tokyo, Japan', unless otherwise stated. Various conventional and modern techniques and instruments were used throughout the experimental procedures. All analytical works were according to recommended standard texts (Deam, 1995 and Volgel, 1964). All experimental data were computed on the statistical basis. The apparatus consists of both conventional labware and glassware and modern equipments.

Preparation and Characterization of Hydroxyapatite Cement

Hydroxyapatite cement was prepared by precipitation method by using (0.6 M) orthophosphoric acid and (1.0 M) calcium hydroxide solution. The reaction was carried out at a temperature of 34°C ± 2. The pH was 12 at the initial state of the reaction and dropped to 9 at the end of the reaction. The precipitate was refluxed at 90°C ± 5 for two hours and then stirred for another one hour till it cooled down to room temperature. The precipitate was aged at a room temperature for 48 hours without stirring. The precipitate was vacuum filtered and the filtered cake was then dried in the oven at ~110°C for 24 hours and then calcined at 800°C for 8 hours in the electric muffle furnace. It was collected in a suitable glass bottle and this was then kept in dry and sterile conditions (Garcia, 2003). The nature of phase purity and morphology of prepared cement was analyzed by X-ray diffraction, Fourier-transform infrared spectroscopy, Scanning electron microscopy and MALDI-TOF mass measurement.

The optimization of the prepared apatitic calcium phosphate cement was done by the variation of disodium hydrogen phosphate concentration, setting time, hardening time as well as compressive strength. The injectability was estimated by extrusion through needle, and cohesive property was assessed by water contact method. The prepared apatitic calcium phosphate cement passed the toxicological screening which was done by haemolysis test.
Results and Discussion

Characterization Hydroxyapatite Cement

Crystal Phase Analysis

The phase composition of the hydroxyapatite cement (HA) can be certained from X-ray diffraction (XRD). The XRD pattern of composite is shown in Figure 1. From this data, HA is identified by sharp, narrow reflection and all peaks are attributed to the HA phase. In addition, relative peak intensities are in agreement with the expected values for HA. Therefore, it can be decided that the structure consists primarily of crystalline HA; no additional peaks were observed.

FT-IR Spectrum Analysis

FT-IR analysis showed all typical absorption characteristic of hydroxyapatite cement. From the FT-IR spectrum (shown in Figure 2), absorption peaks observed at 3422 and 1616 cm\(^{-1}\) are assigned to OH- group stretching and vibrational modes in the hydroxyapatite structure. The absorption peaks around 1100 cm\(^{-1}\) (i.e., 1120, 1043 cm\(^{-1}\)) are ascribed to P-O bond in PO\(_4\)\(^{3-}\) group in the stretching modes. The absorption peak at 973 cm\(^{-1}\) corresponds to symmetric stretching vibration of PO\(_4\)\(^{3-}\) group of HA and the absorption bands around 600 cm\(^{-1}\) (i.e., 606, 551, 485 and 443 cm\(^{-1}\), etc) can be denoted to antisymmetric bending motion of the PO\(_4\)\(^{3-}\) groups. In addition, some carbonate content (C-O shoulder) was also observed in FTIR spectrum which is an indication of the presence of carbonate group in prepared cement. This might have originated through the absorption of carbon dioxide from the atmosphere.

Microstructure Analysis

The surface micromorphology can be seen in scanning electron micrograph that was shown in Figure 3. The SEM micrograph shows lumps of particle, interconnected in the form of porous structure. The density of the cement (HA) was found to be 1.474 g cm\(^{-3}\) from the mass-volume relationship; comparison with the therorectical density (3.16 g cm\(^{-3}\)) of hydroxyapatite which gave the ~ 46 % porosity value.
MALDI-TOF-MS Spectrometric Analysis

The FT-IR results are only indicative but do not allow to one to deduce definite structural conclusions. Accordingly MALDI-TOF MS has been attempted in order to substantiate them. Figure 4 shows the MALDI-TOF MS spectrum (positive ion mode) of hydroxyapatite cement. Accordingly to the MALDI-TOF data, the functional group $\text{CO}_3^{2-}$ and $\text{HPO}_4^{2-}$ were included in prepared apatitic calcium phosphate cement (hydroxy apatite) (Buchler, 1966). Therefore, the carbonate apatite similar to biological apatite was well characterized by MALDI-TOF MS spectrum.

Optimization of the Hydroxyapatite Cements for Orthopedic and Dental Applications

The forms of orthocalcium phosphates have become materials of choice for bone repair materials because of their biocompatibility and osteoconductivity. Calcium phosphate cements are more attractive as they can be molded and shaped into any complicated geometry or filled into intricate cavities or narrow dental defect sites, within its setting period. It can be adapted to the bone cavity offering a good fixation and optimum tissue-biomaterial contact necessary for stimulating bone ingrowth (Driessens, 1995). Another attractive feature of calcium phosphate cement is that can be made into an injectable form, which simplifies the bone repair procedures from major surgery to a key-hole operation.

The design of cement is done on the basis of the physicochemical characteristics. In this study, the design of the cement, physico-chemical evaluation, toxicological screening and optimization for the porposed application are discussed in subsequent section.

Setting Time and Compressive Strength

The handling properties of the aqueous cement are mainly decided by the particle sizes and the wetting ratio. The particle sizes of the cement were already fixed to $< 150 \text{ } \mu\text{m}$ size to have a putty consistency on wetting.

The cement was observed to form workable putty only in a narrow range of wetted ratio. Insufficient amount of the wetted medium would make the cement powder an inhomogeneous mass with which shaping was difficult. Excessive amount of medium, on the other hand will give a loose paste. The optimum wetting to obtain such a form was found to be 0.6 mL of the medium per 1 g of sample powder.

Distilled water as the wetting medium took longer time to set-more than 60 min. Therefore, setting characteristics and strength of hydroxyapatite cements are controlled by the amount of accelerator, disodium hydrogen phosphate was added to speed up the precipitation reaction, there by bringing down the setting time. The
manipulation of setting times of hydroxyapatite was significant as they should meet the requirements of surgical procedures. An initial setting time of about 8 min and a final setting time of 15 min are recommended for orthopedic applications (Driessens, 1998). However, bringing down the setting times by the addition of the accelerator affects the mechanical strength of the cement adversely, as evident from the compressive strength data.

Thus, for optimization the cement, the accelerator concentration has to be selected, taking the setting time and compressive strength into consideration. In this research, accelerator concentration of 0.2 M was used for orthopedic filling application. The initial and final setting times of the hydroxyapatite cements at this concentration are 10 min and 15 min respectively and the corresponding compressive strength is 10.5 MPa.

Shrinkage
Bone cement shrinkage during setting is one of the problems encountered in bone repair when acrylic cements are used (Driessen, 1995). The shrinkage of the hydroxyapatite cements was assessed by setting the cement inside dies of regular geometry and known dimension. The set cement preserved in 100 % humidity did not show any linear shrinkage. The set cement, on drying up showed an average linear shrinkage of less than 0.2 %.

Consistency and Flow Properties
Most of the surgical demonstrations were done using cement in putty form by applying the mix at directly accessible bony defects. However, requirements of delivering the material through needles / applicators often arise in actual clinical practice, particularly in the case of narrow defects and sites of limited accessibility. The cements in putty form inherently lack viscous flow and cohesive property and hence it is difficult to inject them through narrow needles using a syringe or applicator. Taking into account the above problem, it should be used the gelling agent for improving the cohesion and handling properties of hydroxyapatite cements in putty form. The ability of the gelling agents to impart viscous flow on wetting is utilized in the present work to convert the cement putty into fully injectable consistency but not altered the basic composition. In this work, sodium alginate was chosen for testing the consistency and flow properties.

Injectability
To induce injectability, the criterion for cement consistency was set as the smooth flow through 18 gauge needle (0.85 mm inner diameter), when used with a 3 mL syringe. In the case of the cement without gelling agent, the force required to extrude the mass exceeds the maximum thumb force after a few millimeters of plunger travel. It is clear that the cement mass cannot be fully injected manually. Meanwhile, the cement with gelling agent could be extruded throughout the length of the filling under constant load, which is well below the maximum thumb force.

Cohesive Property
Photographs of the unset cement cast in water as shown in Figure 5 demonstrate the cohesive property of the cement with gelling agent. The cement without gelling agent begins to crumble on adding water and disperses in due course. It is observed that the setting of the mixed mass gets impaired when immersed in
water. The cement with gelling agent shows good cohesive and retains its shape when immersed in water, except for slight bulging at the periphery. The mass is observed to set inside water, though with a prolong setting time. The cohesive property is highly significant in clinical application that it can protect the unset cement mass from getting washed away at wet (or bleeding) surgical sites.

**Figure 5:** Comparison of the cohesive property  **Figure 6:** Prepared hydroxyapatite Cement

**Figure 7:** Haemolysis test

**Toxicological Evaluation**

The optimized prepared cements were subjected to haemolysis screening test to assess the biocompatibility. The test samples were prepared by setting the cement in the form of cylindrical block of 6 mm diameter and 12 mm height and preserved at 100 % humidity for 24 h at physiological condition prior to analyses. They were sterilized by autocleaving.

The haemolytic potential of these cement samples was assessed by exposing the blood to the extract of the material in saline and assessing the lysis of red blood cells spectrophotometrically (ISO / ASTM protocols). The toxicological screening showed highly promising results. The haemolytic potentials for hydroxyapatite was found to be 1.23 % where as the limit to the test is 5 %. The clearance in haemolysis test qualifies these prepared apatitic calcium phosphate cement for pre-clinical trials.

**Discussion**

Based on the experimental results, this research can be summarized as;

Biomaterials (polymers, metals or alloys and ceramic) find wide-spread used in virtually all branches of modern medicine i.e., in dental filling, orthopedic surgeries, bone repair and remodelling. Among these, hydroxyapatite cements are more prominent. Since, hydroxyapatite cement composite is found to have the crystalline order, crystal size and lattice structure is closely match the physical and chemical properties of bone, it suggests the importance material in the treatment of clinical filling applications. The application of MALDI-TOF-MS technique on determination of molecular mass of hydroxyapatite cement composite was innovated
in this research. The present study has revealed the potential use of the hydroxyapatite cement composite for orthopedic and dental applications.

The present study had clearly demonstrated the haemolytic potential (in vitro test) of the prepared cements used in the treatment of clinical filling application. Due to lack of time, it was not possible to study the in vitro (cyto toxicity) and in vivo characterizations. These two limitations stress that the prepared apatitic calcium phosphate cements composite, under the present circumstances should not be fully judged yet as regards to their biocompatibility screening. As in any medical field, there can be side effects including toxicity, which would be an important factor to this study.

Suggestion

Further research should be continued to address the gap of knowledge arising from the limitations mentioned above. Additional work on toxicity and side effects by the appropriate field of study will definitely be a contribution towards the objectives of which this research had been initiated.

Acknowledgements

We would like to convey our thanks to Dr. Htay Aung, Acting Rector, Loikaw University, for his kind encouragement. Our heartfelt thanks go to Dr. Soe Myint Thein, Pro Rector, Loikaw University for his invaluable supervision and guidance.

References

Removal of Lead (II) Ion from Aqueous Solution by Activated Carbon Prepared from Bamboo

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Abstract

This study is to produce microporous activated carbons from locally available materials to remove toxic heavy metals from aqueous solutions. Firstly, bamboo sample (Myinn Wa) was collected from the bamboo shop, local market. The collected bamboo sample was cut into small pieces and was thoroughly washed with distilled water. They were dried under sunlight and heated in oven at 120 °C to remove moisture completely. Secondly, the oven dried sample was ground and carbonized by carbonization or pyrolysis process. Prior to the carbonization process: pyrolysis of bamboo was determined by TG-DTA to estimate the carbonization temperature. It was found to be about 350 °C. The experimental carbonization was done at 350 °C for 2 hr and yield percent was about 34.27 %. The third stage was production of activated carbons (BAC-1, BAC-2, BAC-3) soaking with 10 % (w/v) calcium chloride, sodium carbonate and sodium sulphate solution as an activating agents. The activation step was carried out in electric furnace at temperature 600 °C for 15 min. Raw sample, primary carbon, BAC-1, BAC-2 and BAC-3 were characterized by SEM. Bamboo activated carbon (BAC-1) (soaked in 10 % CaCl2) showed high adsorptive power since it has highest bulk density, porosity and iodine number. Removal of toxic heavy metal (Pb²⁺) from aqueous solution was carried out by using BAC-1. Batch sorption experiments were performed as a function of solution pH, contact time and adsorbent dose.

Keywords: bamboo, pyrolysis, activated carbon

Introduction

Bamboo is one of the most important materials, variously used in this country. The chemical composition of bamboo is similar to that of wood. The main constituents of bamboo are cellulose, hemi-cellulose and lignin, which amount to over 90 % of the total mass. (Wikipedia, 2011)

Activated carbon, also called activated charcoal or activated coal is a form of carbon that has been processed to make it extremely porous and thus to have a very large surface area available for adsorption or chemical reactions. Activated carbon can be prepared from a wide variety of raw materials which should be abundant and cheap, with high carbon content and low inorganic content. Activated carbons are known as very effective adsorbents due to their highly developed porosity, large surface area (that can reach 300 m²g⁻¹), variable characteristics of surface chemistry and high degree of surface reactivity. These unique characteristics make activated carbon, very versatile materials, which have been studied not only as adsorbents, but
also as catalysts and catalyst supports used for different purposes such as the removal of pollutants from gaseous or liquid phases and the purification or recovery of chemicals. Generally activated carbon can be prepared from various raw materials including agricultural and forestry residues. Production of AC was activated typically through two routes, physical activation and chemical activation (Encinar et al., 1998). Activated carbon is used in gas purification, gold purification, metal extraction, water purification, medicine, sewage treatment, air filters in gas masks and respirators, filters in compressed air and many other applications. Heavy metal ions stand out among the inorganic aquatic pollutants due to their persistence and toxicity. Natural waters have been found to be contaminated with several heavy metals arising mostly from mining wastes and industrial discharges. The most toxic heavy metals include cadmium, chromium, copper, lead, mercury, and nickel (Gottipati, 2012).

Research Methodology

Sampling

Bamboo was collected from a bamboo shop, local market. The collected bamboo was cut into small pieces and thoroughly washed with distilled water to remove impurities. They were dried under sunlight and dried in oven at 120 °C for about 2 hours. The dried sample was cooled and ground. It was stored in plastic storage bag to avoid moisture, ready for carbonization process.

Thermogravimetry-differential thermal analysis (TG-DTA) of raw bamboo

Thermogravimetric analyses of raw bamboo powder were performed by thermogravimetric analyzer under nitrogen atmosphere. The procedure was in accordance with the catalogue instructions. The data and thermogram are shown in Table 1 and Figure 1.

Carbonization of raw bamboo

Samples of raw bamboo were carbonized at different temperatures at fixed time durations and at constant temperature at different time durations in a muffle furnace. The data are shown in Table 2.

Preparation of activated carbon

The primary carbons were activated by using calcium chloride, sodium nitrate and sodium sulphate. The materials were soaked with 10 % solutions of calcium chloride, sodium nitrate and sodium sulphate for a period of 24 h respectively. After that the liquid portions were decanted off and air dried. The dried materials were activated in a muffle furnace kept at 600 °C for about 15 minutes. Finally, bamboo activated carbons (BAC-1, BAC-2 and BAC-3) were obtained.
Characterization of raw bamboo, primary carbon and activated carbons

Physicochemical properties such as moisture content, ash content, bulk density and pH of raw bamboo, primary carbon and activated carbons were determined. To express the actual adsorptive power of adsorbent, the iodine number was determined.

Characterization of activated carbons by scanning electron microscopic (SEM) analysis

Primary carbon and activated carbon samples were examined by scanning electron microscope (SEM) for a visual inspection of external porosity and micro texture. The SEM model is Jeol-JSM-5610. The SEM micrographs are shown in Figure 2.

Removal of lead (II) ions by BAC-1

Removal of toxic heavy metal ion (Pb²⁺) from aqueous solution was carried out by BAC-1. The effect of sorption parameters such as solution pH, contact time and adsorbent dose were studied. The results are shown in Table 4, 5, 6 and Figure 3, 4, 5.

Results and Discussion

Pre-carbonization process by thermal analysis (TG-DTA)

Table 1 showed the data of the thermal analysis of microscale carbonization process of raw sample. This table showed the remarks of the TG-DTA analysis corresponding to the thermogram curve of Figure 1. The TG-DTA thermogram showed marked features regarding the thermal stability of the raw bamboo.

![Figure 1: TG-DTA thermogram of bamboo](image-url)
Table 1

Thermal analysis (TG-DTA) data of raw bamboo

<table>
<thead>
<tr>
<th>Temperature range (˚C)</th>
<th>Break in Temperature (˚C)</th>
<th>Weight loss (% w/w)</th>
<th>TG-DTA remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>42-120</td>
<td>80 (1st onset temperature)</td>
<td>11.95</td>
<td>Dehydration due to surface water, sorbed water and combined water</td>
</tr>
<tr>
<td>120-220</td>
<td>-</td>
<td>-</td>
<td>Thermally stable</td>
</tr>
<tr>
<td>220-440</td>
<td>350 (2nd onset temperature)</td>
<td>83.18</td>
<td>Carbonization of raw bamboo (depolymerization of lignin and cellulose, decomposition of lignin backbone and cellulose backbone, drastic morphology change)</td>
</tr>
<tr>
<td>440-599</td>
<td>490 end onset temperature</td>
<td>-</td>
<td>Thermally stable</td>
</tr>
</tbody>
</table>

Carbonization (Pyrolysis) process by muffle furnace

Tables 2(a) and 2(b) showed the recorded time of carbonization and temperature of carbonization together with the yield percent of carbonized carbon at each carbonization temperature and time. Complete carbonization may have been at about 350 ˚C for 2 hr to achieve fixed carbon. From this table, after carbonization for 2 hr complete carbonization of the raw sample to fixed carbon must have taken place showing a yield of about 34.27 %. If 3 hr carbonization is prolonged, the yield percent decreased to about 32.93 %.
Table 2:(a)
Charge of the weight percent in the carbonization process as a function of carbonized temperature

<table>
<thead>
<tr>
<th>No.</th>
<th>Temperature (°C)</th>
<th>Yield (%)</th>
<th>Loss (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100</td>
<td>93.62</td>
<td>6.38</td>
</tr>
<tr>
<td>2</td>
<td>200</td>
<td>91.37</td>
<td>8.63</td>
</tr>
<tr>
<td>3</td>
<td>300</td>
<td>87.23</td>
<td>12.77</td>
</tr>
<tr>
<td>4</td>
<td>350</td>
<td>34.59</td>
<td>65.41</td>
</tr>
<tr>
<td>5</td>
<td>400</td>
<td>33.85</td>
<td>66.15</td>
</tr>
<tr>
<td>6</td>
<td>450</td>
<td>33.70</td>
<td>66.30</td>
</tr>
</tbody>
</table>

Carbonization time for each batch process = 1 h
Weight of raw sample = 3 g

Table 2:(b)
Charge of the weight percent in the carbonization process as a function of carbonized time

<table>
<thead>
<tr>
<th>No.</th>
<th>Time(h)</th>
<th>Yield (%)</th>
<th>Loss (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.5</td>
<td>39.77</td>
<td>60.23</td>
</tr>
<tr>
<td>2</td>
<td>1.0</td>
<td>34.59</td>
<td>65.41</td>
</tr>
<tr>
<td>3</td>
<td>1.5</td>
<td>34.41</td>
<td>65.59</td>
</tr>
<tr>
<td>4</td>
<td>2.0</td>
<td>34.27</td>
<td>65.73</td>
</tr>
<tr>
<td>5</td>
<td>2.5</td>
<td>34.25</td>
<td>65.75</td>
</tr>
<tr>
<td>6</td>
<td>3.0</td>
<td>32.93</td>
<td>67.07</td>
</tr>
</tbody>
</table>

Carbonization temperature for each batch process = 350 °C
Weight of raw sample = 3 g

Physicochemical parameters of raw bamboo, primary carbon and activated carbons

The results are shown in Table 3. The moisture content of activated carbons was lower than that of raw samples. The ash content of raw material was very low. The adsorption characteristics of activated carbon for certain uses were significantly influenced by an even small amount of ash. Moreover, the adsorption of heavy metals was also influenced by the ash content. Therefore, the raw material should have as small amount of ash as possible. After activation, the ash contents of activated carbons were significantly increased. High ash content in a way was indicative of the presence of inorganic matter, mainly in the form of non-volatile substances.

Typically activated carbons showing less volatile matter and high percent of fixed carbon indicated that these carbons can be categorized as the good quality
adsorbents. According to the experimental data, activated carbons showed the higher fixed carbon content and lower volatile matter. Among them, BAC-1 has the highest fixed carbon content and the lowest volatile matter.

Among the samples, raw bamboo was found to show the smallest bulk densities. Heat treatment accompanied by partial oxidation may have burnt out the easily volatile oxygen and hydrogen parts of cellulosic material. Moreover, when the temperature was increased, the absorbed water or moisture altering in the samples was removed thus tending to make the samples more rigid and compact.

The pH of raw bamboo showed slight acidic characters. This was not surprising that raw sample possesses cellulose (carboxylic group). The pH of primary carbon slightly increased because of partial oxidation during carbonization. The activated carbons can be called acidic carbons. Moreover, compared to primary carbon and activated carbons showed lowest pH value, i.e., the highest acidic character. Increase of acidity or alkalinity on an adsorbent was due to soluble matter, accumulated as surface complexes on carbon surfaces.

The iodine number is defined as the mg of iodine adsorbed per g of activated carbon, was used as the measure of adsorption capacity of char and activated carbon produced. Among the prepared activated carbons, BAC-1 has highest iodine number.

Table 3
Physicochemical parameters of raw, primary carbon and activated carbons

<table>
<thead>
<tr>
<th>Sample</th>
<th>Moisture (%)</th>
<th>Volatile Matter (%)</th>
<th>Fixed Carbon (%)</th>
<th>Ash (%)</th>
<th>Bulk Density (gcm⁻³)</th>
<th>pH</th>
<th>Iodine Number (mgg⁻¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw</td>
<td>9.78</td>
<td>78.16</td>
<td>8.73</td>
<td>3.33</td>
<td>0.38</td>
<td>6.5</td>
<td>-</td>
</tr>
<tr>
<td>Primary Carbon</td>
<td>8.24</td>
<td>43.72</td>
<td>43.51</td>
<td>4.53</td>
<td>0.61</td>
<td>6.3</td>
<td>-</td>
</tr>
<tr>
<td>BAC-1</td>
<td>6.91</td>
<td>37.80</td>
<td>48.23</td>
<td>7.06</td>
<td>0.99</td>
<td>4.0</td>
<td>1119</td>
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<tr>
<td>BAC-2</td>
<td>5.65</td>
<td>42.93</td>
<td>44.96</td>
<td>6.46</td>
<td>0.68</td>
<td>4.3</td>
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<tr>
<td>BAC-3</td>
<td>6.08</td>
<td>43.12</td>
<td>44.24</td>
<td>6.58</td>
<td>0.74</td>
<td>5.7</td>
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</table>

*(Proximate analysis)*

Scanning electron microscopic (SEM) analysis

SEM micrographs of raw bamboo, primary carbon, BAC-1, BAC-2 and BAC-3 samples are shown in Figure 2. Among them, the SEM clearly reveals the surface texture and porosity of BAC-1 adsorbent with holes and small openings found on the surface indicating that it would increase the contact area and facilitate pore diffusion during adsorption. It showed well developed pore structure in activated carbon demonstrating corrosive effect of calcium chloride.
**Figure 2: SEM micrograph of (a) raw bamboo (b) primary carbon (c) BAC-1 (d) BAC-2 (e) BAC-3**

**Sorption of lead (II) ions by BAC-1**

**Effect of pH on the removal of lead (II) ions**

The pH of aqueous solution is an important controlling parameter in the adsorption process and thus the effect of pH has been studied by varying it in the range of 3.0-8.0. Table 4 shows the percent removal of Pb²⁺ ions ranging from an initial concentration of 1000 mg L⁻¹ to 3000 mg L⁻¹ by BAC-1 at different pH values. Figure 3 depicts the percent removal of Pb²⁺ as a function of pH. The percent removal increases with increasing pH until it reaches an optimum condition of pH 6. From the optimum pH of 6, the percent removal of Pb²⁺ ion marks begins to decrease to very low values up to pH 8. The sharper cone like form of the curves indicate that ion exchange binding capacity was very strong, it can be observed that Figure 3 showed cone like curves on the basic of different concentration of Pb²⁺ ion showed high percent removal and high concentration of Pb²⁺ ion give rise to low percent removal profiles.

**Table 4**

*Effect of pH on the removal of lead ions (Pb²⁺) by BAC-1*

<table>
<thead>
<tr>
<th>Initial Concentration (mgL⁻¹)</th>
<th>pH 3.0</th>
<th>pH 4.0</th>
<th>pH 5.0</th>
<th>pH 5.5</th>
<th>pH 6.0</th>
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<th>pH 7.0</th>
<th>pH 8.0</th>
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<tr>
<td>1000</td>
<td>36</td>
<td>64</td>
<td>86</td>
<td>93</td>
<td>97</td>
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<td>68</td>
<td>39</td>
</tr>
<tr>
<td>3000</td>
<td>20</td>
<td>46</td>
<td>67</td>
<td>71</td>
<td>72</td>
<td>68</td>
<td>59</td>
<td>31</td>
</tr>
</tbody>
</table>

Dose = 0.5 g in 50 mL of sample solution
Time = 1 hr at ambient temperature
Figure 3: The effect of pH on the removal of lead ions (Pb$^{2+}$) by BAC-1

**Effect of contact time on the removal of lead (II) ions**

**Table 5**
Effect of contact time on the removal of lead ions (Pb$^{2+}$) by BAC-1

<table>
<thead>
<tr>
<th>Initial Concentration (mgL$^{-1}$)</th>
<th>Sorption capacity (mg g$^{-1}$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 min</td>
</tr>
<tr>
<td>1000</td>
<td>78</td>
</tr>
<tr>
<td>2000</td>
<td>96</td>
</tr>
<tr>
<td>3000</td>
<td>138</td>
</tr>
</tbody>
</table>

Dose = 0.5 g in 50 mL of sample solution, pH = 6

Figure 4: The effect of contact time on the removal of lead ions (Pb$^{2+}$) by BAC-1

The effect of contact time on lead removal by activated carbon (BAC-1) using initial concentrations ranging from 1000 mg L$^{-1}$ to 3000 mg L$^{-1}$ at pH 6 are shown in Table 5 and Figure 4. The curves reached the maximum contact time of 20 min. After the maximum contact time, it can be seen that the removal of Pb$^{2+}$ ion becomes independent of time. About 97% by BAC-1 of the total metal sorption was obtained within 60 min.
Effect of dosage

The effect of amount of BAC-1 on the adsorption of Pb$^{2+}$ ions was studied. The amount of BAC-1 was varied from 4 g to 14 g using concentration of 1000 ppm. The maximum sorption capacities for Pb$^{2+}$ ions was 96.56 mg/g attained for biosorbent dose of 10 g/L as shown in Table 6 and Figure 5.

Table 6
Effect of dosage on the removal of lead ions (Pb$^{2+}$) by BAC-1 (Dosage method)

<table>
<thead>
<tr>
<th>Initial Concentration (mgL$^{-1}$)</th>
<th>Sorption capacity (mg g$^{-1}$)</th>
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<tbody>
<tr>
<td>4 g</td>
<td>88.51</td>
</tr>
<tr>
<td>6 g</td>
<td>92.91</td>
</tr>
<tr>
<td>8 g</td>
<td>94.71</td>
</tr>
<tr>
<td>10 g</td>
<td>96.56</td>
</tr>
<tr>
<td>12 g</td>
<td>97.44</td>
</tr>
<tr>
<td>14 g</td>
<td>98.0</td>
</tr>
</tbody>
</table>

Figure 5: The effect of dosage on the removal of lead ions (Pb$^{2+}$) by BAC-1

Conclusion

The present investigation showed that bamboo can be effectively used as a raw material for the preparation of activated carbon for the removal of toxic heavy metal ions from aqueous solution. Microcarbonization of clean and dry bamboo by TG-DTA analysis was able to show that the carbonization temperature of bamboo can be carried out at 350 °C. On the lab scale, an experimental yield of 34.27 % was achieved at an optimum time, 2 hr and at the temperature of about 350 °C.

The physicochemical parameters of raw sample, primary carbon and prepared activated carbons were determined. According to physicochemical parameters, BAC-1 was selected to be used as the best sorbent. BAC-1 contained moisture 6.91 %, volatile matter 37.80 %, fixed carbon 48.23 %, ash content 7.06 %, bulk density 0.99 gcm$^{-3}$ and pH 5.7 and iodine number 1119 mg g$^{-1}$. BAC-1 exhibits the highest fixed carbon content, bulk density and iodine number among the prepared samples.

BAC-1 was found to be effective adsorbent for the removal of lead (II) ion. The effect of sorption parameters in the process of sorption was studied with respect to solution pH, contact time and adsorbent dose. The adsorption process was relatively fast and equilibrium was achieved within 20 min. Adsorption increased with increasing dose of adsorbent and decreased with increasing initial concentration.
The maximum uptake of lead (II) ions occurred at an initial pH of 6.0. The maximum removal percent by BAC-1 was observed as: 97 % Pb^{2+} ion. The maximum adsorption capacity of BAC-1 was found to 96.56 mg g^{-1} for adsorbent dose of 10 g L^{-1} at pH 6.0 and reaction time of 1 hr.

**Acknowledgements**

We would like to convey our thanks to Dr. Htay Aung, Acting Rector, Loikaw University, for his kind encouragement. Our heartfelt thanks go to Dr. Soe Myint Thein, Pro Rector, Loikaw University for his invaluable supervision and guidance.

**References**


Seasonal Occurrence and Relative Abundance of Avifauna in Taungthaman Lake and Its Environs, Myanmar

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Abstract

A total of 76 species of birds belonging to 57 genera, 37 families and 14 orders were recorded from five study sites at Taungthaman Lake and its environs during January 2018 to December 2018. Among them, 29 species represented waterbirds and 47 species were terrestrial birds. Order Passeriformes was the largest order containing 35 species (46.05 %). The highest number of species and individuals were recorded in cold season and the lowest in rainy season. The highest number of species and individuals were recorded from Site II and the lowest was in Site IV. According to average relative abundance, six species were recorded as very common, 13 species as common and 39 species as uncommon at Site I. Six species were recorded as very common, 19 species as common and 47 species as uncommon at Site II. Four species were recorded as very common, 22 species as common and 36 species as uncommon at Site III. Two species were recorded as very common, 24 species as common and 30 species as uncommon at Site IV. At Site V, six species were recorded as very common, 17 species as common and 42 species as uncommon. Since Taungthaman Lake and its environs support a variety of bird fauna including two Myanmar endemic species namely Mirafra microptera and Chatarrhaea gularis and many migratory birds, it is suggested that priority should be given for conservation investment.

Keywords: seasonal occurrence, abundance, avifauna, Taungthaman

Introduction

Zoogeographically Myanmar belongs to sub-regions of India, Indo-China and Malaysia. The dry zone of Central Myanmar, although it can not be included in the Indian subregion, nevertheless has some strong links with the birds of continual India, no doubt for climatic reason. Because of its favourable conditions, with its head near the Himalayas, Myanmar has one of the richest avifauna than any other country in the world (Smythies, 1953).

The relative abundance of bird species during seasons might be related to the availability of food, habitat condition and breeding season of the species. The distinct seasonality of rainfall and seasonal variation in the abundance of food resources result in seasonal changes in the species abundance of birds (Gaston et al., 2000; Karr& Roth, 1971, cited by Aynalem and Bekele, 2008).

Taungthaman Lake is one of the freshwater wetlands in Myanmar and located in Amarapura Township, Mandalay Region, in Myanmar. It is a natural flood plain flooded by the inflow of Ayeyarwady River in the rainy season. Moreover,
Taungthaman Lake is a bird watching place for birders. It is important for fishery, rice cultivation and growing of vegetables such as tomatoes, groundnut, and corn. These conditions attract bird species for their food, shelters and breeding sites. Many bird species are suffering from habitat loss, habitat degradation and harvesting of birds. Moreover, Taungthaman Lake generally receives less conservation investment and therefore need to be revitalized.

**Research Objectives**
1. to examine the seasonal occurrence of bird fauna
2. to determine relative abundance of bird species

**Research Methodology**

**Study Area**
Mandalay has a semi-tropical climate and in the central dry zone. Taungthaman Lake is located in Amarapura Township, Mandalay Region which lies between 21° 54’ 32” N and 21° 53’ 08” N and 96° 03’ 09” E and 96° 04’ 04” E. The area is about 816 hectares. Five study sites are designed as I, II, III, IV, and V. Site I lies in the northern part of Taungthaman Lake is situated near human settlements. Site II is situated near Myabayattarmanaykyaw monastery’s vicinity beside Yadanabon Kyaung Street and includes buildings, trees, shrubs, paddy fields, swamps and grassland. Site III is located at the central part of Taungthaman Lake near U Bein Bridge and is used for the cultivation of rice, tomatoes, groundnut, and corn when the water level declined. Site IV situated in the southern part of Lake near the duck farm and includes paddy fields and scattered trees. Site V extends throughout the east and southeast edge of Taungthaman Lake lying at Taungthaman Thitsar hotel project.

**Study Period**
The present study was conducted from January to December 2018.

**Study Design**
Bird watching was undertaken at every weekends and commenced from 7:00 am to 11:00 am and 3:00 pm to 5:30 pm. The collection of data was made using point count method and involved eight points in each site. Point count involved a standing in one spot and recording all the birds seen or heard within the fixed distance (50 m radius) for 10 minutes. The minimum distance between each point was 200 m away. For each species, the numbers of individual were recorded separately. Birds were viewed using 2x40 field Sakura binoculars and Nikon P900.

**Identification and Classification**
Identification was made according to Bhushan (1993), Smythies (2001) and Robson (2016). The taxonomic groups were properly categorized based on the classification system prepared by HBW and BirdLife International Checklist version 3.0 (2018).
Analysis of Data

The relative abundance of each species was evaluated based on the method of Bisht et al., (2004).

\[
\text{Relative abundance} = \frac{\text{Number of individuals of a species}}{\text{Total number of individuals of all the species}}
\]

Total number of individuals of all the species
The average relative abundance was arranged in the following.

\(uC\) = uncommon (having relative abundance less than 0.01)
\(C\) = common (having relative abundance of 0.01 and above but less than 0.05)
\(vC\) = very Common (having relative abundance of 0.05 and above)

![Figure 1](locmap.jpg)

*Figure 1: Location map with satellite image of study sites*

Results

A total of 76 species of birds (31385 individuals) belonging to 57 genera, 37 families and 14 orders were recorded at Taungthaman Lake and its environs, during the study period from January to December 2018. Among them 29 species represented waterbirds and 47 species were terrestrial bird.

Composition of Species

Among 14 orders, Passeriformes was the largest order containing 35 species (46.05 %) and followed by order Charadriiformes containing 11 species (14.47 %), Pelecaniformes containing 10 species (13.15 %), Coraciiformes containing
five species (6.57%), Anseriformes and Gruiformes (3 species each) (3.94 %),
Columbiformes containing 2 species and Podicipediformes, Cuculiformes,
Suliformes, Strigiformes, Accipitriformes, Bucerotiformes and Piciformes (one
species each) (1.32 %) respectively.

**Seasonal occurrence of bird species**

In hot season (61 species with 9285 individuals), in rainy season (47
species with 6965 individuals) and in cold season (70 species with 15135 individuals)
were recorded (Table 1). Among the species recorded, 42 species were recorded in all
seasons. In hot season, 20 species were represented as waterbirds and 41 species were
terrestrial birds. In rainy season, 10 species were waterbirds and 37 species were
terrestrial birds. In cold season, 27 species were represented as waterbirds and 49
species were terrestrial birds. The highest number of species and individuals was
recorded from Site II followed by Site V, Site III, Site I and Site IV (Fig 1).

**Relative abundance of bird species**

In Site I, a total of 3578 individuals contributing 58 species belonging to
44 genera, 33 families of 13 orders were recorded. Among the species recorded, six
species were recorded as very common, 13 species as common and 39 species as
uncommon. In Site II, a total of 12432 individuals contributing 72 species belonging
to 54 genera, 36 families of 14 orders were recorded during the study period. In this
study site, six species as very common, 19 species as common and 47 species as
uncommon were recorded. A total of 5142 individuals representing 62 species
belonging to 48 genera, 34 families of 13 orders were recorded from Site III. Among
the species recorded, four species were recorded as very common, 22 species as
common and 36 species as uncommon. In Site IV, a total of 3250 individuals
contributing 56 species belonging to 41 genera, 33 families of 10 orders were
recorded. Among the species recorded, two species were recorded as very common,
24 species as common and 30 species as uncommon. A total of 6983 individuals
contributing 65 species belonging to 49 genera, 35 families of 14 orders were
recorded from Site V. Among the species recorded, six species were recorded as very
common, 17 species as common and 42 species as uncommon (Fig 2).
<table>
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<th>Total</th>
<th>Status</th>
</tr>
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<td>1</td>
<td><em>Dendrocygna javanica</em></td>
<td>Lesser Whistling-duck</td>
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<td>147</td>
<td>190</td>
<td>R</td>
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<tr>
<td>2</td>
<td><em>Tadorna ferruginea</em></td>
<td>Ruddy Shelduck</td>
<td>108</td>
<td>0</td>
<td>751</td>
<td>859</td>
<td>WV</td>
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<td>Chinese Spot-billed Duck</td>
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<td>0</td>
<td>6</td>
<td>6</td>
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<td>Little Grebe</td>
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<td>5</td>
<td>33</td>
<td>38</td>
<td>R</td>
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<td>5</td>
<td><em>Columbia livia</em></td>
<td>Rock Dove</td>
<td>620</td>
<td>534</td>
<td>641</td>
<td>1795</td>
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<td>Eastern Spotted Dove</td>
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<td>Glossy Ibis</td>
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<td>752</td>
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<td><em>Ardea grayii</em></td>
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<td>294</td>
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<td><em>Ardea bacchus</em></td>
<td>Chinese Pond-heron</td>
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<td>425</td>
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<td>16</td>
<td><em>Bubulcus ibis</em></td>
<td>Cattle Egret</td>
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<td>458</td>
<td>683</td>
<td>1722</td>
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<td><em>Ardea cinerea</em></td>
<td>Grey Heron</td>
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<td>0</td>
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<td>174</td>
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<td>Intermediate Egret</td>
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<td>527</td>
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<td>1963</td>
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<td>Great Egret</td>
<td>318</td>
<td>248</td>
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<td>313</td>
<td>218</td>
<td>402</td>
<td>933</td>
<td>R</td>
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*waterbirds
<table>
<thead>
<tr>
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<th>Common name</th>
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<th>Rainy</th>
<th>Cold</th>
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<th>Status</th>
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<td>22</td>
<td>Recurvirostra avosetta*</td>
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<td>0</td>
<td>13</td>
<td>23</td>
<td>WV</td>
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<td>23</td>
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<td>Black-winged Stilt</td>
<td>255</td>
<td>0</td>
<td>1233</td>
<td>1488</td>
<td>WV</td>
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<td>24</td>
<td>Charadrius hiaticula*</td>
<td>Common Ringed Plover</td>
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<tr>
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<td>Charadrius dubius*</td>
<td>Little Ringed Plover</td>
<td>46</td>
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<td>259</td>
<td>305</td>
<td>WV</td>
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<tr>
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<td>Vanellus indicus*</td>
<td>Red-wattled Lapwing</td>
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<td>0</td>
<td>1</td>
<td>1</td>
<td>R</td>
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<tr>
<td>27</td>
<td>Hydrophasianus chirurgus*</td>
<td>Pheasant-tailed Jacana</td>
<td>18</td>
<td>11</td>
<td>5</td>
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<td>0</td>
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<td>R</td>
</tr>
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<td>Black Kite</td>
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<td>10</td>
<td>221</td>
<td>231</td>
<td>R</td>
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*waterbirds
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<td>Great Myna</td>
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<td>151</td>
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<td><em>Acridotheres grandis</em></td>
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<td>28</td>
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<td>62</td>
<td><em>Saxicola caprata</em></td>
<td>Pied Bushchat</td>
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<td>91</td>
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<td><em>Saxicola leucurus</em></td>
<td>White-tailed Stonechat</td>
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<td>130</td>
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<td>Siberian Stonechat</td>
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<td><em>Cinnyris asiaticus</em></td>
<td>Purple Sunbird</td>
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<td>0</td>
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<td>288</td>
<td>335</td>
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<td>70</td>
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<td>Eurasian Tree Sparrow</td>
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<td>72</td>
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<td>0</td>
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<td>73</td>
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<td>Paddyfield Pipit</td>
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<td>20</td>
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<tr>
<td>75</td>
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<tr>
<td>76</td>
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<td>White Wagtail</td>
<td>137</td>
<td>70</td>
<td>905</td>
<td>1112</td>
<td>WV</td>
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</tbody>
</table>

Total number of individuals: 9285 (Hot), 6965 (Rainy), 15135 (Cold), 31385 (Total)

Total number of species: 61 (Hot), 47 (Rainy), 70 (Cold), 76 (Total)

R = resident, WV = winter visitor
March - June = Hot
July - October = Rainy
November - February = Cold
Discussions

During the study period from January to December 2018, a total of 76 species of birds (31385 individuals) confined to under 57 genera and belonging to 37 families and 14 orders were recorded. Among these, 29 species were waterbirds and 47 species were terrestrial birds. In the present study, 57 species were recorded as resident and 19 species as winter visitor. Order Passeriformes represented the highest species composition and most of the common terrestrial birds were recorded. According to season, the highest number of species and individuals was found in cold season. Seasonal changes in the number of species and individuals in the present study may be due to the occurrence of winter visitors during cold season and due to the seasonal...
availability of food sources. The lowest number of species and individuals found in rainy season is accountable the less activity of bird species.

Nu Nu San (2009) recorded lowest number of terrestrial and aquatic birds in rainy season and highest numbers in cold season from Sakar In (Lake) environs from Nyaungshwe Township. Nu Nu Tun (2011) stated that number of species and individuals from Mandalay environs were lowest in rainy season and the highest number was recorded in cold season. Nu Nu San (2009) and Nu Nu Tun (2011) findings agree with the present study in that the number of species and individuals were more in cold season and less in rainy season. Tin Ko Ko (2012) stated that the seasonal occurrence for the highest number of individuals were observed in cold season and lowest in hot season. This may be due to seasonal movement of waterbirds. According to Khin Lay Mu (2008), the cold season is suitable for aquatic organisms. The enriched food source area would attract both resident and migratory waterbirds. Migratory birds always move to areas where there is rich food source. This in turn is affected by climatic factors.

With regard to study sites, total number of species and individual were highest in Site II. Because this site represented large aquatic areas including terrestrial areas of extended marshy, bushy and trees dominated areas near by lake. The lowest numbers of species and individuals were in Site IV. This may be due to less availability of food sources and human activities, since this study site located near the duck farm.

According to average relative abundance, *Columba livia* (Rock Dove), *Egretta garzetta* (Little Egret), *Corvus splendens* (House Crow), *Hirundo rustica* (Barn Swallow), *Acridotheres tristis* (Common Myna) and *Passer domesticus* (House Sparrow) were very common in Site I. At Site II, *Columba livia* (Rock Dove), *Bubulcus ibis* (Cattle Egret), *Ardea intermedia* (Intermediate Egret), *Egretta garzetta* (Little Egret), *Himantopus himantopus* (Black-winged Stilt) and *Hirundo rustica* (Barn Swallow) were found as very common. *Ardea intermedia* (Intermediate Egret), *Egretta garzetta* (Little Egret), *Himantopus himantopus* (Black-winged Stilt) and *Hirundo rustica* (Barn Swallow) were very common in Site III. At Site IV, *Ardea intermedia* (Intermediate Egret) and *Hirundo rustica* (Barn Swallow) were very common in this study site. At Site V, six species were recorded as very common, 17 species as common and 42 species as uncommon.*Columba livia* (Rock Dove), *Bubulcus ibis* (Cattle Egret, *Ardea intermedia* (Intermediate Egret), *Egretta garzetta* (Little Egret), *Hirundo rustica* (Barn Swallow) and *Motacilla aiba* (White Wagtail) were very common.

Myanmar endemic species *Chatarrhaea gularis* (White-throated Babbler) and *Mirafra microptera* (Burmese Bushlark) were observed during the study period. The data revealed that the aquatic habitat bordered by big tree was found to be inhabited with more abundant species and individuals.
Recommendations

Based on the result of the study revealed that Taungthaman Lake and its environs is very important for bird conservation, because a great number of bird species, individuals and endemic bird still exist in this region. Taungthaman Lake and its environs is suffering from the environmental effects of duck farm, water pollution, illegal fishing and using of pesticides. There is still further needed to research all environmental problems that threatens Taungthaman Lake and its environs for a long-term conservation of bird species.

References


Tin Ko Ko. (2012). Occurrence and diversity of waterbird species at Ta-ohn In (Lake) with emphasis on nesting and hatching success of Tachybaptus ruficollis Pallas, 1764, PhD Dissertation. Department of Zoology, University of Mandalay.
Antioxidant Activity and Antimicrobial Activity of Crude Extract and Structure Elucidation of Bioactive Organic Compound Isolated from Selected Myanmar Indigenous Medicinal Plant, Markhamia stipulata (Wall.) Seem. ex K. Schum. (Ma hlwa)

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Abstract
In this research work, Myanmar indigenous medicinal plant namely Markhamia stipulata (Wall.) Seem. ex K. Schum. was chosen for detail chemical analysis. The IC₅₀ values of ethanol and water extracts were 28.24 μg/mL and 26.96 μg/mL. The crude extract in three solvent systems of root bark of Markhamia stipulata (Wall.) Seem. ex K. Schum. responded medium activities on three tested organisms. Furthermore, a potent pure unknown organic compound was isolated from the root-bark of Ma-hlwa by using advanced chromatographic methods such as Thin Layer and Column Chromatograms, which gives rise to the biologically active organic compound as a colorless needle shape crystals. Moreover, this pure compound responded medium antimicrobial activities on three tested organisms namely Bacillus pumilus, Candida albican and Mycobacterium species by agar well diffusion method. In addition, the molecular formula (C₁₀H₈O₄) of this compound could be elucidated by employing some spectroscopic techniques, such as FT-IR, ¹H NMR (600 MHz), ¹³C NMR (150 MHz), DEPT and EI-Mass spectral data, respectively. The hydrogen deficiency index of this compound is 7.

Keywords: antioxidant activity, antimicrobial activity, C₁₀H₈O₄, Markhamia stipulata (Wall.) Seem. ex K. Schum.

Introduction
Substances derived from the plants remain the basis for a large proportion of the commercial medicines used today for the heart disease, high blood pressure, pain, asthma and other problems. For example, ephedra is a herb used in traditional Chinese medicine for more than the thousand year to treat asthma and other respiratory problems. Ephedrine, the active ingredient in ephedra, is used in the commercial pharmaceutical preparation for the relief of asthma symptoms and other respiratory problems (B.J. Melloni, 2003). The vitamin C, the ascorbic acid was successfully isolated from the citrus fruits which gave complete cure for the scurvy suffered by the British soldiers whose had lived on tin-provision only. But, the natives of the island who regularly had citrous fruits were found to be free from scurvy. Medicinal properties of the plants growing in the particular soil depends on the pattern of weather, sunlight, time of harvesting method of preparation of herbal medicines.
Plants having medicinal properties are found to grow widely in tropical climates (R. K. Murray, et al, 2006).

Medicinal plants are important for pharmacological research and drug development, the phytochemicals are not only used directly as therapeutic agents, but they are also employed as starting materials for the synthesis of drugs or models for pharmacologically active compounds (Graham Pinn, 2003).

The move from the original sources of medicines to manufacture alternatives is the result of developments in chemistry which made it possible to extract chemicals from plants, to determine the active ingredients and there after to synthesise them artificially. Historically, herbal medicines have been used for minor illness only but there is an increasing push for use in conditions of modern living such as, hypertension, hyperlipidaemia, diabetes mellitus and ischaemic heart disease (Nyunt Yí, 2007).

**Research Objectives**

The Objectives of the present research work are;

1. To investigate the antimicrobial activity of a pure organic compound isolated from medicinal plants.
2. To isolate and elucidate the structure of the bioactive compound by using joint application of chromatographic and spectroscopic methods.
3. To discover new and more effective biologically active compound and to contribute the quality of pharmaceutical preparation from plants.

**Research Methodology**

**3.1 Sample Collection**

For chemical analysis and pharmacological investigation, the sample (root of Tsu le) was collected from Butarhown Quarter, Myin-mu Township, Sagaing Region, Myanmar.

**3.2 Instrumentation**

(i) The FT-IR spectrum  
(ii) $^1$H NMR Spectrophotometer (500 MHz)  
(iii) $^{13}$C Spectrophotometer (125 MHz)  
(iv) EI-Mass Spectrophotometer

**3.3. Materials**

(i) Commercial grade reagents and solvents were used.  
(ii) Iodine-vapour and UV lamp were used for location of the spots.  
(iii) Silica gel G-60, (70-230) mesh was used for column chromatography.

**4. Research Results**

**4.1 Botanical Description and Traditional Uses**

Botanical name - *Markhamia stipulata* (Wall.) Seem. ex K. Schum.  
Family name - Bignoniaceae  
Myanmar name - Ma hlwa  
Flowering period - September to December  
Medicinal uses - Leprosy, Tuberculosis, Thrush and Oligouria
4.2 Isolation and Separation of an Unknown Compound from Makhamia stipulata (Wall.) (Seem). Ma-hlwa (Mc Murry, 1999 and Stable, 1965)

The air-dried sample of Ma hlwa (1000 g) was percolated with 95% ethanol (3 L) at room temperature for three months. The ethanol extract was filtered and filtrate was concentrated. The residue obtained was re-extracted with ethyl acetate (840 ml). This extract was evaporated to dryness. The crude extract (7.25 g) was obtained. Concentrated crude extract (4.25 g) of Ma hlwa was isolated by column chromatographic method using silica gel (70–230 Mesh) as an adsorbent and various ratios of n-Hexane and EtOAc ranging from non-polar to polar were used as eluent. In this column separation, total 170 fractions were obtained. Each and every fraction were checked by TLC and the same Rf value fractions were combined. Eighteen combined fractions were obtained and checked by TLC again. The resulting major combined fraction was concentrated and washed with n-hexane, and re-crystallized by using n-hexane and ethyl acetate (4:1 v/v). The colorless needle shaped crystal (35.3 mg) was produced. The Rf value of this compound is 0.28 (n-hexane and ethyl acetate 1:1).

4.3 Antimicrobial Activities of the Root bark of Ma hlwa

The antimicrobial activities of the crude extracts in three solvent systems were determined by applying Agar-well diffusion method in DCPT, In-Sein, Yangon. The resulting data of different types of organisms are tabulated in Table (1). According to this table, the ethanol extract of root bark of Ma hlwa informs medium activities on six selected microorganisms with inhibition diameter (15-19 mm).
Table 1

Results of Antimicrobial Activities of the Root bark of Ma hlwa

<table>
<thead>
<tr>
<th>Sample Solvent</th>
<th>Organisms</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
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<tbody>
<tr>
<td>The root of Tsu le n-hexane</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>14 mm(+)</td>
<td>17 mm(++)</td>
<td>12 mm(+)</td>
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<tr>
<td>EtOAc</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>15 mm(++)</td>
<td>17 mm(+)</td>
<td>18 mm(++)</td>
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<tr>
<td>EtOH</td>
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<td>18 mm(++)</td>
<td>19 mm(++)</td>
<td>19 mm(++)</td>
<td>19 mm(++)</td>
<td></td>
</tr>
</tbody>
</table>

Agar well – 10 mm
10 mm ~ 14 mm (+) (1) Bacillus subtilis (4) Bacillus pumilus
15 mm ~ 19 mm (++) (2) Staphylococcus aureus (5) Candida albican
20 mm above (+++) (3) Pseudomonas aeruginosa (6) Mycobacterium species

4.4 Preliminary Phytochemical Screening on the root bark of Ma hlwa

The phytochemical examination of root bark of Ma hlwa was tested by usual method. In accordance with phytochemical tests, the root bark of this sample contains flavonoid, phenolic, polyphenol, steroid, terpene and glycoside respectively. These results are shown in table 2.

Table 2

The Result of Phytochemical Screening for Root bark of Ma hlwa

<table>
<thead>
<tr>
<th>No.</th>
<th>Constituent</th>
<th>Reagent used</th>
<th>Observation</th>
<th>Result</th>
</tr>
</thead>
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<td>Flavonoid</td>
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<td>Pink color</td>
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</tr>
<tr>
<td>2</td>
<td>Alkaloid</td>
<td>Dragendorff’s reagent</td>
<td>Orange ppt</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>Glycoside</td>
<td>10% Lead Acetate</td>
<td>Cream ppt</td>
<td>+</td>
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<tr>
<td>4</td>
<td>Terpene</td>
<td>CHCl₃, Conc: H₂SO₄, Acetic Anhydride</td>
<td>Pink color</td>
<td>+</td>
</tr>
<tr>
<td>5</td>
<td>Steroid</td>
<td>Pet ether, Conc: H₂SO₄, Acetic Anhydride</td>
<td>Green color</td>
<td>+</td>
</tr>
<tr>
<td>6</td>
<td>Phenol</td>
<td>10% FeCl₃</td>
<td>Deep color</td>
<td>+</td>
</tr>
<tr>
<td>7</td>
<td>Polyphenol</td>
<td>10% FeCl₃ + 1% K₃Fe(CN)₆</td>
<td>Greenish blue</td>
<td>+</td>
</tr>
</tbody>
</table>

(+)= presence of constituents  (-)= absence of constituents

4.5 Antimicrobial Activities of Isolated Compound

The antimicrobial activities of ethanol extract of isolated compound were rechecked by agar well diffusion method. It gave medium activities on Bacillus pumilus, Candida albicans and Mycobacterium species and low activities on Bacillus subtilis, Staphylococcus aureus and Pseudomonas aeruginosa. These results were shown in Table 3.
Table 3
Antimicrobial Activities of the Isolated Compound

<table>
<thead>
<tr>
<th>Sample</th>
<th>Solvent</th>
<th>(1)</th>
<th>(2)</th>
<th>Organism</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolated</td>
<td>Ethano</td>
<td>12 mm (+)</td>
<td>11 mm (+)</td>
<td>Bacillus subtilis</td>
<td>11 mm (+)</td>
<td>15 mm (++</td>
<td>16 mm (++</td>
<td>15 mm (++</td>
</tr>
<tr>
<td>Compound</td>
<td>1</td>
<td></td>
<td></td>
<td>Staphylococcus aureus</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>Ethano</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

Agar well – 10 mm ~ 14 mm (+) : 15 mm ~ 19 mm (++ : 20mm above (+++)

Organisms: (1) Bacillus subtilis (2) Staphylococcus aureus
(3) Pseudomonas aeruginosa (4) Bacillus pumilus
(5) Candida albican (6) Mycobacterium species

Figure 2: Antimicrobial Activities of Isolated Compound

4.6 Determination of Antioxidant Activity of Crude Extracts by DPPH Free Radical Scavenging Assay

The free radical scavenging activity of crude extracts (ethanol and water extracts) of root bark of Ma-hlwa was measured by using DPPH free radical scavenging assay (Marinova and Batchvarov, 2011).

Preparation of solutions

(a) Preparation of 0.002 % (w/v) DPPH solution

0.002 % DPPH solution was prepared in the brown coloured bottle by dissolving 2 mg of DPPH powder in 100 mL of ethanol. It must be stored in the refrigerator for no longer than 24 hr.

(b) Preparation of standard solutions (Gallic acid)

The stock solution (200 μg/mL) of standard gallic acid was prepared by dissolving (2 mg) of each compound in 10 mL of ethanol. The stock solutions were two fold serially diluted with ethanol to get the standard solutions with the concentrations of 100, 50, 25, 12.5, 6.25 and 3.125 μg/mL.
(c) Preparation of test sample solutions
The stock solution (200 μg/mL) of the crude extract was prepared by dissolving (2 mg) of respective crude extract in 10 mL of ethanol. The stock solutions were two fold serially diluted with ethanol to get the sample solution with the concentrations of 100, 50, 25, 12.5, 6.25 and 3.125 μg/mL.

(d) Preparation of blank solution
Blank solution was prepared by mixing 1.5 mL of sample solution with 1.5 mL of ethanol.

Procedure
DPPH radical scavenging activity was determined by UV-visible spectrophotometer (Marinova and Batchvarov, 2011).

The control solution was prepared by mixing 1.5 mL of 0.002% DPPH solution and 1.5 mL of ethanol in the brown bottle. The sample solution was also prepared by mixing 1.5 mL of 0.002 % DPPH solution and 1.5 mL of test sample solution. These bottles incubated at room temperature were shaken on shaker for 30 min. After 30 min, the absorbance values of these solutions were measured at 517 nm and the percentage of radical scavenging activity (% RSA) was calculated by the following equation.

\[ \% \text{RSA} = \left( \frac{A_{\text{DPPH}} - A_{\text{Sample}} - A_{\text{Blank}}}{A_{\text{DPPH}}} \right) \times 100 \]

where, % RSA = % radical scavenging activity of test sample
\( A_{\text{DPPH}} \) = absorbance of DPPH in ethanol solution
\( A_{\text{Sample}} \) = absorbance of sample + DPPH solution
\( A_{\text{Blank}} \) = absorbance of sample + EtOH solution

The antioxidant activity (IC₅₀) is expressed as the test substance concentration (μg/mL) that results in a 50 % reduction of initial absorbance of DPPH solution. IC₅₀ (50 % inhibition concentration) values were calculated by linear regressive excel program. The standard deviation was also calculated by the following equation.

\[ \text{Standard Deviation (SD)} = \sqrt{\frac{(x-x_1)^2 + (x-x_2)^2 + ... (x-x_n)^2}{n-1}} \]

4.7 Medicinal Uses of M. stipulata Seem. E x K. Schum
The leaves and barks of *Markhamia stipulata* are used externally for the treatment of skin diseases and internally as an analgesic (Kanchanapoom T., *et al.*, Hoang VS, *et al.*, 2004). Bioactive chemical compounds including quinones, phytosterols, lignans, and phenol groups have been isolated from different parts of the plant (Kanchanapoom T., *et al.*, 2002), Joshi KC, *et al.*, 1978). Although the pharmacological activity of the compounds isolated from the plant has not been investigated, the pharmacological activities of verbacoside derivatives have been reported to have antifungal, antibacterial, antiviral, and analgesic effects (Kernan MR, *et al.*, 1998, Cometa F, *et al.*, 1993, Jiménez C, *et al.*, 1994).

4.7 Molecular Formula Determination of isolated Compound
From DEPT spectrum, the number and kinds of carbons as well as protons containing in this compound could be assigned. FT-IR spectrum represents the existence of the prominent functional groups. In accordance with these spectra, the number and kinds of carbon, proton and oxygen are tabulated in Table 4.
Table 4
The Results given by DEPT Spectrum and FT-IR Spectrum

<table>
<thead>
<tr>
<th>Assignments</th>
<th>No. of carbon</th>
<th>No. of proton</th>
<th>No. of oxygen</th>
</tr>
</thead>
<tbody>
<tr>
<td>From DEPT spectrum, Five sp² quaternary carbons</td>
<td>5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Four sp² methine carbons</td>
<td>4</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>One sp³ methoxy carbon</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>One Carbonyl group (at □ 160.56 ppm)</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>One hydroxyl group (at □ 151.22 ppm)</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>From FT-IR spectrum, One ether group</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Total number of carbon, proton and oxygen</td>
<td>10</td>
<td>8</td>
<td>4</td>
</tr>
</tbody>
</table>

Therefore, molecular formula = C\textsubscript{10}H\textsubscript{8}O\textsubscript{4} and
The molecular mass = m/z 192.
From EI-Mass spectrum, the molecular ion peak m/z = 192
Therefore, the real molecular formula of isolated compound could be assigned as C\textsubscript{10}H\textsubscript{8}O\textsubscript{4} which agrees with “Nitrogen Rule”.

4.9 Structure Elucidation of Isolated Compound from the Root bark of Ma hlwa

In \textsuperscript{1}H NMR spectrum, the two singlet aromatic protons (□ 6.78 ppm and □ 7.22 ppm) show that they are oriented at para position giving rise to the following tetrasubstituted benzene fragment (a).

Furthermore, HMBC spectrum responds α \textsuperscript{1}H-C long range signal between the sp² methine proton (□ 6.78 ppm) and the two sp² quaternary carbons (□ 151.22 ppm, □ 110.42 ppm) leading to the following two possible fragment (a) and (a′).
In addition, the methoxy methyl protons δ 3.82 ppm respond and β and γ $^1\text{H}\text{-C}$ long range signal with the two down field chemical shift aromatic carbons (δ 145.22 ppm and δ 151.22 ppm) which determines the following extended fragment (b).

Moreover, the occurrence of α $^1\text{H}\text{-C}$ long range signal of the aromatic proton (δ 7.22 ppm) with both of sp$^2$ quaternary carbons (δ 145.22 ppm and δ 149.49 ppm) and β $^1\text{H}\text{-C}$ long range signal of alkenic proton (δ 6.78 ppm) with the above sp$^2$ quaternary carbons in the same HMBC spectrum, implies the following fragment (c).

Furthermore, in DQF-COSY and $^1\text{H}$ NMR spectrum, the splitting pattern and the coupling constant (d, $J=9.53$ Hz) between the two alkenic protons (δ 6.21 ppm and δ 7.89 ppm) reveals that they are cis to each other as shown in the following fragment.

Besides, the existence of and α and β $^1\text{H}\text{-C}$ long range coupling of the two sp$^2$ methine protons (δ 6.21 ppm, δ 7.89 ppm) with carbonyl carbon (δ 160.56 ppm) in HMBC spectrum, shows the following fragment (e).
On the other hand, fragment (c) and (e) could be connected by HMBC spectrum in which the sp$^3$ methine proton ($\delta$ 6.21 ppm) responds $^1$H-C long range coupling with sp$^2$ quaternary carbon ($\delta$ 110.42 ppm) producing the following longer fragment (f).

The molecular formula of the above fragment (f) could be calculated as C$_{10}$H$_7$O$_2$. Thus, the remaining unassigned partial formula C$_{10}$H$_8$O$_4$ - C$_{10}$H$_7$O$_2$ = HO$_2$. It must be one –OH group and one ether oxygen atom. The attachment of –OH group at the down field chemical shift of the sp$^2$ quaternary carbon ($\delta$ 151.22 ppm) is the reasonable one and the logical attachment of the remaining ether oxygen atom to two down field chemical shifts of one sp$^2$ quaternary carbon ($\delta$ 149.49 ppm) and another sp$^2$ methine carbon ($\delta$ 144.36 ppm) can give rise to the complete structure of isolated compound as described below.

**Discussion**

The larger radical scavenging activity to scavenge DPPH radical was observed in ethanol extract, which inhibited 50% of free radicals at the concentration (IC$_{50}$) of 28.24μg/mL than the water extract which inhibited 50% of free radicals at the concentration (IC$_{50}$) of 26.96 μg/mL. These results were found to be slightly higher than standard gallic acid (IC$_{50}$= 5.07 μg/mL). It can be concluded that the antioxidant potency of the ethanol extract was found to be stronger than that of the water extract, but weaker than the standard gallic acid.
Table 5
Radical Scavenging Activity and IC<sub>50</sub>

<table>
<thead>
<tr>
<th>Sample</th>
<th>% RSA (mean ±SD) in different concentration (µg/mL)</th>
<th>IC&lt;sub&gt;50&lt;/sub&gt; (µg/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gallic acid</td>
<td>19.05 28.35 34.42 41.13 49.35 97.40</td>
<td>5.07</td>
</tr>
</tbody>
</table>

Figure 3: Radical Scavenging Activity of Standard Gallic Acid

Table 6
Radical Scavenging Activity and IC<sub>50</sub>

<table>
<thead>
<tr>
<th>Sample</th>
<th>% RSA (mean ±SD) in different concentration (µg/mL)</th>
<th>IC&lt;sub&gt;50&lt;/sub&gt; (µg/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol Extract</td>
<td>3.125 6.25 12.5 25 50 100</td>
<td>28.24</td>
</tr>
<tr>
<td></td>
<td>22.67 33.60 40.53 49.07 56.27 72.00</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4: Radical Scavenging Activity of Ethanol Crude Extract

Table 7
Radical Scavenging Activity and IC<sub>50</sub>

<table>
<thead>
<tr>
<th>Sample</th>
<th>% RSA (mean ±SD) in different concentration (µg/mL)</th>
<th>IC&lt;sub&gt;50&lt;/sub&gt; (µg/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water extract</td>
<td>3.125 6.25 12.5 25 50 100</td>
<td>26.96</td>
</tr>
<tr>
<td></td>
<td>17.33 32.00 46.67 48.53 67.20 76.80</td>
<td></td>
</tr>
</tbody>
</table>
According to the antimicrobial activities of root bark of Ma hlwa, ethanol extract responds medium-high activities on all selected organisms. Information from phytochemical results, the sample consists of flavonoid, glycoside, terpene, steroid, phenol, polyphenol and polyphenol respectively. Moreover, antimicrobial activities of isolated compound respond medium activity on Bacillus pumilus Candida albican and Mycobacterium species. The molecular formula of isolated compound is determined as C_{10}H_{8}O_{4} by using spectral data. The hydrogen deficiency index is 7. The IUPAC name of this compound is 6-hydroxy-7-methoxy-4H-chromen-4-one.

**Conclusion**

In this research, the root bark of Ma hlwa was selected for preliminary phytochemical screening, antimicrobial activities, antioxidant activity and structure elucidation of isolated compound. The ethanol extract of sample gives rise to medium activities on all tested organisms. In addition, the larger radical scavenging activity to scavenge DPPH radical was observed in ethanol extract, which inhibited 50 % of free radicals at the concentration (IC_{50}) of 28.24 μg/mL than the water extract which inhibited 50 % of free radicals at the concentration (IC_{50}) of 26.96 μg/mL. Finally, the antimicrobial activities of isolated compound gave rise to medium activities on Bacillus pumilus Candida albican and Mycobacterium species.

**Recommendation**

It is recommended that IC_{50} of ethanol extract of root bark of Ma hlwa should be studied for antioxidant. Moreover, acute toxicity and cytotoxicity of this medicinal plant should be conducted for the treatment of cancer disease.
References


Figure FT-IR Spectrum of Isolated Compound

Figure $^1$H NMR Spectrum of Isolated Compound

Figure $^{13}$C NMR Spectrum of Isolated Compound

Figure HSQC Spectrum of Isolated Compound
Figure DEPT Spectrum of Isolated Compound

Figure FAB–mass Spectrum of Isolated Compound

Figure DQF-COSY Spectrum of Isolated Compound

Figure HMBC Spectrum of Isolated Compound
Histopathological Changes of Gills in *Cyprinus carpio* Linnaeus, 1758 from Fish Ponds at Mandalay, Myanmar

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Abstract

The investigation of myxosporean parasites in the gills of *Cyprinus carpio* was conducted from Thayetkone fish culture pond and Bukone fish culture pond at Patheingyi Township, Mandalay region. The study was carried out from June, 2015 to December, 2016. A total of 40 fish species, *Cyprinus carpio* from Thayetkone fish culture pond and 21 specimens from Bukone fish culture pond were collected. Only one species of *Myxobolus longisporus* was observed. The spore was tear-shaped in front view, anterior end of the spore was pointed and posterior end was rounded. There is equal size of two polar capsule. The measurement of spore length was (15 µm – 16.25 µm) and the spore width was (6.25 µm – 8.75 µm). The polar capsule length was (6.25 µm – 10 µm) and the polar capsule width was (1.88 µm – 2.25 µm).

The histological studies of myxosporean infected gills were investigated. Severe changes detected were plasmodia stages, lamella fusion, club-shape of lamellae, shortening of lamellae, dilation of blood-vessel, separation of gill filament and hyperplasia at the base of gill filament measurement of plasmodia length was (6.25 µm – 93.75 µm) the plasmodia width was (37.5 µm – 87.5 µm). Prevalence parasites were 15 % in Thayetkone fish culture pond 14.3 % in Bukone fish culture pond.

Keywords: *Cyprinus carpio*, myxosporean, prevalence

Introduction

The common carp is probably the most widely distributed commercially important freshwater fish species and culture farms of its subspecies, Koi have been introduced into many part of the world. (Dykova, et al., 2003). Koi fish, colour carp (*Cyprinus carpio*), culture as a hobby or business and is well developed in Mandalay Environment.

Thayetkone fish culture pond is an important center for fishery stations in Upper Myanmar. This fish culture pond is located in Patheingyi Township, Mandalay Region, has carried out for hatching, restocking, fingering-sale, training and limited extension. Thayetkone fish culture pond has totally 32.78 hectares and several species of fish such as Marigala (*Cirrhinus marigala*), Grass carp (*Ctenopharyngodon*), Common carp (*Cyprinus carpio*), Colour carp (*Cyprinus spp*), Silver carp (*Hypophthalmichthys molitrix*), Catla (*Catla catla*), Carplet (*Rohtee altredias*), Silver barb (*Puntius gonionotus*), Pocu (*Piractus brochypomus*), stripped catfish (*Pangasius hypophthalmus*), Wheel fin (*Prochilodus lineatus*), Rohu (*Labeo rohita*), Big head (*Aristichthys nobilis*) and Black rohu (*Labeo calbasu*) are cultured. Recent year, Koi fish were breeding in Thayetkone fish culture ponds.
Bukone fish culture pond is also one of the commercial important fish culture pond located in Patheingyi Township, Mandalay Region. In this pond, Koi carp and other ornamental fishes has been cultured.

Myxozoas are spore forming parasites of both freshwater and marine fishes. The Myxozoa were previously classified as protozoans, although the multicellular state and functional specialization of the cells composing spore were considered to exceed protozoan level. The class Myxosporea is comprised of the two orders, Bivalvulida and Multivalvulida. Bivalvulids include 52 genera with more than 2100 species described from freshwater and marine fishes, while multivalvalids contain 5 genera with more than 60 species predominantly from marine fish. Most of myxozoans are not harmful to host fish, however, some species cause diseases in cultured and wild fish which are problems for aquaculture and fishery industries worldwide (Yokoyama et al., 2012).

Fish gills are organs for respiratory gas exchange, osmoregulation, excretion of nitrogenous waste products and acid base regulation. Fish gill is very sensitive to physical and chemical alterations of the aquatic medium. Gill epithelium is a major site of gaseous exchange and important media for the infectious agents (Saber, 2011).

In the previous works of some fish gills were; six species of Myxobolus and six species of Thelohanellus in Labeo rohita from Thayetkone fish culture pond, Mandalay were recorded by Moe Kyi Han, 2006. Two species of Myxobolus and two species of Thelohanellus in Cyprinus carpio from Thayetkone fish culture pond, Mandalay were recorded by Sein Sein Myint, 2007. In Kandawgyi lake, Mandalay, eight species of Myxobolus and one species of Thelohanellus were recorded by Pa Pa Win, 2007. One species of Myxobolus in Oreochromis sp from Thayetkone fish culture pond, Mandalay was recorded by Sandar Win, 2007. Seven species of Myxobolus, four species of Thelohanellus and four species of Henneguya in some Cyprinid fish from Sun Ye Inn, Sintkaing Township were described by Mon Myat Thu, 2009. Two species of Myxobolus and one species of Thelohanellus were recorded and histopathological changes of gill was carried out in Labeo rohita from Yinmyaw lake, Madaya Township Nilar Win, 2012. Eight species of Myxobolus and twelve species of Thelohanellus were observed in the gill of some fishs from Taungthaman lake, Amarapura Township, Ei Ei Hlaing, 2013. Thirteen species of Myxobolus, two species of Thelohanellus and three species of Myxidium in some fishs from fish culture ponds Kalay Township were recorded by Zen Sian Huai, 2014.

Myxobolus koi are well-known pathogens in cultured common carp (Cyprinus carpio) in Europe and Asia. M.koi infects the gills and causes a respiratory disfunction of carp juveniles. Yokoyama et al., 2012 reported that there are two type of M. koi infections; the one forms large-type (pathogenic) cysts in the gills filaments, while the other forms small-type (non-pathogenic) cysts in the gill lamellae. Myxobolus artus produced rice bean-like cysts in the musculature of common carp. Myxobolus cyprini infecting the skeletal muscle of common carp was also reported to cause the malignant anemia (Yokoyama et al., 2012).

In the background works, Cyprinus carpio and other fish were more infected by myxosporean parasites; genus Myrobolus. The present study fish, Cyprinus carpio were popular in China and other countries. So, the present study was conducted tot the studies of myxosporean infection in the gill of Cyprinus carpio.
Objectives
The objectives of the present study were as follows,

1. to investigate the myxosporean parasite in the gills of *Cyprinus carpio*
2. to examined the histopathological changes in the gills of infected fish.

Methodology

Study Site

Thayetkone fish culture pond (Site 1) and Bukone fish culture pond (Site 2) at Patheingyi Township, Mandalay Region.

Figure 1: Map of Study Site, Thayetkone Fish Culture Pond and Bukone Fish Culture Pond Source (Google earth)
Collection of Fish Specimens and Preparation and Examination of Myxosporean Parasites

The study was carried from June, 2015 to December, 2016. The fish specimen, *Cyprinus carpio*, 40 specimens were collected from the Thayetkone fish culture pond and 21 specimens were collected from the Bukone fish culture pond. These specimens were carried to the laboratory of Kyaukse University.

The specimens were killed and the total length, standard length and body weight of fishes were recorded. The fish gill were cut and sneezed with one drop of water on the slides and covered with coverslips. These slides were examined for myxosporean parasites under the digital camera attached by image analyzer Dp-12. Olympus. The spores were measured with the aid of ocular microns (µm).

Identification of Myxosporean Parasite

The identification of myxosporean parasite is conducted according to Lom and Dykova (1992), (2006) and Erias, Monar and Lu (2005).

Prevalence of Parasite

The prevalence of parasite was calculated as follow:

\[
\text{Prevalence of parasite} = \frac{\text{Infected fish} \times 100}{\text{Examined fish}}
\]

Histological Preparation of Gills

Myxosporean infected gills of *Cyprinus carpio* fixed in 10% formaldehyde solution. They were raised in tap water, dehydrate in a graded series of alcohol concentrations, cleared in xylene, and embedded in paraffin wax. After embedded the sections were cut at of 7µm thickness and stained with Haematoxylin and Eosin.

Results

A total of 61 fish specimens, 40 specimens from Thayetkone fish culture pond and 21 specimens from Bukone fish culture pond. Forty fish specimens from Thayetkone fish culture pond were examined and only six specimens were found one species of Myxosporean parasite. Twenty one fish specimens from Bukone fish culture pond were examined and only three specimens were found one species of Myxosporean parasite.

Description of *Myxobolus longisporus*

*Myxobolus longisporus* Plate (A)

<table>
<thead>
<tr>
<th>Host</th>
<th><em>Cyprinus carpio</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Thayetkone fish culture pond and Bukone fish culture pond</td>
</tr>
<tr>
<td>Site of infection</td>
<td>Gill</td>
</tr>
<tr>
<td>Prevalence of</td>
<td>15 % (Thayetkone) and 14.3 % (Bukone) parasite (spore)</td>
</tr>
</tbody>
</table>
Shape of spore - The spore was tear-shaped in front view, anterior end of the spore was pointed and the posterior end was rounded. There is equal size of two polar capsules.

Measurement of spore
- Spore length: 15 µm - 16.25 µm
- Spore width: 6.25 µm - 8.25 µm
- Polar capsule length: 6.25 µm - 10 µm
- Polar capsule width: 1.88 µm - 2.25 µm

Histopathological Changes of Infected Gills
The histological studies of myxosporean infected gills were examined under the microscope. Histopathological changes of gill were as follows.

The plasmodia were observed located in the length of many filaments within the gill lamellae (Introlamellar type). But posterior part of the gill filaments was not found (Figure B). Plasmodia were oval-shaped and the measurement were (62.5 – 93.75 µm) in length and (37.5 – 87.5 µm) in width. Along the length of filament, the epithelium cells separation were observed (Figure C and D). In many cases, along the tip of lamellae swelling was observed. These lamellae were fused along the length of gill filaments (Figure E). In some cases, at the tip of gill lamellae were fused between the two filaments (Figure F). Severe epithelium hyperplasia was observed at the base of gill lamellae along the gill filaments. These lamellae were formed the club-shaped (Figure G). The epithelium cells distorted and hyperplasia was observed at the tip of the gill lamellae (Figure H). Swelling of gill lamellae was also seen. This hyperplasia of some lamellae was observed along the gill filaments (Figure I). The dilation of blood vessel was observed at the middle of gill filaments. Serious lamellae shortening were observed (Figure J).
Figure A: Myxobolus longisporus

Figure B: Plasmodia within the gill lamellae
Figure C: Plasmodia within the gill lamellae

Figure D: Separation of epithelial cells

Figure E: Fusion of gill lamellae

Figure F: Hyperplasia at the base of gill lamella between two filaments

Figure G: Hyperplasia at the tip of gill lamellae

Figure H: Hyperplasia along the gill lamellae

Figure I: Hyperplasia along the gill lamellae

Figure J: Dilation of blood vessel and shortening of gill lamellae
Discussion

The present spore was compared to *Myxobolus* spp. of pervious works. *Myxobolus longisporus* spore shape was very similar to *M. carassii* infected in muscle and body cavity of *Carassius auratus*, *M. neurophilus* infected in eye of *Percalavescens* and *Ethisoma nigrum*, *M. cyprini* infected in kidney, spleen and liver of *Rutilus rutilus*, *M. exiguis* infected in gill, stomach and pyloric caeca of *Cyprinids* (Lom and Dykova, 1992), *M. pharyngeus* infected in pharynx and skin of *Gambusia affinis* (Lom and Dykova, 1992). *M. szekeli* sp. infected in stomach of *Wallago attu* (Kaur. H and Singh. R) and *M. sciades* infected in *Sciades herzbergii* (Lom and Dykova, 1992).

Dimension of present spore, *Myxobolus longisporus* was (SP: L 15 - 16. 25 × W 6.25 - 8.75; PC : L 6.25 - 10 × W 1.88 - 2.25). *M. carassii* (SP: L 13 - 17 × W 8 - 10; PC : L 6 -7) was nearly similar with present pore. But spore width of *M. carassii* was larger than the present study’s spore. *M. neurophilus* (SP: L 13.9 × W 6.2; PC: L 6.8 × W 1.9), spore length was smaller than those of present spore. *M. cyprini* (SP: L 10 -13.5 × W 7.6 - 9.7; L PC : L 5.6 - 6.9 × W 3.1 - 43; SPC L 5 - 6 × W 2.7 - 3.7), dimension of spore was smaller and polar capsular were larger than those of present spore. In *M. exiguis* (SP: L 7.7 × W 6.4, PC: L 4.1 × W 2.5), dimension of spore and polar capsule were smaller than those of present spore. *M. pharyngeus* (SP: L 16.5 × W 5.9; PC: L 7.2 × W 6.6), dimension of spore length was smaller but spore width smaller than the present spore. *M. szekeli* (SP: L 8.4 - 9.0 × W 3.9 - 4.3; PC: L 3.9 - 4.9 × W 1.5 - 2.0), dimension of spore and polar capsule were smaller than those of present spore. *M. sciades* (SP: L 0.39 - 9.15 × W 0.23 - 4.36; PC: L 0.4 - 4.44 × W 0.42 - 1.41), the dimension of spore and polar capsule were smaller than the present spore.

The present spore was compared with *Myxobolus* sp.1 in the gill of *Cyprinus carpio*, Sein Sein Myint (2007); *Myxobolus* spp. in the gill of *Oreochromis* sp., Sandar Win (2008) and *Myxobolus* sp.10 in the gill of *Cyprinus carpio* and *Myxobolus* spp. 12 in the gill of *Catala catala*, Zan Slan Huai (2014).

The dimension of spore, *Myxobolus* sp.1, Sein Sein Myint, 2007 was (SP: L 12.3 - 16 × W 6.2 - 8.6; LPC: L 6.2 - 9.8 × W 9.8 - 12.3; SPC: L 6.2 - 9.8 × W 9.8 - 12.3). These spores length and width was nearly similar with the present spore. But two polar capsules were not equal in size. The dimension of spore, *Myxobolus* sp. 1, Sandar Win, 2008 was (SP: L 10.4 - 12.13 × W 5.53 - 7.38; LPC : L 5.53 - 6.76; SPC : 5.53 - 6.76 × W 1.53 - 2.46). These spores and polar capsule was smaller than the present spore. The dimension of spore, *Myxobolus* sp. 10, Zen Slan Huai, 2014 was (SP: L 17.6 × W 8; PC: L 11.6 × W 2). This spore width was smaller than the present spore. But spore width and polar capsule length and width were larger than the present spore. *Myxobolus* sp. 12, Zen Slan Huai, 2014 was (SP: L 11.6 × W 6.8; PC: L 9.2 0215 W 2.4). These spore length and width and polar capsule length was smaller but polar capsule width larger than the present spore.

The present spore was compared with *M. acinosus* infected in gills, *M. amurensis* infected in fins and gut, *M. haematopterus* infected in gill, muscle and kidney an *M. rotundatus* infected in gut; found in the *Cyprinus carpio haematopterus* (Eiras et al., 2005).
M. acinosus (SP: L 12.0 - 14.0 × W 5.6 - 7.2; PC: L 4.8 - 6.0 × W 4.8 - 6.0), the dimension of spore was smaller and polar capsule were larger than the present spore. M. amurensis (SP: L 9 - 13.5 × W 9 - 12.5; PC: L 4.5 - 7 × W 3.8 - 4.2), the dimension of spore length and polar capsular length were smaller but polar capsule width was larger than the present spore.

In M. haematopterus (SP: L 11.5 - 12.6 × W 10.6 - 11.5; PC: L 5.2 - 6.3 × W 3.3 - 4.7) the dimension of spore and polar capsule length were smaller but spore and polar capsule width were larger than the spore of the present study site. M. junchisi (SP: L 9.7 - 12.6 × W 8.4 - 9.2; PC: L 5.4 - 6.3 × W 2.9 - 3.2), the dimension of spore length and polar capsule length were smaller but spore width and polar capsule width were larger than the present spore. Myxobolus rotundatus (SP: L 8 - 11 × W 8 - 11; PC: L 4.5 - 5 × W 3-4), the dimension of spore length and polar capsule length were smaller but spore width and polar capsule width were larger than the present spore.

Dykova et al. (2003) described that Myxobolus longisporus, infection in gills of Cyprinus carpio haematopterus. The spores are elongate and pyriform with pointed anterior end. The spore length are 15.7 µm and the spore with are 6.7 µm. The two polar capsular are equal-sized elongate pyriform. The polar capsule length is 8.5 µm and 2.5 µm wide.

The present spores were observed in the gills of Cyprinus carpio haematopterus. The spores are tear-shaped. The spore length are (15 - 16.25 µm) and (6.25 - 8.75 µm) width. The polar capsule length are (6.25 - 10 µm) and (1.88 - 2.25 µm) width. Thus the present spore was identically similar to the Myxobolus longisporus. So, the present spore was defined as Myxobolus longisporus.

Nilar Win (2012) described the histopathological changes in the gills of Labeo rohita that plasmodia were observed with the gill lamellae and at the base of gill filament and then middle part of gill filament. She recorded that the changes of gills were fusion of gill lamellae, some lamella swelling and shortening dilation of blood vessel at the filament, the club-shaped at the tip of gill lamellae and shortening of gill lamellae and fusion with other filament. The present study, all these symptoms were similarly but gill lamellae with epithelial lifting were not observed.

Moe Kyi Han (2006) observed that in the gills of host infected with Myxobolus spp., blood capillaries in lamellae burst with the release of blood cells and many of the adjacent lamellae become distorted. Swelling of gill lamellae and hyperplasia in the tissue of lamellae was observed. Then other changes were dilation of blood vessel, shortened lamellae, hyperplasia of gill arch were observed. The present study of histological changes was nearly similar to Moe Kyi Han's observation.

Sein Sein Myint (2007) reported that histopathological changes in the gills of Cyprinus carpio were hyperplasia of blood vessel in gill lamellae, shortening of gill lamellae and dilation of blood vessel. Four types of plasmodia were observed. The present study changes of gill were similar but only one type of plasmodia was occurred.

Sandar Win (2008) described that the dilation of blood vessel, at the tip of filaments, some appeared to be club-shaped and then were some distortions due to the presence of parasite. Shortening of lamellae occurred either in one or both sides. At the tip of some lamellae swelling were observed lead to club-shaped along the
filaments. The present study of histological changes was agreed with Sandar Win's observation. Dykova described that histological examination of gill of *Cyprinus carpio* revealed that lesions developed together with plasmodial stages in the gill secondary lamellae. Localisation of plasmodia was always restricted to the capillaries in apical part of secondary lamellae. One plasmodium only developed in each secondary lamella. Late stage infections were associated with more pronounced gill lesions including adhesion, fusion and necrosis of adjacent lamellae. The present study of histological changes of *Cyprinus carpio* was similar with above the *Cyprinus carpio haematopterus* (Dykova et al, 2003). In the present study, only one of the myxosporean parasite was observed and identified as *Myxobolus longisporus*. The prevalence of parasite was 15% in Thayetkone fish culture pond and 14.3% in Bukone fish culture pond. The present study may be advantages for some ornamental fish culture ponds.

**Recommendations**

Based on the findings of this study, the researcher recommends that the fish farm should be investigated for the presence myxosporeans parasites which do cause the fish disease and lead to economic losses in human society. For the future study, the researcher has the following suggestions;

1. The other organs of *Cyprinus carpio* should be examined for myxosporean parasite.
2. Other ornamental fishes should be studied the myxosporean parasite.

**References**


Study on Phenolic Content and Antioxidant Activity in Skin, Seed and Flesh of *Vitis vinifera* L.

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Abstract

Grapes (*vitis vinifera*) are one of the popular and delicious fruits. In this present study, skin, seed and flesh of local red grapes are subjected to the phenolic content and the potential antioxidant activities. The red grapes were purchased from Mingalar Market, Chan Aye Tharzan Township, Mandalay region.

The total content of phenolic in ethanol extract of skin, seed and flesh are measured by Folin-Ciocalteu assay using UV spectrophotometer at 765nm and gallic acid was used as standard. The analysis on total phenolic concentration in skin, seed and flesh were revealed that the seed contains highest total phenol content.

Moreover, the antioxidant potential of the ethanol extract of skin, flesh and seed were determined and the basic of their scavenging activity of the stable 1,1-diphenyl-2-picrylhydrazyl (DPPH) free radical. It was observed that DPPH radical scavenging activities of the ethanolic extracts of seed was showed EC$_{50}$ 30.43 µg/ml.

Keywords: *Vitis vinifera* L., phenolic content, antioxidant activity

Introduction

Grapes are one of the most popular fruits in the world because of their tastes, texture, flavor, variety and case of portability. This popular and delicious fruit is also packed with a lot of important nutrients (Sarah Pledge, 2019).

The skin and seed of grapes are a rich source of phenolic substances. Total phenolic compounds in grapes depend on various factors such as the variety and maturity level of grapes as well as viticulture practices. Phenolic compounds in grapes have attracted much interest due to their antioxidant activities and their potentially beneficial effects in human health (L. Butkhup, *et al.*, 2010).

Antioxidant activities of grapes are due to the presence of antioxidant components such as flavonoids, phenolic acids, anthocyanins and carotenoids (Caludiu-loam Bunea, *et al.*, 2012).

The richest concentrations of nutrients and antioxidants, including resveratrol, are in the grape skin and seed. There are several colors of grapes, including red, black, purple or blue (Concord), green (which is used to make white wine), pink and yellow. Although all types of grapes are healthy, red grapes and Concord grapes are higher in flavonoids and phyttonutrients, including resveratrol. Grapes are also a good source of vitamin K, copper and many of the B vitamins, adding that they are also a good source of fiber and relatively low in calories (Jessie Szalay and Live Science, 2016).

Thus, the consumption of grapes is a cost-effective way of being healthy, particularly when the lost of most dietary supplements are so much higher. Grapes are
a wonderful way to use your food as a natural medicine for your overall health and well-being (Sarah Pledge, 2019).

1.1 Botanical Description

Botanical name: *Vitis vinifera* L.
Family name: Vitaceae
English name: Grape
Myanmar name: Sa-pyit

Figure 1: The Fruits of Grape

*Vitis vinifera* is a long stemmed woody climbing vine, with flashy bark. The leaves are alternate, palmately lobed, 5-20 cm long and mid-green. The leaves turn yellow, orange or red during autumn. *Vitis vinifera* uses trees and other forms of support to claim to gain better access. It has 6mm diameter and ripens dark purple to a blackish hue with a pale wax bloom. This plant prefers well drained soil condition, soil pH being natural to basic and soil texture from sand to clay.

1.2 Polyphenol

Polyphenols are one of the most important and certain by the most numerous among the groups of phytochemicals present in the plant kingdom. Chemically, they are compounds with structural phenolic features, which can be associated with different organic acid and carbohydrates. It can be bound in different position on poly phenol skeleton.

Polyphenol compounds are secondary metabolites and represent the third most abundant constituent in grapes after carbohydrates and fruit acids. They are mainly distributed in seeds (60%–70%) and skins (28%–35%), with less than 10% in pulp.

The compounds mainly included proanthocyanidins, anthocyanins, flavonols, flavanols, resveratrols and phenolic acids. Proanthocyanidins are the major phenolic compounds in grape seed and skin of grape. Anthocyanins are pigments and responsible for the color of grape fruits, and flesh did not contain anthocyanins.

1.3 Antioxidants

Antioxidants are substances that can prevent or slow damage to cells caused by free radicals, unstable molecules that the body produces as a reaction to environmental and other pressures.

Flavonoids, flavones, catechins, polyphenols, and phytoestrogens are all types of antioxidant and phyttonutrient. The best sources of antioxidants are plant-based foods, especially fruits and vegetables.
Most of the polyphenols in grapes are flavonoids, which act as antioxidants in the body. Antioxidants are molecules that safely interact with free radicals to stop the condition of oxidative stress. Free radicals are molecules that steal electrons from other cells, which causes cell damage and disruption that can contribute to diseases.

World's Healthiest Foods estimates that the number of antioxidants in grapes is in the hundreds. The antioxidants present in grapes prevent the oxidation of LDL (bad) cholesterol, which blocks the blood vessels and is the main contributor to various coronary conditions.

It also exhibits strong anti-inflammatory effects, which are associated with disease prevention.

1.4 Grapes Nutrition Facts

Grapes are a great source of phytonutrients, mainly phenols, and polyphenols, and contain other important vitamins such as vitamins K, A, C, and B6. Grapes are a rich source of micronutrient minerals like copper, iron, and manganese. Copper and manganese are an essential co-factor of the antioxidant enzyme, superoxide dismutase. Iron is especially concentrated in raisins.

Grapes have a high water content that is helpful in keeping the body hydrated. They also contain dietary fiber, healthy carbs, antioxidants, and a moderate amount of protein. Flavonoids, like myricetin and quercetin, in grapes help reduce the damage caused by free radicals and slow down aging. Due to their high nutrient contents, grapes also play an important role in ensuring a healthy and active life.

Objectives of the Study
1. To collect the sample
2. To determine the phenolic content of skin, flesh and seed of Vitis vinifera L.
3. To screen the antioxidant activity of skin, flesh and seed of Vitis vinifera L.

Methodology

3.1 Preparation of Samples
The grapes (Vitis vinifera L.) were collected from Mingalar Market, Chan Aye Tharzan Township, Mandalay region, Myanmar. The grape fruits were washed with water, then purified the samples from impurities and wounded fruits. After drying, all skin, seed and flesh were separated.

20 g of dried grape seed, 35g of dried skin and 300 g of dried flesh were extracted with ethanol solvent (100-200 ml) in a sealed bottle at room temperature for one month. The obtained extract was separated by filtration through a filter paper and the solvent was removed by evaporation under the air.

3.2 Determination of Total Phenolic Contents in Skin, Seed and Flesh of Vitis vinifera
The analysis on total phenolic contents in skin, seed and flesh of Vitis vinifera was measured by Folin-Ciocalteu assay using UV spectrophotometer.

3.2.1 Procedure
Total phenolic content of ethanol extract of skin, seed and flesh of Vitis vinifera were determined with Folin-Ciocalteu method (Singleton, et al., 1999).
Total phenolic content of ethanol extract of skin, seed and flesh of *Vitis vinifera* were determined with Folin-Ciocalteu method (Singleton, et al., 1999). The Folin–Ciocalteu (F–C) reagent is sensitive to reducing compounds, polyphenols and thus produces a blue colour complex. The F–C assay relies on the transfer of reducing equivalents (electrons), in the alkaline medium, from phenolic compounds to phosphomolybdic/phosphotungstic acid complexes, manifested in the formation of blue color complexes [possibly (PMOW11040)-] that are determined on a UV-visible spectrophotometer by monitoring the absorbance at 765 nm (singleton et al; 1999).

Ethanolic solution of the extract in the concentration of 1 mg/mL was used in the analysis. The reaction mixture was prepared by mixing 0.5 mL of ethanolic solution of extract, 2.5 mL of 10% Folin-Ciocalteu’s reagent dissolved in water and 2.5 mL of NaHCO₃. Blank was concomitantly prepared, containing 0.5 mL of ethanol, 2.5 mL of 10% Folin-Ciocalteu’s reagent dissolved in water and 2.5 mL of 7.5% of NaHCO₃. The samples were thereafter incubated in a thermostat at 45°C for 45 min. The absorbance was determined using spectrophotometer at $\lambda_{max} = 765$ nm. The samples were prepared in triplicate for each analysis and the mean value of absorbance was obtained. To obtain a calibration curve, various concentration of gallic acid solutions (100 $\mu$g/mL, 50 $\mu$g/mL, 25 $\mu$g/mL, 12.5 $\mu$g/mL, 6.25 $\mu$g/mL) were prepared. Based on the measured absorbance, the concentration of phenolic was read ($\mu$g/ml) from the calibration line; then the content of phenolic in extracts was expressed in terms of gallic acid equivalent (mg of GA/g of extract).

$$\text{Total Phenolic Content} = \frac{c v}{m}$$

$c$ = concentration from calibration curve  
$m$ = mass of the extracted used 
$v$ = volume of the extract

### 3.3 Determination of Antioxidant Activity by DPPH Radical Scavenging Assay

#### 3.3.1 Preparation of the Test Sample Solutions

The stock solution (1 M) (1 mg/mL) of the sample was prepared by dissolving (1 mg) of sample in 1 mL of ethanol. This stock solution was diluted with ethanol to get the sample solution with the concentrations of 100 $\mu$g/mL, 50 $\mu$g/mL and 25 $\mu$g/mL, 12.5 $\mu$g/mL, 6.25 $\mu$g/mL.

#### 3.3.2 Procedure

The antioxidant activities of the extracted skin, seed and flesh were determined by DPPH scavenging activity assay (Yamaguchi et al., 1998). It reaction principle was based on mechanism of free radicals inhibition by hydrogen transfer, the antioxidant activity of sample expressed in $EC_{50}$.1000 $\mu$L of test solutions in various concentrations (100 $\mu$g/mL, 50 $\mu$g/mL and 25 $\mu$g/mL, 12.5 $\mu$g/mL, 6.25 $\mu$g/mL) and 1000 $\mu$L of 0.1 M acetate buffer pH 5.5 solution are mixed in a test tube. 500 $\mu$L of 5x10⁻⁴ M DPPH solution was added to the mixture in dark. The mixture was homogenized using a vortex mixer in a dark room (resistant to UV light) and stand for 30 minutes at room temperature. After that, the mixture was measured by a spectrophotometer UV absorbance at $\lambda_{max} 517$ nm. Vitamin C was used as a reference compound in the same
concentration range as the test compound. A control solution was prepared by mixing 1000 μL of buffer (pH 5.5) solution, 1000 μL of ethanol and 500 μL of $5 \times 10^{-4}$ M DPPH solution in the test tube. Blank solution was prepared by mixing 1000 μL of buffer (pH 5.5) solution with 1500 μL of ethanol in the test tube. The mean values were obtained from triplicate experiments.

The capability of scavenging DPPH radicals as a percentage of DPPH remaining in the resulting solution was determined using the following equation:

$$DPPH\% = \frac{Abs_{control} - Abs_{sample}}{Abs_{control}} \times 100$$

where $Abs_{control}$ is absorbance of control and $Abs_{sample}$ is absorbance of sample. The antioxidant power ($EC_{50}$) is expressed as the test substances concentration (μg/mL) that result in a 50% reduction of initial absorbance of DPPH solution and that allows to determine the concentration. $EC_{50}$ (50% effective concentration) values were calculated by linear regressive excel program.

Results

4.1 Determination of Total Phenolic Contents in Skin, Seed and flesh of *Vitis vinifera*.

4.1.1 Standard Calibration Curve of Gallic Acid (GA) for the Determination of Total Phenolic Content

The total phenolic content in the extract of skin, seed and flesh of *Vitis vinifera* were determined with Folin-Ciocalteu reagent according to the (Singleton, *et al.*, 1999) method using gallic acid as a standard. The calibration curve was shown in Figure (3.1).

![Figure 3.1: Plot of Standard Calibration Curve of Gallic Acid (GA) for the Determination of Total Phenolic Content](image)
Table 4.1
Total Phenolic Contents in Skin, Seed and Flesh of Grapes Expressed in Terms of Gallic Acid Equivalent (GAE) (mg of GA/g of Extract)

<table>
<thead>
<tr>
<th>Vitis vinifera Linn.</th>
<th>Total phenol content (mg of GA/g of extract)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin</td>
<td>18.14</td>
</tr>
<tr>
<td>Seed</td>
<td>190.22</td>
</tr>
<tr>
<td>Flesh</td>
<td>11.13</td>
</tr>
</tbody>
</table>

Figure 4.2: Results of Total Phenolic Content in Skin, Seed and Flesh of *Vitis vinifera*

4.2 Screening of Free Radical Scavenging Activities of Skin, Seed and Flesh of *Vitis Vinifera* using DPPH Assay

4.2.1 Standard Calibration Curve of Ascorbic acid

![Standard Calibration Curve of Ascorbic acid](image)

*Figure 4.3: Plot of Standard Calibration Curve of Ascorbic acid*

In this present research work, DPPH assay was used to determine free radical scavenging activity of skin, seed and flesh of *Vitis Vinifera*. DPPH scavenging reaction marked by changes in the solution color from purple to yellow after 30
minutes incubation (Yamaguchi et al., 1998). Measurements were performed at a maximum wavelength of 517 nm. The antioxidant power is expressed as EC_{50} (50% effective concentration). It is the test substance concentration (µg/ml) that results in a 50% reduction of initial absorbance of DPPH solution. The absorbance, % inhibition and DPPH radical scavenging activity of ascorbic acid and skin, seed and flesh of *Vitis Vinifera* were shown in table (2.2). It was observed that DPPH radical scavenging activities of seed extract of *Vitis Vinifera* (EC_{50} = 30.43 µM) exhibited high activity. However, the extracts of skin and flesh of *Vitis vinifera* did not show any DPPH radical scavenging activity.

### Table 4.2
The Concentration, % Inhibition and DPPH Radical Scavenging Activity of Ascorbic Acid and Extracts of Skin, Seed and Flesh of *Vitis vinifera*

<table>
<thead>
<tr>
<th>Sample</th>
<th>Concentration (µg/ml)</th>
<th>Mean% Inhibition</th>
<th>EC_{50} (µg/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ascorbic acid</td>
<td>6.25</td>
<td>4</td>
<td>22.13</td>
</tr>
<tr>
<td></td>
<td>12.5</td>
<td>19.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>59.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin</td>
<td>25</td>
<td></td>
<td>n.d</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seed</td>
<td>12.5</td>
<td>22.86</td>
<td>30.43</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>47.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>74.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flesh</td>
<td>25</td>
<td></td>
<td>n.d</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td></td>
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<td></td>
<td>100</td>
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</tr>
</tbody>
</table>

### Discussion
The results of total phenolic contents in skin, seed and flesh of *Vitis vinifera* were found to be 18.14 mg GAE/g, 190.22 mg GAE/g and 11.13 mg GAE/g. The seed of *Vitis vinifera* contained the high content of total phenolic. These results were shown in Table (4.1).

According to table (4.1), the total phenol content was lower in pulp than seed because anthocyanins were absent in the flesh, they possessed equal amount of reactivity to hydroxyl radicals.

In study table (4.2), the antioxidant activity of seed was shown to be influenced by the total phenolic content. The extracted seed containing high phenolic contents has been found to exert high antioxidant potential. The study of present research has shown a direct relation between antioxidant activity and phenolic contents.
From the results, it is revealed that antioxidant activity of seed is higher than that of skin and flesh (EC$_{50}$ = 30.43 µg/mL). The grape seed contains significant amount of antioxidant agents.

**Conclusion**

In this study, the grape (*Vitis vinifera*) was selected for determination of total phenolic content and antioxidant activity. The result of total phenolic content was found to be 190.22mg GAE/g of seed, 18.14 mg GAE/g of skin and 11.13 mg GAE/g of flesh of grape.

The antioxidant activity of skin, seed and flesh were determined in DPPH free radical scavenging assay. According to experimental data, the ethanolic extract of seed was found to be potent antioxidant activity with EC$_{50}$= 30.43 µg/ml and skin and flesh were not detected.

These results suggest that there was a direct relation between antioxidant activity and the content of phenols in extract of skin, seed and flesh. In different parts of grape, the highest antioxidant activity was found in grape seed and the extracted skin and flesh did not show the any DPPH radical scavenging activity.

**Recommendations**

According to experimental result, the extracts from grape seeds are a promising antioxidant for dietary supplement.

Further studies focused on the biochemical and pharmacological properties of the components in the different parts of grapes.

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Extraction, Characterization and Application of Tannin as a Natural Mordant from Tamarind Seed Husk for Dyeing of Cotton Cloth

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Abstract

In this research, tamarind seed husk was selected for extraction of tannin. Firstly, the preliminary detection of phytochemical compounds present in the tamarind seed husk was investigated. The mineral contents of tamarind seed husk were analyzed by Energy Dispersive X-ray Fluorescence (EDXRF) spectroscopy. Extraction of tannin as a natural mordant from tamarind seed husk by using hot aqueous method. The qualitative analysis of tannin was carried out with various reagent and functional group determination by FT-IR spectroscopic method. The extracted tannin was employed as a natural mordant alone and in combination with metal mordant namely copper sulphate for cotton and dyed using natural dyes namely the outer skins of onion and flowers of butterfly pea. The dye solution of two samples were extracted by using aqueous method. The pre-mordanted fabric on dyeing gave better colour strength than the dyeing obtained without mordanting. Finally, rubbing fastness and washing fastness tests were used to predict the performance of dye in cotton cloth.

Keywords: tamarind seed husk, tannin, EDXRF, FT-IR, mordant

Introduction

Tamarin (Tamarindus indica L.; family Fabaceae) is widely distributed throughout the tropical and sub-tropical regions from Africa to South Asia. The ripened fruit pulp is edible and a popular food. Tamarind seed (TS) is also of important use. The polysaccharides, mainly consisting of xyloglucans, prepared from tamarind seed kernel have been used for cosmetics. Tamarind color extracted from the seed husk (TSH) has been commonly used as a food pigment. The seed coat containing 40% water soluble matter is nothing but a mixture of tannins. It is used for wound healing and as an anti-dysenteric drug.

Tannins are defined as naturally occurring water soluble polyphenolic compounds of high molecular weight (about 500–3000) containing phenolic hydroxyl groups to enable them to form effective cross links between proteins and other macromolecules. Tannin is an astringent vegetable product found in a wide variety of plant parts such as bark, wood, fruit, fruit pods, leaves, roots and plant galls. They are largely used in medicine, preparation of inks, preservation of lather, food industry and in the dyeing process [5].

The use of mordant in dyeing not only increase the dye take up and colour fastness but the use of different mordant on a natural dye can yield different colours and shades [1].

There are two types of dyes: natural dyes and synthetic dyes. Natural dyes are biodegradable, non-toxic and generally have higher compatibility with the
environment when compared with their synthetic counterparts [9]. For thousands of years people all over the world followed the same basic techniques using roots, stems, barks, leaves, hard wood, berries fruits, flowers of various dye plants and tree, as well as from certain insects and shell-fishes. Some other associated advantages include excepted non-toxicity/lower toxicity and anti-allergen and some medicinal value as well as antimicrobial and UV protective character of some of the natural dyes [3].

Onion outer skins are the most commonly discarded household and commercial food waste which can be used as dyes for coloring natural textile materials. Butterfly pea flowers are native to South East Asia where it is used in teas and as natural food dye. Traditionally, extraction of natural dyes with aqueous extraction method involve several hours of extraction time. A rapid and improved extraction technique should be introduced especially to textile dyers for synthesis of natural dyes in a shorter time.

The objectives of this study were to extract tannin from tamarind seed husk and its application as a natural mordant alone and in combination with metal mordant, namely copper sulphate for dyeing cotton. Using natural dyes namely outer skins of onion and flowers of butterfly pea.

The process is economically viable as the raw materials are available. So, the cost of samples is also very low. This study revealed that tamarind seed husk could be used as mordant for dyeing fabric. Therefore these dyes and mordant are subjected to least environmental problems.

**Botanical Description**

*Figure 1: Seeds of Tamarind*

*Figure 2: Onion*
Figure 3: Flowers of butterfly pea

Materials and Methods

Materials

Tamarind seed, outer skins of onion and flowers of butterfly pea were collected from Mandalay Township. Cotton cloth was purchased from Yadanabon Market, Mandalay. Commercial grade reagents were used for research work.

Method

Separation of Tamarind Seed Husk for Extraction of Tannin

The tamarind seeds were dried in a hot oven at 100°C for 30 min and the husk was removed from the seeds by manual crushing and separated. The brown-red husk was collected and ground into powder form.

Preliminary Phytochemical Screening

Preliminary phytochemical tests were carried out on tamarind seed husk powdered according to the reported methods [3]. Tamarind seed husk sample was tested by phytochemical screening to determine the presence or absence of organic constituents.

Determination of Mineral Contents

Mineral contents of tamarind seed husk was measured at Department of Chemistry, Monywa University by applying EDXRF spectroscopy method.

Extraction of Tannin

The finely powdered tamarind seed husk (100 g) was extracted with water (200 mL) for 1 hr at boil and after cooling it was filtered through a fine muslin cloth and the filtrate was collected separately. The remaining residue was extracted three more times, in order to complete the extraction. The total extract (300 mL) was heated to boil and was allowed to stand overnight and filtered again. The clear filtrate was concentrated in a water bath and treated with saturated brine solution. A brownish coloured precipitate thus obtained was filtrated and dried in an oven to yield brown coloured tamarind seed husk tannin in powder form.
Qualitative Analysis for Tannin

The qualitative analysis was carried out by treating 0.5% solution of the above tannin product with various reagents such as gelatine, aqueous ferric chloride, lead acetate, copper sulphate solution, dilute hydrochloric acid solution and dilute sulphuric acid solution. The colour change after the addition of reagent was observed [4].

Determination of Functional Group by FT-IR Spectroscopy

The functional groups present in extracted tannin were determined by using FT-IR spectrometer [Hyper-IR/SHIMAD24].

Extraction of Dyes Solution from Outer Skins of Onion and Flowers of Butterfly Pea

In this research work, dye solution was extracted from outer skins of onion (Allium cepa L.) and flowers of butterfly pea (Clitoria ternatea) by using aqueous method. Distilled water only was used for extraction solvent. 10 g of dry sample was boiled with 300 ml of distilled water about 1 hour. And then, the dye solution was cooled for a few minutes and filtered. Finally, the filtrates were used in dyeing process [8].

Bleaching of Cotton Cloth

Firstly cotton cloth was washed with tap water containing 2 drops of detergent and soaked in a bath made of four parts cold water to one part vinegar for at least 30 minutes. Then, it was taken out of the sink, run under cold water and wring out of a bit of excess water [2].

![Bleaching of Cotton Cloth](image)

Figure 4: Bleaching of Cotton Cloth

Mordanting

Pre-mordanting technique was used for this study. Cotton cloth was treated with 2% tannin solution on weight of fabric at (70ºC) for 30 min, keeping the material to liquor ratio 1:30. The tannin treated cotton was further treated with 1% of copper (II) sulphate solution at 70ºC for 30 min, keeping the material to liquor ratio as 1:30. Cotton cloth, only mordanted with tannin and in combination with mineral mordant, were squeezed and subjected to dyeing [6].
Dyeing Method
Cotton cloth with and without pre-mordanting were introduced into the outer skins of onion dye and flowers of butterfly pea dye solution at room temperature at a liquor ratio of 1:30 and slowly the temperature was raised to 70°C. After dyeing, the cotton was lift out and squeezed by hand. They were rinsed in cold water to remove unfixed dyes and dried in air. Rinsing process was done by one time [4].

Determination of Rubbing Fastness and Washing Fastness of Dyeing Sample
The dried sample was sent to Development Center for Textile Technology, Ministry of Industry, Yangon, Myanmar to measure the color fastness to rubbing test and color fastness to washing test.

Results and Discussion
In this section, the result obtained from the experimental works such as phytochemical tests, mineral contents qualitative analysis of tannin, functional group determination of tannin, dyeing process and determination of rubbing fastness and washing fastness of dyeing sample were discussed.

Preliminary Phytochemical Tests
Preliminary phytochemical tests were done to investigate the presence or absence of chemical constituents in tamarind seed husk. According to the phytochemical examinations alkaloids, steroids, flavonoids, polyphenol, saponins, reducing sugar, glycoside and tannins were found to be present in the sample. Among these compounds, tannins play an important role in dyeing process because it can be used as a natural mordant to sustain coloring matter permanently.

Mineral Contents of Tamarind Seed Husk
The mineral contents of tamarind seed husk were determined by using EDXRF at Department of Chemistry, Monywa University. These results are described in Table (1).

Table 1
Mineral Contents of the Outer Skins of Onion

<table>
<thead>
<tr>
<th>No.</th>
<th>Element</th>
<th>Symbol</th>
<th>Relative Abundance (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Calcium</td>
<td>Ca</td>
<td>0.217</td>
</tr>
<tr>
<td>2.</td>
<td>Potassium</td>
<td>K</td>
<td>0.065</td>
</tr>
<tr>
<td>3.</td>
<td>Sulphur</td>
<td>S</td>
<td>0.039</td>
</tr>
<tr>
<td>4.</td>
<td>Copper</td>
<td>Cu</td>
<td>0.002</td>
</tr>
<tr>
<td>5.</td>
<td>Zinc</td>
<td>Zn</td>
<td>0.001</td>
</tr>
<tr>
<td>6.</td>
<td>Iron</td>
<td>Fe</td>
<td>0.001</td>
</tr>
</tbody>
</table>

According to the EDXRF result, the tamarind seed husk do not contain any toxic heavy metals.

Qualitative Analysis of Tannin
The class of tannin obtained from tamarind seed husk, a set of qualitative experiments were carried out with various reagents and their results are given in Table 2. The result indicates that the tamarind seed husk extract gave identical colour and precipitation reaction when compared with the phlobatannins or condensed tannins as mentioned in the literature [6]. It produced dirty white precipitate with 2 % gelatin, a
dark green precipitate with aqueous ferric chloride and dark red solids with dilute HCl solution. It clearly confirms that tamarind seed husk extract is condensed tannins.

Table 2
Qualitative Analysis of Tannins

<table>
<thead>
<tr>
<th>Reagents</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2% Gelatin</td>
<td>Dirty white precipitate</td>
</tr>
<tr>
<td>5% Aqueous ferric chloride</td>
<td>Dark green precipitate</td>
</tr>
<tr>
<td>10% Lead acetate</td>
<td>Pinkish precipitate</td>
</tr>
<tr>
<td>Copper (II) sulphate solution</td>
<td>Faint green</td>
</tr>
<tr>
<td>Dilute hydrochloric acid solution</td>
<td>Dark red solids</td>
</tr>
<tr>
<td>Dilute sulphuric acid solution</td>
<td>Flesh coloured precipitate</td>
</tr>
</tbody>
</table>

Figure 5: Characteristic Color Change of Tannin with Various Reagents

FT-IR Spectrophotometric Analysis
The FT-IR spectrum of extracted tannin was recorded by using perkin Elmor spectrophotometer. The FT-IR spectrum of tannin and the band assignments are described in Figure (6) and Table (3).

Figure 6: FT-IR Spectrum of Extracted Tannin
Table 3  
FT-IR Assignment of Extracted Tannin

<table>
<thead>
<tr>
<th>No.</th>
<th>Absorption band (cm⁻¹)</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3439.19</td>
<td>– OH stretching vibration of alcohol group</td>
</tr>
<tr>
<td>2</td>
<td>3085.25</td>
<td>C–H stretching vibration of sp² hydrocarbon</td>
</tr>
<tr>
<td>3</td>
<td>2933.83</td>
<td>C–H stretching vibration of sp³ hydrocarbon</td>
</tr>
<tr>
<td>4</td>
<td>1612.54, 1523.82, 1450.52</td>
<td>C=C ring skeletal stretching vibration of aromatic benzene ring</td>
</tr>
<tr>
<td>5</td>
<td>1367.58, 1338.71</td>
<td>– OH in plane bending vibration of alcohol group</td>
</tr>
<tr>
<td>6</td>
<td>1238.34</td>
<td>C–O stretching vibration of alcohol group</td>
</tr>
<tr>
<td>7</td>
<td>1147.68, 1095.0, 1039.67</td>
<td>asymmetric and symmetric C–O–C stretching vibration of ether group</td>
</tr>
<tr>
<td>8</td>
<td>823.83, 759.98</td>
<td>C–H out of plane bending vibration of polynuclear aromatics hydrocarbons</td>
</tr>
<tr>
<td>9</td>
<td>650.46</td>
<td>–OH out of plane bending vibration of alcohol group</td>
</tr>
</tbody>
</table>

According to FT-IR spectrum, extracted tannin contains OH stretching vibration of alcohol group, C–H stretching vibration of sp² hydrocarbon, C–H stretching vibration of sp³ hydrocarbon, C=C ring skeletal vibration of aromatic benzene ring hydrocarbon, C–O stretching vibration of alcohol group, asymmetric and symmetric C–O–C stretching vibration of ether group, C–H out of plane bending vibration of polynuclear of aromatics group, OH out of plane bending vibration of alcohol group. There is a good evidence for the characterization of extracted tannin.

Dyeing Process

The dyeing process includes three major steps; first begins the extraction of colouring matter from outer skins of onion and flowers of butterfly pea, second is mordanting the cotton cloth and the last is dyeing. In this research work, pre-mordanting method was used and tannin was employed as the natural mordant. Cotton cloth was treated with 2% tannin only solution at 70°C for 30 minutes. Moreover, tannin treated cotton cloth was further treaded with 1% copper (II) sulphate solution at 70°C for 30 minutes. The cotton cloth with and without mordanted were dyed with outer skins of onion and flowers of butterfly pea. Three different color of dyeing products were obtained. The color of dyeing cotton cloth are shown in following Table (3).
Table 4  
**Color of Dyeing Cotton Cloth with Without Mordant, 2 % Tannin and 2 % Tannin + 1 % CuSO₄**

<table>
<thead>
<tr>
<th>Dye Solution</th>
<th>Without Mordant</th>
<th>2 % Tannin</th>
<th>2 % Tannin + 1 % CuSO₄</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outer skins of Onion</td>
<td><img src="image1.png" alt="Color Image" /></td>
<td><img src="image2.png" alt="Color Image" /></td>
<td><img src="image3.png" alt="Color Image" /></td>
</tr>
<tr>
<td>Flowers of butterfly pea</td>
<td><img src="image4.png" alt="Color Image" /></td>
<td><img src="image5.png" alt="Color Image" /></td>
<td><img src="image6.png" alt="Color Image" /></td>
</tr>
</tbody>
</table>

**Rubbing Fastness Properties of Dyeing Products**

The sample has to be tested in the delivered condition; don't wash and/or tumble it before testing the fabric/sample has to be air conditioned at least 8 hours by standard climate (20°C/ 65 %, relative humidity). The air conditioned specimen has to be rubbed with the dry and wet cotton rubbing cloth in warp, weft or diagonal direction of face side.

Table 5  
**Results of Rubbing Fastness of Dyed Cotton Cloth**

<table>
<thead>
<tr>
<th>Dye Solution</th>
<th>Type of mordant</th>
<th>Rubbing Fastness 500 g; 100 Times Cotton Cloth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Dry Mark</td>
</tr>
<tr>
<td>Outer skins of onion</td>
<td>Without Mordant</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>2 % Tannin</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>2 % Tannin + 1 % CuSO₄</td>
<td>4</td>
</tr>
<tr>
<td>Flowers of butterfly pea</td>
<td>Without Mordant</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>2 % Tannin</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>2 % Tannin + 1 % CuSO₄</td>
<td>3-4</td>
</tr>
</tbody>
</table>

The change in color of the sample was compared with standard scale. Cotton cloth are acceptable and good condition for dry test and fair condition for wet test.

**Washing Fastness Properties of Dyeing Products**

Color fastness to washing is the common quality parameter, which is considered very important from the point of view of consumers. This test determines the loss & change of colour in the washing process by a consumer and the possible staining of other garments or lighter portion that may be washed with it. This test is used to predict the performance of any dyed or printed textile product to the common washing process using a detergent and additives.
Table 6
Results of Washing Fastness of Dye Cotton Cloth

<table>
<thead>
<tr>
<th>Dye Solution</th>
<th>Type of mordant</th>
<th>Washing Fastness ISO. Test 3 60°C; 30 mins Change in Shade Cotton Cloth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outer skins of onion</td>
<td>Without Mordant</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>2 % Tannin</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2 % Tannin + 1 %CuSO₄</td>
<td>2</td>
</tr>
<tr>
<td>Flowers of butterfly pea</td>
<td>Without Mordant</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>2 % Tannin</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2 % Tannin + 1 %CuSO₄</td>
<td>2</td>
</tr>
</tbody>
</table>

According to the results, the result of washing fastness dyeing cotton cloth of onion outer skin and butterfly pea flowers with and without mordant are nondetectable. However, washing fastness dyeing cotton cloth are the change in shade of 2 for 2 % tannin and 2% tannin with 1 % CuSO₄. The results of washing fastness are fairly good rating level.

Conclusion
In this research work, the tamarind husk was selected for phytochemical analysis and extraction of tannin as a natural mordant for dyeing of cotton cloth with natural dye. According to the phytochemical screening the tamarind seed husk contain tannin. Tannin play an important role in dyeing process because it can be used as a natural mordant to sustain coloring matter permanently. According to the EDXRF result, the tamarind seed husk do not contain any toxic heavy metals. Qualitative analysis of tannin, the result indicates that tamarind seed husk extract is condensed tannin. The natural dye extracted from outer skins of onion and flowers of butterfly pea were obtained a wide range of color shadings with natural mordants. The colour strengths of pre-mordanted cotton cloth (2 % tannin only, and combination of 2 % tannin and 1 % CuSO₄ solution) are better than that of unmordanted cotton cloth. Wet and dry of rubbing fastness were determined. So, it was noticed that dry rubbing fastness was found slightly better than wet rubbing fastness. The results of washing fastness dyeing cotton cloth are the change in shade of 2 for 2 % tannin and 2 % tannin with 1 % CuSO₄ solution. It means that the overall results of washing fastness are not reach the best rating level but they reach fairly good rating level. The extracted tannin was found to be suitable for a mordant in dyeing process.

Recommendations
It is recommended that the natural mordant tannin extracted from tamarind seed husk should be used for dyeing process with other natural dyes. It is also recommended that other natural mordant and natural dyes (eco-friendly natural product) should be studied for the dyeing process.
References


Superabsorbent Nanocomposite Synthesis of Wheat Straw Cellulose Grafted Polyacrylamide

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Abstract

Wheat straw superabsorbent nanocomposite was prepared by graft copolymerization with acrylamide and wheat straw cellulose in aqueous solution using N, N-methylene-bis-acrylamide (NNMBA) as a cross-linker, potassium persulphate (KPS) as initiator and bentonite as inorganic compound. The cellulose was prepared by soda process using different concentrations of sodium hydroxide (2 \%, 4 \% and 6 \%). Morphologies and structure of the wheat straw nanocomposite superabsorbent were characterized by Scanning Electron Microscope (SEM), Fourier Transform Infrared Spectroscopy (FTIR) and X-ray diffraction (XRD). SEM data show that the fibrous morphology of wheat straw cellulose disappears and gel aggregates with many large microporous holes are formed after graft copolymerization. The FTIR spectra indicate that acrylamide has been grafted onto wheat straw cellulose backbone. Crystal size of the obtained cellulose analyzed by XRD diffraction pattern was 9.2 nm, indicated the nanocrystal structure and superabsorbent as amorphous structure. The effect of varying cellulose to acrylamide ratio on grafting efficiency and swelling degree of superabsorbent in urea and water was investigated. The maximum swelling degree of superabsorbent using cellulose extracted by 4 \% NaOH, cellulose to acrylamide ratio (1:3), in urea and water were 1600 \% and 1050 \% respectively. This result is quite satisfactory and can be applied in agriculture to absorb water and urea fertilizer.

Keywords: Nanocomposite, Wheat straw cellulose, Swelling degree

Introduction

Myanmar is an agricultural country and wheat production by year is 1000 metric tons. Wheat straw (WS) is an abundant, renewable and inexpensive whose main components are cellulose, hemicellulose and lignin [8]. So it was selected as raw material for cellulose production. Wheat straw consisted of natural cellulose (32.1 \%), hemicellulose (29.2 \%), lignin (16.4 \%) and other components 22.3 \%. It is one of the best-known fiber crops [6]. Cellulose is natural polymer that has biodegradable, biocompatible and non-toxic properties. Cellulose can be converted to nanocellulose that would be outstanding if combined with inorganic nanoparticles in order to obtain nanocomposite that have properties of both nanocellulose and nanoparticles [4]. Nanocomposite can be considered as solid structure in nanometer scale dimensions. Compared with the ordinary cellulose, nanocellulose has a smaller diameter < 100 nm [10].

Superabsorbent polymers (SAPs) are hydrophilic and three dimensional networks that exhibit the ability to highly swell in water and retain significant amount of water within the structure [5]. SAPs are widely used in many applications including
hygienic products, agriculture, waste water treatment and heavy metal removal [8]. Furthermore, SAPs may be an excellent soil conditioner, it will affect the physical, chemical and biological properties of the soil as well as on plant growth parameters [6].

In this study, wheat straw cellulose was used as skeletal material and acrylamide monomer was expected to graft on the structural bodies to crosslink into superabsorbent nanocomposite. The grafting of acrylamide onto wheat straw cellulose was performed by free radical polymerization method. The effect of acrylamide monomer concentration on superabsorbent characterization such as grafting efficiency, swelling property in urea and water was attempted to reveal.

The aim of this research is to produce superabsorbent nanocomposite from wheat straw for improvement in agricultural productivity and to recycle the agriculture wastes into useful products.

**Materials and Methods**

**Materials**

In this research, wheat straw was collected from Chae-Yar-Taw village, Myinmu Township, Sagaing Region, Myanmar. Wheat straw was used as a raw material. Sodium hydroxide (NaOH) was used to extract cellulose from wheat straw. Acrylamide (AM) monomer as grafting agent, potassium hydroxide (KOH), hydrogen peroxide (H₂O₂) as an impurity removal of corn straw cellulose, potassium persulphate as initiator, N, N-methylene-bis-acrylamide as crosslinker, bentonite as inorganic compound, sodium hypochlorite, acetic acid and ethanol were used.

**Preparation of Cellulose Pulp from Wheat Straw**

The wheat straw (WS) was washed by distilled water and sun dried. The dried straw was cut into small pieces and grinded with a grinder. The wheat straw powder was sieved by using 40 mesh size sieves.

Cellulose pulp was prepared employing three different concentrations of sodium hydroxide, 2 %, 4 % and 6 %. 30 g of sifted raw wheat straw powder was mixed with 300 mL of 2 % sodium hydroxide and refluxed in water bath at 100°C for 30 min and stirred for 1.5 hours and then filtered. The hemicellulose and lignin were removed by adding 300 mL of 5 % potassium hydroxide and 10 % hydrogen peroxide and shaken for 2 hours and then filtered. The cellulose pulp obtained was bleached with sodium hypochlorite and filtered and washed until neutral. Then bleached pulp was oven dried. 10 g of the bleached dry pulp was treated with 50 mL of 17.8 % sodium hydroxide solution for about 25 minutes. The material was filtered and washed with a liter of water. Then bleached pulp was rinsed with 100 mL of 10 % acetic acid. Finally, the acid was completely removed by washing the pulp with a litre of hot water [1] [9]. The cellulose pulp obtained was dried at room temperature for 24 hours followed by oven dry 100°C for 2 hours. The dry cellulose pulp using 2% sodium hydroxide solution was obtained. Similarly, cellulose pulp was also prepared by using 4 % and 6 % sodium hydroxide solution.

**Superabsorbent Synthesis**

Cellulose was mixed with distilled water and stirred at 350 rpm at room temperature for about 1 hour. Then acrylamide monomer was added into the mixture
and stirred at 65°C for 1 hour to get homogeneous mixture. The resulting solution was refluxed in water bath at 65°C for 30 min. The resulting solution was transferred into the beaker containing certain amounts of NN MBA, KPS and bentonite which was kept stirring with magnetic stirrer at 65°C until pasty product was obtained and then the product was cut into small pieces. Then the samples were dewatered with ethanol and dried at 65°C to constant weight. Experiments were carried out with a variation on cellulose, acrylamide, potassium persulphate and N, N-methylene-bis-acrylamide [6].

**Scanning Electron Microscope (SEM) Analysis of Cellulose and Superabsorbent**

Scanning electron microscopy was used to study the morphological structures of cellulose and grafted copolymer by detecting the presence of connected microporosity. Original wheat straw cellulose and grafted copolymers were qualitatively analysed by SEM method.

The morphological structures of cellulose and grafted copolymer were measured at Department of Chemistry in Yadanabon University.

**Determination of Grafting Efficiency**

The grafting efficiency is the ratio the mass grafted of monomer on cellulose with the initial monomers. The grafting efficiency was determined by using the following equation 1 [2].

\[
\text{Grafting Efficiency} = \frac{W_h - W_s}{W_m} \times 100\% \quad (1)
\]

where, \(W_h\) is the weight of the cellulose-acrylamide graft copolymer, \(W_s\) is the weight of cellulose and \(W_m\) is the weight of the acrylamide monomer.

**Determination of Swelling Degree**

The Japanese Industrial Standard K 8150 method has been used to measure the swelling. For determination of swelling degree, superabsorbent was immersed in deionized water for 48 hours at room temperature occasionally stirring. After swelling, the swollen superabsorbent was filtered and the swelling degree was calculated as shown in equation 2 [2].

\[
\text{Swelling Degree} = \frac{W_{ss} - W_d}{W_d} \times 100\% \quad (2)
\]

where, \(W_{ss}\) is the weight of superabsorbent in swollen state and \(W_d\) is the weight of dry superabsorbent.

**FT IR Analysis**

The Fourier Transform Infrared (FT IR) Spectroscopy was used to identify the functional group of the active compounds based on the peak value in the region of infrared radiation. The FT IR spectra of the original wheat straw cellulose and grafted cellulose-acrylamide copolymer were recorded by FT IR spectrophotometer (Perkin Elmer, UK, L1600400) in the wave number range 400-4000 cm\(^{-1}\). The FT IR spectrum of wheat straw cellulose and the grafted copolymer were measured at Department of Chemistry in Monywa University.
Crystallization Analyzed by XRD

The crystallization of wheat straw cellulose and superabsorbent were examined by XRD measurement performed on a multiplex 2 kW (Rigaku, Japan) using Cu/K-alpha ($\lambda = 1.54056$ Å) at 40 kV and 50 mA.

Scherrer equation was used for calculating crystallite size in plane.

$$D = \frac{k\lambda}{\beta \cos \theta}$$

where $\lambda$ is wavelength of X-ray tube $\lambda = 1.54056$ Å, $\beta$ is the pure integral of width of the reflection at half maximum height (FWHM, full width at half maximum) of 202 peak at 20 about 22° and 0.89 is the Scherrer constant. XRD analysis was measured at University Research Center (URC) Yangon.

Water Retention Test for Superabsorbent

The soils used were firstly dried in oven for two days at 60°C to remove moisture from the soil. The superabsorbent was mixed in container with 300 g of soil. The mixture was irrigated with 200 mL of water, and the container was weighed at different set intervals. This measurement was carried out at room temperature. The weight loss of the mixtures against time was calculated at every interval time and so the water retention capacity of superabsorbent was obtained. Controlled experiment without superabsorbent was also performed as reference. Water retention (WR) percentage of soil treated with superabsorbent was determined as the following equation [3].

$$WR (%) = \frac{M_1 - M_2}{M_2} \times 100 \%$$

Where, $M_1$ is the weight of wet soil at certain interval time and $M_2$ is the weight of oven dry soil.

Results and Discussion

Effect of Alkali Concentration on Yield of Wheat Straw Pulp

Three different concentrations of alkali were used for the experiment and the results are shown in the following Table 1.
According to the results, when 2 % concentration of alkali was used, the resulting pulp obtained high yield (62 %). But it was hard and coloured. When 6 % concentrations of alkali were used, the yield of pulp was considerably low (56 %) and could be bleached easily. 4 % concentration of alkali was the most suitable not only for yield and quality but also for consumption of alkali.

**Effect of Cellulose to Acrylamide Ratio on Grafting Efficiency and Swelling Degree**

Grafting efficiency and swelling degree of superabsorbent with bentonite and without bentonite in urea and water were investigated. The results are shown in Table 2, 3, 4 and Fig. 1, 2.

**Table 1**

*Effect of Alkali Concentration on Yield of Wheat Straw Pulp*

<table>
<thead>
<tr>
<th>Experiment</th>
<th>Wheat straw (g)</th>
<th>Concentration of NaOH (%)</th>
<th>Yield (g)</th>
<th>Yield (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30</td>
<td>2</td>
<td>18.6</td>
<td>62</td>
</tr>
<tr>
<td>2</td>
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<td>3</td>
<td>30</td>
<td>6</td>
<td>16.8</td>
<td>56</td>
</tr>
</tbody>
</table>

**Table 2**

*Effect of Cellulose to Acrylamide Ratio on Grafting Efficiency and Swelling Degree (with bentonite)*

<table>
<thead>
<tr>
<th>No.</th>
<th>Cellulose : AM</th>
<th>Grafting Efficiency (%)</th>
<th>Swelling Degree (%)</th>
<th>Urea</th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 : 1</td>
<td>78</td>
<td>305.72</td>
<td>254.54</td>
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<tr>
<td>2</td>
<td>1 : 2</td>
<td>80</td>
<td>700.18</td>
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<tr>
<td>3</td>
<td>1 : 3</td>
<td>81</td>
<td>1600</td>
<td>1050</td>
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<td>4</td>
<td>1 : 4</td>
<td>99</td>
<td>1317.64</td>
<td>950</td>
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</tr>
</tbody>
</table>
Table 3
Effect of Cellulose to Acrylamide Ratio on Grafting Efficiency and Swelling Degree (without bentonite)

<table>
<thead>
<tr>
<th>No.</th>
<th>Cellulose : AM</th>
<th>Grafting Efficiency (%)</th>
<th>Swelling Degree (%)</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Urea</td>
</tr>
<tr>
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<td>1 : 1</td>
<td>69</td>
<td>309.09</td>
</tr>
<tr>
<td>2</td>
<td>1 : 2</td>
<td>81</td>
<td>511.76</td>
</tr>
<tr>
<td>3</td>
<td>1 : 3</td>
<td>83</td>
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<tr>
<td>4</td>
<td>1 : 4</td>
<td>99</td>
<td>980</td>
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<td></td>
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<td>Water</td>
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<td></td>
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<td>408</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>600</td>
</tr>
</tbody>
</table>

According to the results, grafting efficiency and swelling degree increased with increasing monomer ratio (cellulose to AM ratio 1 : 1 - 1 : 3). Higher monomer ratio made free radical more closer than lower ratio of monomer and tends to form more crosslink. At cellulose : AM (1 : 4), it was found that swelling degree decreased. This result could be explained in term of cross-linked density. The increased monomer concentration made more cross-linked density. Higher in cross-linked density reduced the free volume available for swelling by increasing the tightness of the network structure. For agriculture application, swelling property of the superabsorbent network is more important than other factors. The results of swelling capacity showed that superabsorbent of wheat straw cellulose with bentonite had the highest swelling capacity in urea and water. The maximum swelling capacity of wheat straw cellulose superabsorbent in urea and water were 1600 % and 1050 % at cellulose to AM ratio (1 : 3), 0.5 wt % KPS and 0.1 wt % NNMBA. Swelling capacity of the urea solution showed higher value compared to water. Urea is a neutral molecule that have hydrophilic group NH₂. The addition of urea in solution caused the increasing hydrogen bonding interactions between the superabsorbent and solutions that caused greater swelling capacity.

Characterization of Cellulose and Grafted Copolymer using FT IR Spectroscopy

In this study KPS was used for initiating polymerization of acrylamide and graft copolymerization of acrylamide was triggered from hydroxyl groups on the chain of WS simultaneously.
In Fig. 3, the absorption at 3332.39 cm⁻¹ is assigned to the stretching of OH groups which was diminished after graft copolymerization. It can be explained that the partial hydrogen bond of cellulose is destroyed enhancing the new formation of cross-links with acrylamide monomer. The changed spectra can be seen with the peaks at 3833.3 cm⁻¹, 3191.04 cm⁻¹ in Fig. 4. Those two bands indicate the unsymmetric and symmetric stretching of NH₂ group, which are characteristics of the –CONH₂ group present in the acrylamide monomer [7].

The absorption band at 1650.94 cm⁻¹ in Fig. 4 is assigned to the stretching of the C = O which indicated the presence of i amide in the grafted copolymer. This absorption band is not observed in cellulose. These changes provide strong evidence of the grafting of acrylamide onto cellulose. The peak at 1023.45 cm⁻¹ in Fig. 4 indicates the C – O – C stretching of cellulose. The band observed in at 1416.13 cm⁻¹ (Fig. 4) is assigned the stretching CN of grafted copolymer [7].

Morphologies of the Superabsorbent Nanocomposite

SEM image of WS cellulose and dried superabsorbent nanocomposite are depicted in Fig. 5. It can be observed that WS cellulose displays a fibrous morphology. However, superabsorbent nanocomposite presents an undulant and course surface with many microporous holes which can facilitate the permeation of water into polymer network. This indicates that WS superabsorbent nanocomposite has good water absorption.

Figure 5: SEM Image of (a) Wheat Straw Cellulose and (b) Superabsorbent Copolymer

XRD Analysis of the Superabsorbent Nanocomposite

XRD patterns of wheat straw cellulose and WS superabsorbent nanocomposite are shown in Fig. 6 and 7. In Fig. 6, it can be seen the diffraction pattern of wheat straw cellulose with sharp peak at 22.33° as intensity of crystalline. The size of cellulose calculated by Scherrer's law was 9.2 nm, which indicates nanocrystal size. Fig. 7 shows that the diffraction pattern of superabsorbent nanocomposite indicated the amorphous structure. The amorphous structure of the
superabsorbent nanocomposite will increase the swelling capacity due to its irregular composition, so the solution would be easy to get in and bind with the superabsorbent nanocomposite.

![XRD Spectrum of Wheat Straw](image1)

**Figure 6: XRD Spectrum of Wheat Straw**

![XRD Spectrum of Superabsorbent](image2)

**Figure 7: XRD Spectrum of Superabsorbent**

**Water Retention in Soil**

The addition of micro-porous superabsorbent in soils can markedly increase water holding abilities by absorbing and retaining large amount of water which indirectly increase the nutrient availability in plant roots. Water retention test in soils with and without the addition of superabsorbent was carried out under room temperature and results are shown in Table 4, 5 and Fig. 8.

**Table 4**

<table>
<thead>
<tr>
<th>Day</th>
<th>M₁(g)</th>
<th>M₂(g)</th>
<th>WR %</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>496.00</td>
<td>300</td>
<td>65.33</td>
</tr>
<tr>
<td>6</td>
<td>490.01</td>
<td>300</td>
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<tr>
<td>9</td>
<td>486.05</td>
<td>300</td>
<td>62.01</td>
</tr>
<tr>
<td>12</td>
<td>483.06</td>
<td>300</td>
<td>61.02</td>
</tr>
<tr>
<td>15</td>
<td>480.00</td>
<td>300</td>
<td>60.00</td>
</tr>
<tr>
<td>18</td>
<td>475.10</td>
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<td>21</td>
<td>471.08</td>
<td>300</td>
<td>57.00</td>
</tr>
</tbody>
</table>

**Table 5**

<table>
<thead>
<tr>
<th>Day</th>
<th>M₁(g)</th>
<th>M₂(g)</th>
<th>WR %</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>476.08</td>
<td>300</td>
<td>58.69</td>
</tr>
<tr>
<td>6</td>
<td>471.05</td>
<td>300</td>
<td>57.01</td>
</tr>
<tr>
<td>9</td>
<td>466.08</td>
<td>300</td>
<td>55.36</td>
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<tr>
<td>12</td>
<td>459.04</td>
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<td>15</td>
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</tr>
<tr>
<td>21</td>
<td>441.08</td>
<td>300</td>
<td>47.00</td>
</tr>
</tbody>
</table>
According to results, water retention in soil decreased as the time was prolonged and the soil containing superabsorbent possessed higher water retention over controlled one. This result indicates that superabsorbent can enhance the water retention capacity in soil.

**Conclusion**

This research was based on the recycling of abundant agricultural waste (wheat straw) into useful product. There were mainly three parts: production of cellulose from wheat straw, synthesis of superabsorbent with acrylamide and wheat straw cellulose, characterization of the wheat straw cellulose and superabsorbent.

Wheat straw cellulose was prepared by soda process using different alkali concentrations (2 %, 4 % and 6 %). The experiment carried out using 4 % alkali concentration was found to be the satisfactory condition not only for both yield and quality of pulp but also for the consumption of alkali.

In graft copolymerization process, it was found that grafting efficiency increased with increasing monomer ratio but swelling degree increased from WS cellulose: AM (1 : 1 – 1 : 3) and at 1 : 4 it decreased in urea and water. The result of swelling capacity showed that superabsorbent of wheat straw cellulose with bentonite had the highest swelling capacity in urea and water. The maximum swelling degree for superabsorbent by using cellulose to acrylamide ratio (1 : 3), 0.5 wt % KPS and 0.1 % NNMBMA were 1600 % and 1050 % in urea and water.

The SEM analysis of grafted copolymer superabsorbent showed that the pores were found after grafting of cellulose with acrylamide and this result indicated that cross links between monomer and cellulose backbone were grafted well.

In FT IR analysis, the results also showed that acrylamide had been grafted onto wheat straw cellulose backbone successfully. The diffraction pattern of XRD indicated that cellulose was nanocrystal with the size of 9.2 nm and the differential pattern of superabsorbent indicated the amorphous structure. Based on water retention test, it was found that superabsorbent had good water retention ability. The superabsorbent should be applied for agriculture to increase plant growth and crops yield percent.

---

**Figure 8: Water Retention Test in Soil for Superabsorbent**

According to results, water retention in soil decreased as the time was prolonged and the soil containing superabsorbent possessed higher water retention over controlled one. This result indicates that superabsorbent can enhance the water retention capacity in soil.
Recommendation
In this research work, low cost production of cellulose from abundant agricultural residues, wheat straw, was investigated using soda process and used for graft copolymerization with acrylamide monomer for the synthesis of superabsorbent. The overall process from wheat straw to superabsorbent may be said to be efficient and cost effective for the applications in agricultural sectors.

Acknowledgements
The authors wish to acknowledge their gratitude to Rector Dr Maung Maung Naing, Prorectors Dr Si Si Khin and Dr Tint Moe Thu Zar, Yadanabon University for allowing to carry out this research program. We also wish to express our profound gratitude to Dr Hlaing Hlaing Myat, Professor and Head, Department of Chemistry, Yadanabon University, for giving permission to perform this research, and supporting research facilities.

References
Characterization and Elemental Analysis of Soil Samples from Zayatkwin Village, Thabeikkyin Township

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²Associate Professor, Department of Chemistry, Mandalay University of Distance Education, Ministry of Education, Myanmar
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Abstract

In this research work, three soil samples were collected from three different sites of Zayatkwin Village, Thabeikkyin Township, Mandalay Region. Characterization and elemental analysis of the soil samples were done. Some physical properties (pH, moisture, texture and electrical conductivity) and chemical properties (exchangeable cations, organic carbon and organic matter) were determined. The elemental compositions were investigated by EDXRF method. Iron content in the soil samples were determined by complexometric titration method.

Keywords: EDXRF, complexometric titration, electrical conductivity, pH

Introduction

Soil is considered to be the "skin of the earth" and the mixture of minerals, organic matter, gases, liquids and the myriad of organisms that together supports plant life.² Soil is not only an important medium for plant growth and for the disposal and delegation of wastes but also a treatment filter for maintaining water quality, a key component in the regulation of the global biogeochemical cycles. Soils are essential to human society as air and water. Soil degradation has not received nearly as much attention as the threats to these other two elements. It is commonly accepted today that the chemical and physical properties of soils determine their capacity to support plant growth (Cheswarth, W., 2008).

For the growth of plants, some nutrients are required in large amount. These nutrients are to be mentioned as fertilizer elements such as potassium, nitrogen and phosphorus, hydrogen, carbon and oxygen can be obtained from water and air. It is generally agreed upon that twelve elements are essential for normal plant growth. These nutrient elements are phosphorus, potassium, calcium, magnesium, iron, manganese, boron, copper, zinc, sulfur, sodium and nitrogen. But some elements in soil are toxic to plants such as selenium, arsenic, fluorine, aluminium and nickel (Joel, O.F., Amajuoyi, C.A., 2009).

Iron chemical compounds have many uses. Iron oxide mixed with aluminium powder can be ignited to create a thermite reaction, used in welding and purifying ores. Iron forms binary compounds with the halogens and the chalcogens. Among its organometallic compounds is ferrocene, the first sandwich compound discovered (Caven, R.M., 1965).

Iron plays an important role in biology, forming complexes with molecular oxygen in hemoglobin and myoglobin; these two compounds are common oxygen transport proteins in vertebrates. Iron is also the metal used at the active site of many
important redox enzymes dealing with cellular respiration and oxidation and reduction in plants and animals (Bramfitt, B.L., Benscater, A.O. 2002). Myanmar is agricultural country and therefore we need to do soil research more and more.

**Research Objectives**

The aim of this research is to provide the information with the analysis on soil samples from (Mye ni taung, Det kait and Zayatkwin), Thabeikkyin Township, Mandalay Region.

The Objectives of the present research work are;

1. To collect representative soil samples
2. To characterize and analyze the collected soil samples
3. To interpret the resulting analytical data
4. To give recommendation based on interpreted analytical results

**Research Methodology**

**3.1 Collection of Soil Sample**

Three soil samples were collected from three different sites of (Mye ni taung, Det kait and Zayatkwin Village), Thabeikkyin Township, Mandalay Region.

**3.2. Materials**

The mineral matter inherited from rocks is referred to as soil parent material because it is the principal ingredient from which most soil formed. The exceptions to this rule are organic soils. Their principal parent materials are decomposing plant parts. Actually, all soils have both organic and inorganic parent materials, but which ever dominate the soil's characteristics. The nature of the parent material influences the characteristics of even fully mature soils. Two of the most important properties of soil parent material are texture and its mineral composition.

Both of these properties are carried over as characteristics of the soil formed from the parent material, though they are altered somewhat as the soil ages. Such alteration generally reduces particle size by weathering action. The downward movement of water is controlled quite largely by the texture of the soil. Its chemical and mineralogical compositions often not only determine the effectiveness of the weathering forces but also in instance partially control the natural vegetation. A sandy gravelly, or stony soil may result from the gradual removal of much of the finer material (Louis, M.T., Frederickr, T., 1973).
Research Results

4.1 Location Map of the Study Area

Figure 1: Location Map of the Study Area

4.2 Preparation of Soil Samples

The collected soil samples were broken up into small lamps and spread out in the shade for air-dry. The temperature was not exceeding 35°C. Stone and pieces of macro-organic matters were picked out and the remainders were crushed and sieved. Large lumps were broken up by hand and then the soil was ground by milling with wooden roller. After grinding, the soil was screened through a 2 mm (10 meshes) sieve. The greater than 2 mm soil retained on the sieve was not be analyzed. The samples passing the sieve were mixed together very thoroughly and used for analysis.

Mye ni taung
Sample 1

Det kaik
Sample 2

Zayatkwin
Sample 3

Figure 2: Three Examples from the Different Sites of Area

4.3 Determination of Moisture Content

The constant weight of porcelain basin was first determined. Then about 5 g of sample was placed in basin and weighed accurately. It was allowed to dry in an electric oven at 110°C. Then it was cooled in desiccator. This procedure was done until to get constant weight. From the loss in weight the percentage of moisture of sample was calculated.
\[
\text{\because Moisture \%, } M = \frac{100(b-a)}{b}
\]

4.4 Determination of Soil pH

The measured soil parameter include soil pH measurement determines the degree of acidity or alkalinity in soil materials suspended in water. It influences a large number of environmental mechanisms such as leaching of nutrients from soil and the provision of nutrients and water to plant. It is needed to add water to soil prior to pH determination because it is not possible to measure the pH of a dry soil.

A 10.0 g of sample was weighed accurately and placed into a beaker. 25 mL of distilled water was added (the ratio of sample to water was 1 : 2.5) and shaken for 15 minutes. Then pH was measured by pH meter. The pH meter was calibrated with pH 4.0 and pH 10.0 buffer solution before measurement.

4.5 Determination of Electrical Conductivity

Procedure

Electrical conductivity of the filtrate was determined by the conductivity bridge. The electrode of the conductivity bridge was immersed into the filtrate. After operating the conductivity bridge, the electrical conductivity can be read out. The physical measurement made in a laboratory determination of conductivity is usually of resistance (in ohms). The reciprocal of resistance is conductance. It measures the ability to conduct a current and expressed in reciprocal ohms per cm. About 10 g of the crushed soil samples were prepared in about 50 mL of distilled water. The electrical conductivity of the samples was determined electrometrically with a calibrated, electrical conductivity meter. The electrical conductivity of the sample was read directly and recorded in reciprocal ohms per cm. This determination was done at Soil Survey Section, Irrigation Department, Yangon.

4.6 Determination of Texture by Hydrometer Test

Sampling

Air dried soil sample (50 g) was taken and separated by sieving with a No. 10 (2 mm) sieve. The fraction retained on No.10 sieve was recorded as the mass of coarse material. After being washed the coarse material, it was dried and separated by No.4 (4.75 mm) sieve and recorded the mass retained on this sieve. For the particle size analysis, material passing on No.10 (2 mm) sieve is required in amounts equal to 115 g of sandy soils and 65 g of either silt or clay soils.

Hydrometer Method

The sample (50 g) was placed in the 250 mL beaker and added 50 mL of sodium hexametaphosphate solution and 100 mL of distilled water. The soil was stirred thoroughly to wet. Then it was allowed to soak for over night. By using electric stirrer apparatus, the soil water slurry was transferred from the beaker into the dispersion cup at the end of soaking period. Then it was added distilled water (100 mL) and stirred for period of 5 mins. Immediately after dispersion, the soil water slurry was again transferred to the glass sedimentation cylinder and it was added distilled water until the total volume is 1000 mL. The opening of the cylinder was stoppered with a rubber or cork bang. The cylinder upside was turned down and
backed for a period of 1 min to complete the agitation of the slurry at the end of 1 min. The cylinder was set in a convenient location and hydrometer readings were taken at the following intervals of time (2, 5, 15, 30, 60, 250 and 1440 mins). When it is to taken hydrometer reading, the hydrometer was carefully inserted about 20 to 25 seconds before the reading was due to approximately the depth it would have when the reading was taken. After each read, the temperature of the suspension was taken by inserting the thermometer into the suspension. After taking the final hydrometer reading, the suspension was transferred to a No. 200 (75 µm) sieve and wash with tap water until the wash water was clear. The material on the No.200 sieve was transferred to a container and it was dried in an oven (110 ± 5°C) and made a sieve analysis to the portion retained.

**Particle size Distribution Curve**

The results of the mechanical analysis are plotted to get a particle size distribution curve with the percentage finer as the ordinate and the particle diameter as the abscissa, the diameter being plotted on the logarithmic scale.

![Particle size Distribution Curve](image)

**Figure 3: Proportions of Sand, Silt and Clay in Different Soil Texture Classes**

**4.7 Determination of Organic Carbon and Organic Matter**

Total organic matter content in soil sample can be determined by titrimetric method. The organic matter is oxidized by strong oxidizing agent K$_2$Cr$_2$O$_7$. Heat is required for oxidation. Heat can be supplied internally by dilution of concentrated H$_2$SO$_4$. A known amount of K$_2$Cr$_2$O$_7$ is added to a given amount of soil and after the oxidation is completed, the amount of excess K$_2$Cr$_2$O$_7$ is determined by titration with iron II ammonium sulfate. Thus, the amount of oxidizing agent used can be found as well as the amount of organic carbon.

A 0.5 g of sample was weighed accurately and placed in 500 mL conical flask. A 10 mL of K$_2$Cr$_2$O$_7$ solution was added gradually into 20 mL of concentrated H$_2$SO$_4$. After standing for 30 min and then 200 mL of distilled water, 10 mL of phosphoric acid and 1 mL of diphenylamine indicator were added. This was titrated against iron II ammonium sulfate solution. At the end point, the dull green color was changed turbid blue to brilliant green. Blank determination was run simultaneously.

**4.8 Determination of Exchangeable Sodium**

**Procedure**

About 5 g of air dried soil sample was weighed accurately and placed in a 150 mL. Erlenmeyer flask and 25 mL of neutral normal ammonium acetate solution
was poured. It was shaken on a reciprocating shaker for 1 hour and immediately filtered through Whatman filter paper No. 1. First few mL of the filtrate may be discarded. This filtrate was made up to 100 mL by adding ammonium acetate solution. The amount of sodium in the filtrate or the ammonium acetate extract was measured by using Flame Photometer in Soil Survey Section, Irrigation Department, Yangon.

4.9 Determination of Exchangeable Calcium and Magnesium

Procedure

About 2.5 g of sample was weighed accurately and placed in a 500 mL shaking bottle containing 250 mL of 1 M ammonium acetate solution. The bottle was shaken for 3 mins and kept overnight and then filtered.

To determine calcium and magnesium, 25 mL of filtrate was added into conical flask and then 5 mL of ammonium buffer solution (pH = 10) was added. Eriochrome Black T was used as an indicator. It was titrated with 0.02 N EDTA solutions and the end point color was violet. The amount of exchangeable calcium and magnesium was determined at Soil Survey Section, Irrigation Department, Yangon.

4.10 Elemental Analysis by EDXRF Method

Three soil samples were dried in air and ground to fine powder. These samples were then sent to Department of Physics, Mandalay University. Investigations of the samples were taken out and the results inform the elemental compositions.

4.11 Determination of Iron by Titration Method using EDTA Solution (Complexometric Titration Method)

This method can be applied to determine the ferric iron in the presence of ferrous iron and divalent ions. Aluminium does not interfere, but titanium, zirconium, antimony, and bismuth should be absent.

4.11.1 Standardization of EDTA Solution

Standard magnesium sulphate solution is prepared by dissolving about 2.405 g of accurately weighed pure magnesium sulphate heptahydrate in 100 mL of distilled water. Then about 2.978 g of EDTA (Na₂H₂C₁₀H₁₂O₈N₂ –2 H₂O) is dissolved in 100 mL of distilled water.

Into 10 mL of standard Mg²⁺ solution, 2 mL of the buffer solution (pH = 10) and 3 to 4 drops of Eriochrome Black T indicator are added. This solution is titrated with EDTA solution until the colour changes from wine red to blue and the molarity of EDTA solution can be calculated.

\[
1 \text{ cm}^3 0.1 \text{ M EDTA} \quad = \quad 1 \text{ cm}^3 0.1 \text{ M Mg}^{2+} \\
13.00 \text{ cm}^3 M_{\text{EDTA}} \quad = \quad 10 \text{ cm}^3 0.09756 \text{ M Mg}^{2+} \\
M_{\text{EDTA}} \quad = \quad 0.0750 \text{ M}
\]

4.11.2 Determination of Ferric Iron

Three soil samples from three different places of Thabeikkyin Township (Mye ni taung, Det kaik and Zayatkwin Village), Mandalay Region are taken for the determination of iron. They are dried in air and ground to fine powdered form.

1.00 gram of each sample is placed in 250 mL beaker and 20 mL of concentrated hydrochloric acid are added. It is heated on a steam bath until a white
residue is obtained. To oxidize the ferrous to ferric ions, 0.5 mL of concentrated nitric acid is added and the liquid is evaporated to dryness. Then the residue is taken up in 20 mL of dilute hydrochloric acid. The insoluble material is filtered off and the residue is washed with dilute hydrochloric acid. The total filtrate is diluted to 100 mL in a volumetric flask to give a sample solution. An appropriate volume of sample solution is taken and ammonia solution is followed by dropwise until the pH value as indicated by test paper is about 4.0. At this point, a light precipitate of ferric hydroxide is formed. The solution is warmed to about 50°C and 0.5 g of salicylic acid is mixed. On shaking the solution, the deep violet colour of complex salicylate is obtained and the precipitated iron redissolves. Until the violet colour gives a bright yellow, the hot solution is titrated with standard EDTA solution. Then the concentration of ferric iron can be found out on the basis of 1 : 1 molar equivalence.

\[ 1 \text{ cm}^3 \times 0.1 \text{ M EDTA} \equiv 0.005585 \text{ g Fe} \]

**Discussion**

**Table 1**

*Some Physical and Chemical Parameters of Soil Samples*

<table>
<thead>
<tr>
<th>Sample</th>
<th>pH</th>
<th>Moisture Content (%)</th>
<th>EC (μmhos/cm)</th>
<th>Organic Carbon (%)</th>
<th>Organic Matter (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7.1</td>
<td>1.47</td>
<td>123.7</td>
<td>2.7</td>
<td>4.65</td>
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<tr>
<td>2</td>
<td>7.2</td>
<td>2.46</td>
<td>105.6</td>
<td>2.7</td>
<td>4.65</td>
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<tr>
<td>3</td>
<td>7.2</td>
<td>0.65</td>
<td>106.3</td>
<td>2.85</td>
<td>4.91</td>
</tr>
</tbody>
</table>

Classification of Electrical Conductivity (EC)

- Very low: \(< 150\)
- Medium: \(400 – 800\)
- Low: \(150 – 400\)
- High: \(800 – 2000\)
- Very high: \(> 2000\)

**Table 2**

*Textural Results of Soil Samples*

<table>
<thead>
<tr>
<th>Sample</th>
<th>Sand (%)</th>
<th>Silt (%)</th>
<th>Clay (%)</th>
<th>Gravel (%)</th>
<th>Texture</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>66.5</td>
<td>17.0</td>
<td>16.5</td>
<td>0.0</td>
<td>Sandy loam</td>
</tr>
<tr>
<td>2</td>
<td>66.5</td>
<td>17.0</td>
<td>16.5</td>
<td>0.0</td>
<td>Sandy loam</td>
</tr>
<tr>
<td>3</td>
<td>68.0</td>
<td>14.0</td>
<td>18.0</td>
<td>0.0</td>
<td>Sandy loam</td>
</tr>
</tbody>
</table>
**Table 3**

**Exchangeable Cation Contents of Soil Samples**

<table>
<thead>
<tr>
<th>Sample</th>
<th>Na⁺</th>
<th>Ca²⁺</th>
<th>Mg⁺⁺</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.39</td>
<td>0.23</td>
<td>30.56</td>
</tr>
<tr>
<td>2</td>
<td>0.32</td>
<td>0.25</td>
<td>10.55</td>
</tr>
<tr>
<td>3</td>
<td>0.30</td>
<td>0.27</td>
<td>25.94</td>
</tr>
</tbody>
</table>

Classification of Exchangeable Cations (mg/100g)

<table>
<thead>
<tr>
<th></th>
<th>K⁺</th>
<th>Na⁺</th>
<th>Ca²⁺</th>
<th>Mg⁺⁺</th>
<th>Al⁺⁺</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very low</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>&lt;0.15</td>
<td>&lt;0.3</td>
<td>-</td>
</tr>
<tr>
<td>Low</td>
<td>0.1 - 0.2</td>
<td>0.1 - 0.3</td>
<td>0.15 - 0.5</td>
<td>0.3 - 1</td>
<td>-</td>
</tr>
<tr>
<td>Medium</td>
<td>0.2 - 0.4</td>
<td>0.3 - 0.7</td>
<td>0.5 - 2.5</td>
<td>1 - 3</td>
<td>-</td>
</tr>
<tr>
<td>High</td>
<td>0.4 - 0.8</td>
<td>0.7 - 0.2</td>
<td>2.5 - 5</td>
<td>3 - 6</td>
<td>1 - 2</td>
</tr>
<tr>
<td>Very high</td>
<td>&gt; 0.8</td>
<td>&gt; 2</td>
<td>&gt; 5</td>
<td>&gt; 6</td>
<td>2 - 3</td>
</tr>
</tbody>
</table>

**Table 4**

**Determination of Iron Content with EDTA Solution by using Salicylic Acid Indicator**

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>*Volume of sample solution</th>
<th>Titre (0.0750 M EDTA)</th>
<th>Mass of iron in 1.0 g of sample</th>
<th>Percentage of iron</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10.00 cm³</td>
<td>7.25 cm³</td>
<td>0.3016 g</td>
<td>30.16 %</td>
</tr>
<tr>
<td>2</td>
<td>10.00 cm³</td>
<td>8.20 cm³</td>
<td>0.3435 g</td>
<td>34.35 %</td>
</tr>
<tr>
<td>3</td>
<td>10.00 cm³</td>
<td>6.95 cm³</td>
<td>0.2904 g</td>
<td>29.04 %</td>
</tr>
</tbody>
</table>

* Volume of analyte solution taken from 100 cm³ of sample solution which is obtained by dissolving 1.0 g of soil sample.

**Table 5**

**Elemental Analysis by EDXRF Spectrophotometer**

<table>
<thead>
<tr>
<th>No.</th>
<th>Element</th>
<th>Concentration Sample (1) (%)</th>
<th>Concentration Sample (2) (%)</th>
<th>Concentration Sample (3) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Al</td>
<td>2.609</td>
<td>0.9738</td>
<td>1.228</td>
</tr>
<tr>
<td>3.</td>
<td>P</td>
<td>0.0250</td>
<td>0.05133</td>
<td>&lt; 0.00030</td>
</tr>
<tr>
<td>4.</td>
<td>S</td>
<td>0.5424</td>
<td>0.00742</td>
<td>0.03000</td>
</tr>
<tr>
<td>5.</td>
<td>Cl</td>
<td>0.05119</td>
<td>0.02967</td>
<td>0.02114</td>
</tr>
<tr>
<td>6.</td>
<td>K</td>
<td>1.378</td>
<td>0.1985</td>
<td>0.3442</td>
</tr>
<tr>
<td>7.</td>
<td>Ca</td>
<td>5.135</td>
<td>1.046</td>
<td>24.16</td>
</tr>
<tr>
<td>8.</td>
<td>Mn</td>
<td>0.02601</td>
<td>0.2417</td>
<td>0.03515</td>
</tr>
<tr>
<td>9.</td>
<td>Fe</td>
<td>30.05</td>
<td>33.83</td>
<td>28.79</td>
</tr>
<tr>
<td>10.</td>
<td>Ni</td>
<td>0.00018</td>
<td>0.00063</td>
<td>0.00009</td>
</tr>
<tr>
<td>11.</td>
<td>Cu</td>
<td>0.03121</td>
<td>0.1303</td>
<td>0.01302</td>
</tr>
<tr>
<td>12.</td>
<td>Zn</td>
<td>0.00446</td>
<td>0.3702</td>
<td>0.1373</td>
</tr>
<tr>
<td>13.</td>
<td>As</td>
<td>0.00344</td>
<td>0.03867</td>
<td>0.00463</td>
</tr>
<tr>
<td>14.</td>
<td>Se</td>
<td>0.00026</td>
<td>0.00067</td>
<td>0.00024</td>
</tr>
<tr>
<td>15.</td>
<td>Hg</td>
<td>0.00021</td>
<td>&lt; 0.000010</td>
<td>0.00245</td>
</tr>
<tr>
<td>16.</td>
<td>Pb</td>
<td>0.00524</td>
<td>0.9339</td>
<td>0.07368</td>
</tr>
</tbody>
</table>
By the study of the soil samples from the selected area, it was found that the pH values of these soil samples are 7.10, 7.29 and 7.20 and they are generally neutral. According to literature, the soil pH for rice cultivation is (3.1-5.3). So, these soil samples are unsuitable for rice cultivation.

Moisture contents of soil samples are 1.47 %, 2.46 %, 0.65 % respectively and these soils do not retain much more water. Electrical conductivities (EC) of soil sample 1, 2 and 3 indicated the very low level of soluble salts in these soils as 123.7, 105.6 and 106.3 μmhos/cm. Thus, it may be estimated that all soil samples consist of few cation and anion.

The three soil samples contain (2.7 %, 2.7 %, 2.85 %) organic carbon and (4.65 %, 4.65 %, 4.91 %) organic matter content. High percentage of organic carbon and organic matter were found in all samples. According to literature, soils containing less than one percent of organic matter are generally considered to be poor in fertility and may need to be supplied with extra applications of organic manures to bring up the organic matter content to satisfactory levels. Therefore, three selected soil samples may not need to be supplied further organic manures.

Determination of texture was carried out and the resulting data are summarized in Table (4.2). Soil texture refers to the relative proportion of sand, silt and clay on weight basis. These soil samples contain sand (66.5 %, 66.5 %, 68.0 %), silt (17.0 %, 17.0 %, 14.0 %) and clay (16.5 %, 16.5 %, 18.0 %) respectively. The amount of silt and clay percent are low and sand percent is very high. Thus, they are sandy loam. Being sandy soil, it cannot hold the added water for a long time. So, these soil samples are unsuitable for paddy cultivation but suitable for crops cultivation.

100 g of soil sample contain 0.39, 0.32, 0.30 m.eq of Na\(^+\). Exchangeable Ca\(^{++}\) obtained are 0.23, 0.25, 0.27 m.eq/100 g and Mg\(^{++}\) value are 30.56, 10.55 and 25.94 m.eq/100 g respectively. In sample (1), (2) and (3) the values of exchangeable cations are observed as medium level in Na\(^+\), low level in Ca\(^{++}\) and extremely higher level in Mg\(^{++}\). The greater the exchangeable cation value, the better is the cultivation.

According to the results of EDXRF spectrophotometer, the concentrations of silicon in all soil samples are high because they are sandy loam. The amounts of phosphorus and potassium are very low. The percentage of toxic mineral (arsenic, mercury and lead) is small. So, the toxicity problems cannot make cultivation difficulties. The elements which have the highest concentration (30.05 %, 33.83 % and 28.79 %) in all these samples are iron. Therefore, iron contents were also investigated with EDTA solution by using salicylic acid indicator (30.16 %, 34.35 % and 29.04 %). Iron contents by EDXRF spectrophotometer are consistent with that of complexometric titration method.

Conclusion

The soil samples were taken from three different sites of Zayatkwin Village, Thabeikkyin Township, Mandalay Region. The pH values of soil samples are generally neutral. So, these soil samples are unsuitable for rice cultivation. The moisture contents of all samples are very low. This character is suitable for the cultivation of crops with low water demand but unsuitable for rice cultivation because the paddy fields require plenty of water. Thus, irrigation is necessary. But it is impossible because the soils are sandy loam which cannot hold the added water for a
long time. The electrical conductivity of soil sample 1, 2 and 3 show very low level of soluble salts. So, it may be estimated that all soil samples consist of few cation and anion. High percentage of organic carbon and organic matter are found in all samples. According to literature, three selected soil samples may not need to be supplied further manures for good fertility.

According to the results of EDXRF spectrophotometer, it is found that large amounts of silicon are observed because the soil samples are sandy loam. The element which has the largest amounts in all samples is iron. Determination of iron in the soil samples are also performed by complexometric titration method. The percentage of iron by EDXRF spectrophotometer is consistent with that of iron by complexometric titration.

**Recommendation**

Experimentally, it is found that, the soil samples studied in this research work cannot be applied in the production of iron and steel but they can be used as raw material in the cement production. It is recommended that Myanmar is agricultural country and therefore we need to do soil research more and more.

**References**

Mar Lar Min Din. (1981). "Studies on the soil characteristics of selected paddy growing areas (Delta Region)", Yangon University.
A Geographical Study of Environmental Based Economy in Chindwin River Basin, Myanmar

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Abstract

People in developing countries are heavily relying on the environmental based subsistence economies around them. In this research paper researchers have tried to assess environmental resource based economy in Chindwin River Basin, Myanmar and their effects on the well-being and development of the people. The Chindwin River, the largest tributary of the Ayeyarwady River in Myanmar, is an important river ecosystem for multiple uses and providing a range of ecological services that support people and biodiversity in the Chindwin Basin and beyond. The Assessment was based on the review of secondary data as well as the collection and analysis of field data. Chindwin River catchment area covers 110350 km². Generally, Chindwin River Basin is a mountainous forested terrain with the only exception of its lowest southern part which is a vast plain. About six million people depend upon the natural resources and ecological services. The Chindwin basin has approximately 3 million acres of cultivated land and 15% of the area has potentiality for the farming activities. About 80% of the basin is thickly forested by valuable species of wood. Among them 80% of local people depend upon agricultural lands. Farming activity supports only 50% of household income. In Chindwin Basin, natural environment supports merely average 50% of household income requirements. Chindwin River Basin is facing serious environmental and water management challenges. Mining activities in the Chindwin have caused water quality degradation. This problem has compounded due to environmental degradation. Building public awareness and education about river conditions and integrated water resources management need to help the sustainable development of Chindwin River Basin.

Keywords: environmental, catchment area, degradation

Introduction

Everyone in this world depend completely on the ecosystem and the services they provide such as food, water and other necessaries. Over the past fifty years, human beings have changed the ecosystem. This is largely in order to meet rapidly growing demands for water, energy food, fresh water, timber, fiber and fuel by the ever-growing population The Chindwin river basin is located in Sagaing Region in the North Western part of Myanmar. Major parts of the study area are mountainous and there is removal of vegetation cover becoming responsible for depletion of soil cover. It is facing severe problem of forest degradation. Consequently, the forest removal reduces underground water recharge. Moreover, due to global climatic change in temperature the normal rainfall pattern in the country is
affected increasing aridity. The environmental conditions of the region overall affecting availability of water, wood and food.

**Research Objectives**

The main aim is to assess environmental resource base in rural area and their effects on the well-being and development of the people. The researchers have tried to assess the following objectives:

1. To examine the resources base for the livelihood and economic development of people in the study area;
2. To expose various resource base problem for the human development and sustainable development and
3. To improve the gathering and sharing information about opportunities and threats of water resources and river health.

**Research Methodology**

The Assessment was based on the review of secondary data as well as the collection and analysis of field data. The majority of documents used were statistical Yearbooks, briefs, and outline reports containing baseline information on crop, agricultural land, livestock and fishery production. Primary data are acquired by field observation and interview with local people. Secondary data were received from many departments and offices such as Hydrology and Meteorology Department, Land Records Department, Department of Agriculture, Immigration and National Registration Department, Township Education Department and other departments. Geographical methods, Quantitative and qualitative analyze are applied in this research. Finally, geographical interpretation of the result has been done with help of the maps and figures.
Results

1. Location of study area

Figure 1: Location of Study Area

Sources: Department of Meteorology and Hydrology

The Chindwin river basin is located in the North Western part of Myanmar. The Chindwin River is the third largest river in Myanmar. It is situated between 21° 30’ and 27° 15’ N Latitudes and between 93° 30’ and 97° 10’ E Longitudes. Chindwin catchment area covers 110350 km2. The width of the river varies from 300 to 10 000 feet. The Chindwin River is the major tributary of the Ayeyarwady River. The source of Chindwin radiates from the Kachin plateau. The second highest mountain in Myanmar, Saramati with the elevation of 12553 ft, is also located on the upper Chindwin catchment area. Since it passes through the mountainous region there are numerous streams, flowing into the Chindwin River.
These streams are small tributaries of the Chindwin River. It runs south through a region of fertile meadows rich in natural resources for about 1,100 km before it joins the Ayeyarwady south of Mandalay. Main tributaries are Myittha River, Yu-Wa river, and U-Yu River. It provides critical ecosystem services for domestic water use, irrigation, mining, transport and local livelihoods. It is an important river ecosystem for multiple uses, providing a range of ecological services that support people. About six million people depend upon the natural resources and ecological services of the basin. Main cities are Hkamti, Htamanthi, Homalin, Mawlaik, Kalewa, Kalaymyo, Mingin, and Monywa. The Basin of Chindwin River is, in general, a mountainous forested terrain with the exception of its lowest southern part which is a vast plain. The highest mountains are to be found to the West and North of basin where they reach 10,000 feet more.

2. Geomorphic characteristics of the Chindwin River Basin

The tectonic and geologic characteristics of Myanmar combined with rainfall and fluvial processes have developed distinct geomorphic regions in the country. Chindwin River is low slope systems that are reworking the sediment filled basins of the Central Basin and lowlands. The characteristics of the main stem and tributaries can vary markedly as shown in the Chindwin, which is fed by steep tributaries from the tectonically active northern and western mountains. High slope (>10°), intermediate rocks located predominantly in the Western ranges of the Chindwin and eastern ranges of the Rhakine catchments at high elevation. The tectonically active ranges have the potential to contribute high sediment loads to steep tributaries. Intermediate slope (3°-10°), soft rock, this unit reflect Central Chindwin Basin. Low slope (Low slope (<3°), low elevation basins (>30 m), this unit is generally limited to the ‘Dry Zone’ of Chindwin Central Basin. It is an area of sediment storage and reworking.

Source: Strategic Environmental Assessment of Hydropower Section, Myanmar
Table 1:
Characteristics of River and Main Tributaries

<table>
<thead>
<tr>
<th>No</th>
<th>Name of river</th>
<th>Length (km)</th>
<th>Catchment area (km²)</th>
<th>Height peak (m)</th>
<th>Lowest point (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chindwin (Main River)</td>
<td>900</td>
<td>110350</td>
<td>3796</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110350</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Myittha (Tributary)</td>
<td>580</td>
<td>24225</td>
<td>2643</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24225</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Yu-Wa (Tributary)</td>
<td>6125</td>
<td>225</td>
<td>2260</td>
<td>119</td>
</tr>
<tr>
<td></td>
<td></td>
<td>225</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>U-Yu (Tributary)</td>
<td>345</td>
<td>11150</td>
<td>1650</td>
<td>123</td>
</tr>
</tbody>
</table>

Sources: Department of Meteorology and Hydrology: Meteorological and Hydrological Data

Relevant to the geomorphic functioning of rivers at a large scale is the Strahler Order, which is based on the number and complexity of tributaries upstream of any river reach. The Strahler Order of rivers in Myanmar reflect the geological and physiographic characteristics of the basin with low orders coinciding with the areas of steeper and higher elevated bedrock and the higher orders (5 and 6) restricted to the broad central basin. Chindwin mainstream is classified as order 5 at this scale. This indicates that the tributaries entering the mainstream are class 4 or lower. A widening of the channel is associated with the entrance of the Chindwin system approximately 100km downstream of Mandalay. The broad alluvial reaches are characterized by braided channels that are highly active and prone to rapid lateral migration, meander cutoffs and avulsion during high flow events (Brakenridge et al., 2017). It is possible to detect the river valley were the meanders keep changing along the channel.
Land use changes, including deforestation in the valleys, have led to severe erosion during the seasonally heavy monsoon rains, when the rivers run high. In some locations huge sections of the river banks have been washed away, taking down houses and forcing hundreds of families to relocate inland. Erosion has also affected riverside farming and fields, which are crucial to the local food supply and subsistence livelihoods. Riverbank erosion is increasing due to deforestation and sand and gravel mining in the river. The Chindwin River Basin suffers from both extreme floods and droughts. Flooding occurs twice a year, damaging farmland and resulting in socioeconomic impacts. Sedimentation of the river appears to have increased as well. During the dry season, river depths are dropping to levels much lower than was seen in the past, making it difficult for boats to travel upstream. During the wet season, the Chindwin also faces challenges from extreme floods. Losses to lives and the economy from the most recent flood in Myanmar in 2015 were the highest ever in the Chindwin River Basin. Reported as a major issue, sedimentation is creating sandbars that impact navigation and aquatic ecology.

3. General Climate of the Study Area

The major contribution of rainfalls in the Chindwin basin is from rainfall over the catchment. Total catchment area is 110350 km2. The heavy rainfalls are generally caused by monsoon trough and strong monsoon. The average annual rainfall over the catchment varies from 800 mm to 4200 mm and receives very high rainfall at upper part of basin and high discharges. Temperatures fall to freezing point in winter on Pakkoi and Naga mountain ranges where coldness remains in summer. Winter temperatures falls as low as 4 °C in northern low lands. In Monywa, temperature rise as high as 43 °C in summer and falls to 10 °C in the cold season. The basin of Chindwin river is, in general, a mountainous forested terrain with the only exception of its lowest southern part which is a vast plain. Generally, floods arise from the
source of the river and the flood waves move down stream, causing damage to the crops and properties. Major floods generally occur from July to September due to pronounced monsoon trough persisting for at least 3 days over Northern Myanmar areas. Heavy rainfall occurs due to cyclonic storm crossing Myanmar and Bangladesh coasts during pre-monsoon and post-monsoon. According to Koppen’s Climate Classification, there are different types of climate such as Tropical Steppe Climate (BSh), Tropical Savannah Climate (Aw), and Subtropical Monsoon Climate (Cwa).

In Chindwin Rivers, the flooding occurs when intense rain persists for at least 3 days over head watershed area of the river. Intense heavy rain occurs due to pronounced monsoon trough persisting for at least 3 days over Northern Myanmar areas. In Chindwin Basin heavy rainfall occurred intermittently during July. When the disaster occurred, the observed rainfall amount was roughly 120 (mm/d). According to the precipitation data at Kalewa station, the heavy rainfall occurred two times, at the beginning and end of July, and the first heavy rainfall amount was higher than the second one, though the disaster was recorded when the second heavy rainfall occurred. In Chindwin Basin, floods occurred twice in July and the middle of August. Kalay Township was most heavily affected by the flash flood. Hundreds of villagers and farmers have lost their houses and farmlands when the riverbanks collapse due to the heavy stream flows in the rainy season.
Heavy rainfall due to cyclonic storm

Table 2
Hydrological Observation Stations

<table>
<thead>
<tr>
<th>No</th>
<th>Stations</th>
<th>Catchment area (A) [km²]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hkamti</td>
<td>27420</td>
</tr>
<tr>
<td>2</td>
<td>Homalin</td>
<td>43124</td>
</tr>
<tr>
<td>3</td>
<td>Mawlaik</td>
<td>69339</td>
</tr>
<tr>
<td>4</td>
<td>Kalewa</td>
<td>72848</td>
</tr>
<tr>
<td>5</td>
<td>Monywa</td>
<td>110350</td>
</tr>
</tbody>
</table>

Sources: Department of Meteorology and Hydrology, Monywa

Figure 1: Upper Chindwin and Lower Chindwin Basin

Lag Time for Chindwin River Basin

<table>
<thead>
<tr>
<th>Stations</th>
<th>Lag Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hkamti to Homalin</td>
<td>1 day and 12 hrs</td>
</tr>
<tr>
<td>Homalin to Mawlaik</td>
<td>1 day and 18 hr</td>
</tr>
<tr>
<td>Mawlaik to Kalewa</td>
<td>1 day</td>
</tr>
<tr>
<td>Kalewa to Monywa</td>
<td>1 day and 18 hrs</td>
</tr>
</tbody>
</table>
1. Environmental Based Economy of the Study Area

A healthy environment, the availability and quality of natural resources and a rich biodiversity are key determinants of the performance in the primary economic sectors and major components of life-supporting systems. In Myanmar more than 70 per cent of the population depends directly or indirectly on natural resources. In the headwaters of the Uyu River is the only place in the world where the finest jade known as jadeite or Imperial Jade is found. The Hukawng Valley is known for its abundance of Burmese amber. In the Chindwin basin live Myanmars, Kachins, Chins, Nagas, and Shans. In Chindwin Basin has over 3 million acres of total cultivated area. Paddy is cultivated on 1.4 million acres and other crops are on 1.5 million acres. Others are alluvial-land cultivation, garden farms and hillside cultivation. Principal agricultural crops are paddy, wheat, maize, millet, groundnut, sesame, cotton, pulses. Timber extraction work is the principal industry as valuable teak forests are widespread in the basin.

4.1 Natural resources and Economic Activities

Natural resource inputs significantly contributed to human development; and on the other hand, deterioration of the quality and quantity of environmental resources has worsened the condition of people. The relationship between well being of the people and environment in the study region can be best
understood in the context of people’s livelihoods and accessibility to resources. Rivers have traditionally been valued, and thus used for agriculture, irrigation, navigation, hydropower and need for flood control. The Chindwin River is the biggest tributary of the Ayeyarwady River and provides critical ecosystem services for domestic water use, irrigation, mining, transport and local livelihoods. The health of the river is important to the economic development of the region and the quality of life of its inhabitants. Originating in the Himalayas, it runs south through a region of fertile meadows rich in natural resources for about 1,100 km before it joins the Ayeyarwaddy south of Mandalay.

The total population of study area was over six million people. Almost 85% of population of this region directly and indirectly depends on agriculture activities. Agriculture is the chief occupation. The leading crop is rice, which occupies most of the arable ground. Other crops include wheat, sesame, peanut, pulses, cotton, and tobacco. Most local people plant rice and other crops for food and income, and mine for gold, amber and sand, and collect non-timber forest products for food, medicine and housing as supplementary income. The Region has many rice mills, edible oil mills, saw mills, cotton mills, and mechanized weaving factories. Local industry includes earthen pots, silverware, bronze-wares, iron-wares and lacquerware.

In Myanmar timber makes up about 10 per cent of Myanmar's exports. Rural populations depend heavily on forests and forest products for their livelihoods and basic needs. While Myanmar’s forests have been rapidly disappearing, the Chindwin Basin is still one of the country’s most densely forested areas, with nearly 80% covered with a variety of forest types, including mountain forest, temperate forest, subtropical forest, dry forest, and rainforest. Forestry is important in the wetter upper regions along the Chindwin River, with teak and other hardwoods extracted. As in other parts of the country, reforestation is not effective enough to maintain sustainable forestry. The urban population in 2012 was 1,230,000 and the rural population was 5,360,000. The Chindwin, river transport is a common way to move people and cargo. Most of the basin’s local communities live in rural areas with limited access to services such as water, sanitation and electricity.
4.2 Land use and land cover

Myanmar’s economy is predominantly based on agriculture (crops, livestock, fisheries and forestry), which currently contributes 43% of GDP and provides over 50% employment. Farming is primitive subsistence using very conventional technique due to topographic and climatic conditions. Knowledge about land use system provides human activities. It will help to understand how people make land use decision and how specific environmental and social facts influence these decisions. Myanmar ranks fourth in the world for its emissions from land use change and deforestation. Many ethnic and indigenous peoples in Myanmar are dependent on natural resources for their livelihoods and traditionally have maintained natural resource management systems that ensure the sustainability of these natural resources. The Chindwin basin has approximately 120 000 acres (11.2%) of cultivated land. About 81% of the basin is thickly forested by valuable species of wood. General Land Cover is shown in figure (6). Teak forests within its drainage area have been a valuable resource since ancient times. The interconnected ecosystems within the Chindwin river basin provide valuable ecosystem services which support the livelihoods of many people within the region via productive agriculture, fisheries, aquaculture and tourism. Land degradation is an increasing problem in study area, with soil erosion in upland agricultural areas and dry zones being of particular concern. Rapid changes in land use and deforestation throughout the country have resulted in astronomically high rates of greenhouse gas emissions.

4.3 Water uses

Myanmar has abundant water resources comprising four principle river basins (Ayeyarwady, Chindwin, Sittaung and Thanlwin/Salween) with a catchment area of 737,800 km2. Water availability, however, is highly variable between wet and dry seasons. Out of total fresh water utilized, approximately 70% is consumed by the agriculture sector. This is followed by 7% for domestic use and 3% for industrial purposes. Total catchment area of Chindwin River Basin is 110350 km2. Water availability, however, is highly variable between wet and dry seasons. Agriculture and crop production in study area is strongly affected by rainfall as crop cultivation is

<table>
<thead>
<tr>
<th>No</th>
<th>Land cover types</th>
<th>Area (Km2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Forest land</td>
<td>89227.07 (81%)</td>
</tr>
<tr>
<td>2</td>
<td>Settlement area</td>
<td>5706.12 (5.2%)</td>
</tr>
<tr>
<td>3</td>
<td>Agricultural land</td>
<td>12457.08 (11.2%)</td>
</tr>
<tr>
<td>4</td>
<td>Water body</td>
<td>2959.73 (2.6%)</td>
</tr>
<tr>
<td>5</td>
<td>Total</td>
<td>110350</td>
</tr>
</tbody>
</table>

Figure 6: General Land cover of Chindwin Basin
Sources: Department of Agricultural Land Management and Statistics, Monywa
mostly rain-fed. Water is a precious natural resource, vital to sustain life, for economic and social development and for environment protection. There are three major sources of water in the study area: aquifers, seasonal streams (check dam), and rainfall. The water that is available from precipitation comes in two forms: soil moisture, and the annual recharge of terrestrial water systems (aquifers, ponds, lakes, and seasonal rivers). Rain-fed agriculture consumes an amount of water which is roughly proportional to the produced biomass. But in dry zone area of Chindwin Basin, there is substantial loss due to evaporation from natural vegetation and wet surfaces and little effort is made in the poor dry lands to reduce it. Most of the study area comprises the humid region (Upper Chindwin) and about 1/4 of the Basin is arid region (Lower Chindwin). Within the humid lands, rain-fed agriculture is suited only to humid regions. On the other hand, irrigation facilities are practiced in arid region. Mining has detrimental impacts on groundwater quality. River pollution is occurred as alluvial gold mining and pollution from an acid factory and household waste. Health impacts were also reported in relation to pollution as the water is not suitable for drinking and cause skin problems.

4.4 Livelihoods

Natural resources and the environment provide eco-system services that are crucial to people's livelihoods and wellbeing. Communities are highly dependent on the quality and availability of ecosystem services. Ecosystem services must be enhanced and protected from unsustainable exploitation. In Chindwin Basin, total population was over six millions peoples. 27% of total population is below 15 years of age, 0.05% is over 60 years old, and 63% are workforce, which are based on 2014 census report. The household survey shows that an average family size in the study region is 3.6 people; it varies from one village to another. In all sampled area the size of household varies from minimum 1 member is to a maximum of 12 members. The male population represents 46.51% and female population accounts for 53.49%. The most occupational status of male populations are own account worker and female populations are household worker. Almost 85% of resident directly engaged in farming and pastoralist. The survey results show that livelihood engagement and livelihood income are the two important characteristics features of local economy. Lands are not equally distributed to the habitant in every village according to the environment. Land is one of the major environmental resources in the study region. Moreover, natural forage, wild fruits, vegetation and tree, water, rock-building materials are some of the local resources in the study region that also supports the livelihood of the people. The dependency on the natural resources can also be assessed by total number of working hour devoted by villagers. A generally, an average of 50% of the household working hours were engaged in farming activities, 20% in fodder collection or livestock economy, 20% in fuel collection and remaining 10% in other activities such as marketing etc. However, environmental resources have limited contribution in overall income of the household.

In rural areas, 80-85% of the energy demand (mostly for food preparation) is derived from the woody vegetation. Generally, for household purpose an ideal fuel preferences are wood-fuels at the bottom and kerosene and electricity is at the top. But due to poor economic conditions, wood fuel is one of the major sources of
household energy in the study region. Most of the fuel-wood supplies come from close vicinity rural homesteads, either from farmers' own land, or from forest areas. The environmental pressures reordered were deforestation and illegal logging, specifically in watersheds.

4.5 Transportation and Economic Development

The Chindwin Basin is underdeveloped due to limited road access. The Chindwin is served by regular river-going vessels up to the town of Homalin. River transport on the Chindwin has always been important as it is navigable for 640 km (400 mi) to Hkamti during the monsoon season, and most of the year to Homalin. Navigation was listed as a key sector for trade and transport but is restricted due to low water levels. Sedimentation of the river appears to have increased in Chindwin Basin. During the dry season, river depths are dropping to levels much lower than was seen in the past, making it difficult for boats to travel upstream. The low water levels affect the region’s economy which depends heavily on river transportation for the trade of goods such as rice, cooking oils, dry fish and fish paste with central Myanmar. During the wet season, the Chindwin also faces challenges from extreme floods. Losses to lives and the economy from the most recent flood in Myanmar in 2015 were the highest in the Chindwin River Basin.

The Lower Chindwin has economic opportunities, and it was observed that electricity can lead to further industrial development, especially in the industrial zones of Kalay and Monywa. More opportunities are eco-tourism development, trade and business. Electricity is needed for future industrial development. Improving electricity access can create employment opportunities and improve education and living standards. Further, electricity may reduce the use of fuel wood for energy and reduce deforestation. Solar and wind energy could be alternative sources for electricity generation rather than coal. Transportation opportunities include building bridges and improved implementation of navigation laws to increase the safety of navigation. Navigation creates trade and employment opportunities and there is a need to improve it. Designs for hydropower on the mainstream should consider ship locks to allow passage of ships. Extensive mining areas are Gold, copper, jade, ruby and alluvial gold mining at Naungpoaung Creek, gold and jade production at Khamti. Regulation of logging, sand and gravel mining is needed to protect the environment.

Major cities are Hkamti, Htamanthi, Homalin, Mawlike, Kalewa, Kalamyo, Mingin and Monywa. Monywa is capital city and largest city in Chindwin Basin, located 136 km north-west of Mandalay on the eastern bank of the River Chindwin. It is linked by road to Budalin, Dabayin, Ye-U and Kin-U, and by rail to Sagaing and the Mandalay - Myitkyina line. Monywa is a major centre for trade and commerce and for agricultural produce from the surrounding Chindwin valley, especially beans, orange, pulses and jaggery (palm sugar). In addition, the local industry includes mills for the production of cotton, flour, noodles, and edible oils. Another fascinating aspect of the Chindwin region is the small towns and villages that give an insight into the way of life. Kalewa is the trading post between Myanmar and India, and this town rests at the point where the MyitTha River with its source in India joins with the Chindwin.
Discussion

The Chindwin River Basin is a place of deep jungles and lofty mountains. The Chindwin River is a major tributary of the Ayeyarwady River in Myanmar and provides critical ecosystem services for domestic water use, irrigation, mining, transport and local livelihoods. The Chindwin River is vital for the transport of people and goods, providing water for household use including drinking water and farming, and local fisheries. Most of the basin’s local communities live in rural areas with limited access to services such as water, sanitation and electricity. Most local people plant rice and other crops for food and income, and mine for gold, amber and sand, and collect non-timber forest products for food and supplementary income. In Chindwin Basin 50% of household income from farming activities and natural environment supports 50% of household income. Water quality is deteriorating caused by deforestation, increased soil erosion, and sedimentation and turbidity. The Chindwin River Basin lacks a systematic water quality monitoring system to assess the extent and sources of water pollution. Mining activities in the Chindwin have caused water quality degradation. Upstream mining operations for gold, jade and copper are leading to heavy metal contamination of the river. Erosion has also affected riverside farming and fields, which are crucial to the local food supply and subsistence livelihoods.

Intense rain causes highest impacts on agriculture, water and public health. Direct impacts are flash flood in lowland area along the river channel, top soil runoff and erosion resulting in severe soil degradation and loss of fertile soils, and damage to crops. Indirect impact are death of livestock, erosion gullies in agricultural areas, loss of valuable farming areas, degradation of natural vegetation resulting in an increase in erosion and landslides resulting in extensive damage to human. In the study area, there need to build public awareness and education about river conditions and integrated water resources management. The Chindwin basin’s rich natural resources face a range of threats due to unchecked development, which include mining and logging that are clearing forests, hydropower dams, expansion of crops and irrigated farmland as well as the impact of climate change. These threats directly affect the health, well-being and income of the basin’s communities, and its biodiversity.

Recommendations

The changes in the basin – water pollution, river bank erosion, and sedimentation, which causes narrowing or swallowing of the riverbed are key environmental concerns for local communities. Most of the basin is faced with the challenge of providing sustainable development to enhance people’s lives while preserving the basin’s delicate ecosystem. We recommend that there is correlation between land use and socioeconomic changes and a probable link between related deforestation and land use changes. The findings suggest that there are needs to support water quality management planning for the benefit of water users and ecosystem services. Further researches are necessary to assess the potential impact of various activities of local livelihoods and implications of the mining expansion and environmental impact are affected in local people ecosystem services provisions in the Chindwin River Basin.
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Comparative Adsorption Studies on Activated Rice Husk and Activated Rice Husk Char by Using Methylene Blue as Dye

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Abstract

Rice husk sample was collected from Kyaw Thit Sar Rice Mill, Pyin Oo Lwin Township, Mandalay Region. Rice husk and rice husk char were activated by chemical method using nitric acid. The physicochemical properties of the activated rice husk and activated rice husk char were investigated. The characterization of raw and activated samples were determined by using modern techniques such as XRD and SEM. The comparative sorption studies of activated rice husk and activated rice husk char were investigated by chemical process using organic dye (methylene blue). The effect of system variables such as contact time and adsorbent. Contact time was optimized at 60 minutes for 100 mgL⁻¹ of methylene blue solution. The results based on Langmuir isotherm, activated rice husk show good adsorption efficiency than that of activated rice husk char.

Keywords: Rice husk, XRD, SEM, Adsorbent, Langmuir isotherm

Introduction

The processing of rough rice (paddy) can produce rice husk which is about 20 % of paddy. The quantity of rice husk depends on the kinds of paddy, grain type, soil and climatic condition in which the paddy is cultivated and type of rice mill used. Carbon and oxygen constitute 40% and 36 % respectively with about 5% hydrogen. Rice husk is utilized as an energy resource in many countries. Rice husk char is used to a great extent as an industrial in the ceramic and metallurgical industries. In Asia however past effort have been made to incorporate RHC (rice husk char) which can be pozzolanic into brick elements for housing. In Indonesia, RHC have been used for soil stabilization with lime water (Islam, 2000).

The Rice husk char was also used as sorbents for the removal of heavy metal, colour, odour and etc (Lowell, et al, 1991). In this paper, rice husk and rice husk char were activated by chemical treatment methods. The activated rice husk and activated rice husk char were determined the colour removal of organic dyes as methylene blue.

Rice husk is one of the major by-products derived in the milling of paddy rice. The quantity of rice husk depends on the kinds of paddy, grain type, soil and climatic condition in which the paddy is cultivated and type of rice mill used. The utilization of any rice husk will depend on its composition. It is characterized by its high crude fiber and ash content. Crude protein and fats are low. Carbon and oxygen constitute 40 % and 36 % respectively with about 5 % hydrogen. The ash or residue is
about 19%. The ash is made of silica, which constitutes almost 90-97% with small quantities of Ca, Mg, K, Na, P, S, Al, Mn and Fe. (FAO, 1997).

Most paddy husks are straw or gold in color. Some paddy husks may be white, russet, reddish brown, shades of purples or sooty black. The length of paddy husks is about (5-10) mm and the width varies from (2.5-5) mm. The bulk density of paddy husks is (0.10) g/mL. Grinding can raise the bulk density from 192 or 208 to 384 or 400 kg/m$^3$ (Ko, 1993).

The major carbohydrate of husks was cellulose and hemicellulose. The crude protein content of paddy husks is about 3%. Moisture content of rice husk is around 10%; the equilibrium moisture content is lower than that of paddy or rough rice. The higher the ash content of rice husks, the lower the calorific value. The major inorganic component of paddy husk is char. It varies from 13.2% - 29.0% of the weight of paddy husk. The silica content of the char is around 94% - 96%. Therefore, rice husk char can be considered a slightly impure form of silica (Islam, 2000).

The element Carbon, atomic number 6, atomic weight 12.010 occurs as diamond, graphite (crystalline) and in various forms such as charcoals, carbon blacks, bones char, etc (Hassler, 1951).

A dye is a colored substance that has an affinity to the substrate to which it is being applied. The dye is generally applied in an aqueous solution, and may require a mordant to improve the fastness of the dye on the fiber. Both dyes and pigments appear to be colored because they absorb some wavelengths of light more than others.

Methylene blue (CI 25015) is a hetero cyclic aromatic chemical compound with the molecular formula C$_{16}$H$_{18}$N$_3$SCl. It has many uses in a range of different fields, such as biology and chemistry. At room temperature it appears as a solid, odorless, dark green powder, that yields a blue solution when dissolved in water. The hydrated form has 3 molecules of water per molecule of methylene blue.

**Research Objectives**

The research work was carried out according to the following objectives,

1. to investigate the nature and characterized of rice husk and rice husk char before and after activation
2. to explore the decolourization of activated rice husk and activated rice husk char with methylene blue.

**Research Methodology**

**Sample Collection**

Rice husk was collected from Kyaw Thit Sar Rice Mill, Pyin Oo Lwin Township, Mandalay Region and stored in air tight plastic bags until used.

**Preparation of Rice Husk Powder and Rice Husk Char**

Rice husk was obtained from Kyaw Thit Sar Rice Mill, Pyin Oo Lwin Township, Mandalay Region. The rice husk was washed several times with distilled water and dried at 110°C for 4 hr. The dried rice husk was grinded and sieved with 125 mesh size. The rice husk powder was weight to determine yield percent (Table - 1).
Rice husk was obtained from Kyaw Thit Sar Rice Mill, Pyin Oo Lwin Township, Mandalay Region. The rice husk was washed several times with distilled water and dried at 110°C for 4 hr. The dried rice husk was heated at 400°C for 1 hr. The rice husk char was cooled and weight to determine yield percent (Table- 1). Then the char was crushed and sieved with 125 mesh size.

**Preparation of Activated Rice Husk and Activated Rice Husk Char**

(25 g) Rice Husk and (25 g) Rice Husk Char were soaked in 2.0 M nitric acid for an hour. The samples were washed with distilled water until the neutral and filtrated with the filter paper. The samples were dried in oven at 110°C for 2 hours. The yield percent of the prepared samples were determined. The results are shown in Table -1.

**Determination of Physicochemical Properties of Prepared Samples**

Physicochemical properties such as bulk density, pH, moisture content of prepared samples were determined by using the Association Official Analytical Chemist’s methods. The results are shown in Table (1).

**Characterization of Raw and Activated Samples by Modern Techniques**

The samples were characterized by modern techniques such as XRD and SEM. The analytical instruments were used in characterization of raw and activated samples. The photographs were shown in Figures 1 to 8.

**Colour Removal of Basic Dyes**

Analyses were carried out by colorimetric method using UV-240 spectrophotometer and calibration curves of dye solution was plotted. Based on the calibration curve or by using adsorption coefficient, concentration of dye solution was computed. The effect of system variables such as contact time, initial concentration and adsorbent dose were investigated. The results of optimum contact time for activated samples are presented in Tables 2 to 3 and Figures 9 to 10. The results of change in dosage of activated samples for removal of methylene blue solution were shown in Table 4 to 5 and Figure 11 to 12. The Langmuir parameters for the removal of organic dye with activated samples were shown in Table 6.

**Discussions**

**Physicochemical Properties of Raw and Activated Samples**

Table 1 showed the physicochemical properties (pH, bulk density, yield percent and moisture content) of raw and activated samples. From the results, it was founded that pH value of acid treated rice husk and rice husk char were decreased respectively. The bulk densities of activated samples were decreased removing of any debris or soluble biomolecules from the raw samples after treatment with nitric acid. From the results, the bulk density of ARH and ARHC were found to be similar.
Table 1
Physicochemical Properties of Raw and Activated Samples

<table>
<thead>
<tr>
<th>Sample</th>
<th>Bulk density (g cm(^{-3}))</th>
<th>pH</th>
<th>Moisture content (%)</th>
<th>Yield (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice Husk Powder</td>
<td>0.65</td>
<td>6.2</td>
<td>10</td>
<td>96</td>
</tr>
<tr>
<td>Rice Husk Char</td>
<td>0.70</td>
<td>9.4</td>
<td>9</td>
<td>38</td>
</tr>
<tr>
<td>Activated Rice Husk</td>
<td>0.38</td>
<td>5.5</td>
<td>6</td>
<td>52</td>
</tr>
<tr>
<td>Activated Rice Husk Char</td>
<td>0.40</td>
<td>8.8</td>
<td>4</td>
<td>92</td>
</tr>
</tbody>
</table>

Characterization of Raw and Activated Samples

XRD Analysis of Raw and Activated Samples
Raw and Activated Samples were characterized by XRD method. The X-ray diffraction pattern of the raw and activated samples were shown in Figures 1 to 4. The XRD patterns of all samples indicated the amorphous nature.

SEM Analysis of Raw and Activated Samples
Raw and Activated Samples were examined by Scanning Electron Microscope. Figures 3.5 to 3.8 were shown the morphologies of raw and activated samples. The surface of the rice husk was found the disordered pore systems with broad pore size distributions. The morphology of ARH reveal uniform porosity and its pores are bigger than pores of ARHC.

Figure 1: XRD Spectrum of Rice Husk

Figure 2: XRD Spectrum of Rice Husk Char

Figure 3: XRD Spectrum of Activated Rice Husk

Figure 4: XRD Spectrum of Activated Rice Husk Char
Figure 5: SEM Photogram of Rice Husk

Figure 6: SEM Photogram of Rice Husk Char

Figure 7: SEM Photogram of Activated Rice Husk

Figure 8: SEM Photogram of Activated Rice Husk Char

Table 2
Optimum Contact Time for Activated Rice Husk

<table>
<thead>
<tr>
<th>Sample</th>
<th>Minute</th>
<th>% Removal Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2</td>
<td>20</td>
<td>90.52</td>
</tr>
<tr>
<td>0.2</td>
<td>40</td>
<td>91.57</td>
</tr>
<tr>
<td>0.2</td>
<td>60</td>
<td>94.73</td>
</tr>
<tr>
<td>0.2</td>
<td>80</td>
<td>94.94</td>
</tr>
<tr>
<td>0.2</td>
<td>100</td>
<td>95.11</td>
</tr>
</tbody>
</table>

Figure 9: Optimum Contact Time for Activated Rice Husk
Table 3  
Optimum Contact Time for Activated Rice Husk Char

<table>
<thead>
<tr>
<th>Sample</th>
<th>Minute</th>
<th>% Removal Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2</td>
<td>20</td>
<td>6.27</td>
</tr>
<tr>
<td>0.2</td>
<td>40</td>
<td>9.43</td>
</tr>
<tr>
<td>0.2</td>
<td>60</td>
<td>11.5</td>
</tr>
<tr>
<td>0.2</td>
<td>80</td>
<td>11.9</td>
</tr>
<tr>
<td>0.2</td>
<td>100</td>
<td>12.1</td>
</tr>
</tbody>
</table>

Figure 10: Optimum Contact Time for Activated Rice Husk Char

Table 4  
Adsorption of Methylene Blue Solution by Activated Rice Husk $C_i = 100$ mgL$^{-1}$, solution vol:=10 mL, Time = 60 min

<table>
<thead>
<tr>
<th>No.</th>
<th>Mass of Sample</th>
<th>$C_e$ (mgL$^{-1}$)</th>
<th>$x$ (mgL$^{-1}$)</th>
<th>$x/m$ (mgg$^{-1}$)</th>
<th>$C_e/x/m$ (gL$^{-1}$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.2</td>
<td>37.91</td>
<td>62.1</td>
<td>3.10</td>
<td>12.21</td>
</tr>
<tr>
<td>2</td>
<td>0.4</td>
<td>17.94</td>
<td>82.1</td>
<td>2.05</td>
<td>8.75</td>
</tr>
<tr>
<td>3</td>
<td>0.6</td>
<td>11.04</td>
<td>89.0</td>
<td>1.48</td>
<td>7.44</td>
</tr>
<tr>
<td>4</td>
<td>0.8</td>
<td>8.00</td>
<td>92.0</td>
<td>1.15</td>
<td>6.96</td>
</tr>
<tr>
<td>5</td>
<td>1.0</td>
<td>6.15</td>
<td>93.9</td>
<td>0.94</td>
<td>6.55</td>
</tr>
</tbody>
</table>
Table 5
Adsorption of Methylene Blue Solution by Activated RHC
$C_i = 100 \text{ mgL}^{-1}$, solution vol:= 10 mL, Time = 60 min

<table>
<thead>
<tr>
<th>No.</th>
<th>Mass of Sample</th>
<th>Ce (mgL$^{-1}$)</th>
<th>x (mgL$^{-1}$)</th>
<th>x/m (mgg$^{-1}$)</th>
<th>Ce/x/m (gL$^{-1}$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.2</td>
<td>78.77</td>
<td>21.2</td>
<td>1.06</td>
<td>74.21</td>
</tr>
<tr>
<td>2</td>
<td>0.4</td>
<td>56.87</td>
<td>43.1</td>
<td>1.08</td>
<td>52.73</td>
</tr>
<tr>
<td>3</td>
<td>0.6</td>
<td>32.69</td>
<td>67.3</td>
<td>1.12</td>
<td>29.14</td>
</tr>
<tr>
<td>4</td>
<td>0.8</td>
<td>12.64</td>
<td>87.4</td>
<td>1.09</td>
<td>11.57</td>
</tr>
<tr>
<td>5</td>
<td>1.0</td>
<td>8.42</td>
<td>91.6</td>
<td>0.92</td>
<td>9.20</td>
</tr>
</tbody>
</table>
Table 6
Langmuir Parameters for the Adsorption of Methylene Blue

<table>
<thead>
<tr>
<th>Adsorbent</th>
<th>Langmuir Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Monolayer Coverage $X_m$ (mgg$^{-1}$)</td>
</tr>
<tr>
<td>Activated Rice Husk</td>
<td>5.64</td>
</tr>
<tr>
<td>Activated Rice Husk Char</td>
<td>1.07</td>
</tr>
</tbody>
</table>

Conclusion

In this research, rice husk and rice husk char were activated first. Then, the physicochemical properties of activated rice husk (ARH) and activated rice husk char (ARHC) were investigated. From the bulk density of ARH and ARHC were found to be similar. According to the pH values, ARH is more acidic than ARHC. So, ARH can be more adsorptive than ARHC for basic dye (methylene blue) aqueous solution. The two activated samples were characterized by modern techniques such as XRD and SEM. When characterized by XRD, it was found that the two activated samples show the amorphous nature which is supported to good behavior of sorption for activated samples. From the SEM photograms, it was found that the morphology of ARH reveal uniform porosity and its pores are bigger than pores of ARHC. From these observations, it is clearly that ARH sample has more sorptive nature than ARHC.

The sorption capacity of ARH and ARHC have been investigated. The results based on Langmuir isotherm, the adsorption capacity of ARH is 5.64 mgg$^{-1}$ and ARHC is 1.07 mgg$^{-1}$. High monolayer coverage value indicates significant adsorption capacity. From these results, ARH shows good adsorption efficiency than that of ARHC.

Recommendation

This study is an economic incentive to make use for the natural resource and it may be employed as adsorbent for the removal of organic dyes in the process of water treatment. Rice Huck should be activated with other chemical or physical activation process. Activated sample should be prepared from other raw materials such as Peanut Shell, Tamarind Shell, Coconut Shell and Cashew Net Shell, etc. Activated sample should be used as adsorbent in removal of heavy metal.
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Website 3. www.drugs.com/cons/methylene-blue-oral-intravenous.html
Website 4. www.en.wikipedia.org/wiki/Methylene_blue Methylene_blue
Study on Lowering of Glucose Activity, Toxicity and Antioxidant Activity of Leaves of *Catharanthus roseus* (L.)

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Abstract

In this research work, the leaves of *Catharanthus roseus* (L.) were collected and the preliminary detection of phytochemical compounds present in the leaves of *Catharanthus roseus* (L.) was carried out by phytochemical tests. The leaves of *Catharanthus roseus* (L.) contained valuable phytochemical compounds. From EDXRF (Energy Dispersive X-ray Fluorescence) examination for elemental analysis, no toxic elements such as Lead and Arsenic were found in the leaves of *Catharanthus roseus* (L.). Moreover, the leaves have higher amount of calcium and potassium than other elements. The decrease amount of glucose of leaves extract was determined by using Iodometric titration and it shows about 30% efficiency. The antioxidant activity of ethanol extract of the leaves of *Catharanthus roseus* (L.) was studied by DPPH assay. It was found that the leaves have significant antioxidant activity. Moreover, the toxicity of water extract of the leaves of *Catharanthus roseus* (L.) was determined by using white mice model at Department of Biotechnology in Mandalay Technological University, Myanmar. It has no toxic effect on selected mice.

Keywords: Antioxidant activity, Glucose lowering activity, Iodometric titration, Phytochemical compounds, Toxicity

Introduction

Medicinal plants are groups of plant which in one or more of its parts contain substance that can be used for the synthesis of useful drugs. Plants have been used as medicines since the beginning of human civilizations and have been a source of treatment of the common day ailments. [6] In developing countries, it is estimated that about 80% of the population really depends on traditional medicine for their primary healthcare. The *Catharanthus roseus*

In this research work, the leaves of Catharanthus roseus (L.) were collected and the preliminary detection of phytochemical compounds present in the leaves of Catharanthus roseus (L.) was carried out by phytochemical tests. The leaves of Catharanthus roseus (L.) contained valuable phytochemical compounds. From EDXRF (Energy Dispersive X-ray Fluorescence) examination for elemental analysis, no toxic elements such as Lead and Arsenic were found in the leaves of Catharanthus roseus (L.). Moreover, the leaves have higher amount of calcium and potassium than other elements. The decrease amount of glucose of leaves extract was determined by using Iodometric titration and it shows about 30% efficiency. The antioxidant activity of ethanol extract of the leaves of Catharanthus roseus (L.) was studied by DPPH
assasy. It was found that the leaves have significant antioxidant activity. Moreover, the toxicity of water extract of the leaves of *Catharanthus roseus* (L.) is a medicinal plant commonly found in tropical Asia countries such as China, Myanmar, Thailand, Indonesia, Malasia and Vietnam. Traditionally, it is widely used in many different countries for the treatment of a wide variety of health ailments such as kidney discomfort, rheumatism, diabetes mellitus, constipation and hypertension.[3]

Thus, the leaves of *Catharanthus roseus* (L.) was selected for the research work and some pharmacological activities such as glucose lowering activity, antioxidant activity and acute toxicity are studied in this research work.

**Botanical Description**

The botanical description of the sample is as follows;

- **Family Name**: Apocynaceae
- **Scientific Name**: *Catharanthus roseus* (L.)
- **Myanmar Name**: Thin-baw-mahnyo
- **Parts used**: Leaves

*Figure 1: Leaves of Catharanthus roseus (L.)*

**Materials and Methods**

2.1 Sample Collection

The leaves of *Catharanthus roseus* (L.) were collected from University of Mandalay, Myanmar. Then they were dried in air for about two weeks and stored in a container.

2.2 Preliminary Phytochemical Tests for leaves of *Catharanthus roseus* (L.)

A few grams of dried powder was subjected to the tests of alkaloids, flavonoids, glycosides, phenolic compounds, polyphenol, reducing sugars, saponins, steroids, tannins and terpene according to the standard producers, [2],[4],[7].

2.3 Elemental Analysis of Leaves of *Catharanthus roseus* (L.)

Elemental analysis of leaves of *Catharanthus roseus* (L.) were carried out at Department of Physics, University of Mandalay, by applying EDXRF (Energy Dispersive X-ray Fluorescence Spectroscopy) method.
2.4 Determination of Glucose Lowering Activity

(i) Preparation of Crude Extract of Leaves

Dried powdered of leaves of *Catharanthus roseus* (L.) (about 100 g) was extracted with 500 ml of 95 % ethanol for one month and filtered. By evaporation of the solvent, ethanol crude extract of leaves of *Catharanthus roseus* (L.) was obtained.

(ii) Preparation of Sample Solutions

**Condition-1 (room temperature)**

About 0.25 g of ethanol extract of leaves of *Catharanthus roseus* (L.) was dissolved in 100 mL of 0.075 M glucose solution at room temperature. The mixture solution was kept to stand for 30 minutes. The mixture solution was filtered and the sample solution was obtained.

**Condition-2 (water bath for 30 minutes)**

About 0.25 g of ethanol extract of leaves of *Catharanthus roseus* (L.) was mixed in 100 mL of 0.075 M glucose solution. The mixture solution was heated in water bath for 30 minutes. Then, the mixture solution was kept to stand 30 minutes. The solution was filtered and the sample solution was obtained.

**Condition-3 (water bath for 60 minutes)**

About 0.25 g of ethanol extract of leaves of *Catharanthus roseus* (L.) was mixed in 100 mL of 0.075 M glucose solution. The mixture solution was heated in water bath for 60 minutes. Then, the mixture solution was kept to stand 30 minutes. The solution was filtered and the sample solution was obtained.

To know the effect of contact time, sample solutions were prepared for different standing time such as: 30 min, 60 min, 90 min, 120 min, 150 min, 180 min, 210 min, 240 min, 270 min.

(iii) Iodometric Titration [5],[8]

About 10 mL of sample solution was taken in conical flask and 20 mL of 0.05 M iodine solution and 45 mL of 0.1M sodium hydroxide solution were added in to the flask. The flask was closed and left in dark place for 15 minutes. Then 6 mL of 1M hydrochloric acid was added and titrated with the 0.05 M sodium thiosulphate solution. When the liquid became light- yellow, 1mL of starch solution was added. The liquid became dark blue again and titrated until the colorless content was obtained. From the experimental data, the decrease amount of glucose by leaves extract of *Catharanthus roseus* (L.) can be calculated. The color changing steps in Iodometric titration were shown in Figure 2.
2.5. Determination of Antioxidant Activity of Ethanol Extract of leaves of Catharanthus roseus (L.)

The antioxidant activity of ethanol extract leaves of *Catharanthus roseus* (L.) was determined by DPPH (1, 1-Diphenyl-2-picryl-hydrazyl) Radical Scavenging Assay at Department of Chemistry, University of Mandalay.[1]

(i) Preparation of Sample Solution

About 2 mg of ethanol extract of the leaves of *Catharanthus roseus* (L.) was dissolved in 20mL of 95% ethanol under vigorous shaking. After filtration, the filtrate was used as a stock solution (100 μg/ ml). Desired concentration (10, 20, 30, 40, 50 μg/ ml) of sample solutions were prepared from this stock solution by dilution with appropriate amount of 95 % ethanol.

(ii) Preparation of 60 μM DPPH Solution

DPPH (2.365 mg) was thoroughly dissolved in 95 % ethanol (100 ml). This solution was freshly prepared in the brown colour flask and kept in refrigerator for no longer than 24 hours.

(iii) Preparation of Standard Solution

Ascorbic acid (5 mg) was dissolved in 10 ml of 95 % EtOH and it was used as a standard solution.

(iv) Measurement of Absorbance using UV-visible Spectrometer

Sample solution was prepared by thoroughly mixing 1.5 ml of 60 μM DPPH solution and 1.5 ml of test sample solution. The solution was then allowed to stand at room temperature for 15 minutes.

Control solution was prepared by mixing 1.5 ml of 60 μM DPPH solution and 1.5 ml of 95 % ethanol. The solution was then allowed to stand at room temperature for 15 minutes.

Blank solution was prepared by thoroughly mixing 1.5 ml of test sample solution and 1.5 ml of 95% ethanol. The solution was then allowed to stand at room temperature for 15 minutes.

Absorbance of these solutions was measured at 517 nm by using UV-visible spectrometer. Experiment was done in triplicate for *Catharanthus roseus* (L.). Sample solution and % inhibition was calculated by using the following equation.

\[
\text{% inhibition} = \frac{\text{DPPH alone} - \text{sample}}{\text{DPPH alone}} \times 100
\]

Finally, IC\text{50} (50% inhibition concentration) was determined by using linear regressive excel program. Ascorbic acid was used a standard for comparison purpose.
2.6 Determination of Acute Toxicity of Water Extract of of leaves of Catharanthus roseus (L.)

(i) Preparation of Water Extract of of leaves of Catharanthus roseus (L.)

About 100 g of air dried powdered of leaves of Catharanthus roseus (L.) was extracted with 500 ml of distilled water by using continuous hot extraction at 60°C. After 10 hours of extraction it was cooled at room temperature and then the mixture was filtered using filtered paper. The filtrate was concentrated at 50°C to get the constant weight in an evaporating basin.

(ii) Experimental Design of Selected Mice

The selected mice were divided into six groups (control group and five treatments groups). Each group contains five replicate of mice. For the control groups of selected mice, water extracted was used 500, 1000, 1500, 2000, 2500 mg/ kg/ days or five groups were treated respectively. A total of 30 mice were used to give orally the plant sample extracts. The mice were administered 2 times per day of 12 hours interval for 6 days regularly. After administering the extract orally, the mice were watched for 10 days for their health and behavior.

Figure 3: Acute toxicity test of water extract of leaves of Catharanthus roseus (L.)

Results and Discussion

3.1 Phytochemical Tests for Leaves of Catharanthus roseus (L.)

Preliminary phytochemical analysis was performed by using test tube method in order to know different types of organic compounds present in leaves of Catharanthus roseus (L.). The results are shown in Table 1. The phytochemical constituents of three samples were investigation by the test tube method. Alkaloids, flavonoids, glycosides, phenolic compounds, polyphenol, reducing sugar, saponins, steroids, tannins and terpene were found to be present in this sample.

3.2 Elemental Analysis of Leaves of Catharanthus roseus (L.)

Elemental composition of leaves of Catharanthus roseus (L.) was examined by EDXRF (Energy Dispersive X-ray Fluorescence Spectroscopy) method. Table 2 shows the results of elemental composition of leaves of Catharanthus roseus (L.)
Table 1
Results of Elemental Composition of leaves of Catharanthus roseus (L.)

<table>
<thead>
<tr>
<th>No.</th>
<th>Element</th>
<th>Symbol</th>
<th>Relative Abundance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Calcium</td>
<td>Ca</td>
<td>1.554</td>
</tr>
<tr>
<td>2</td>
<td>Potassium</td>
<td>K</td>
<td>1.504</td>
</tr>
<tr>
<td>3</td>
<td>Chlorine</td>
<td>Cl</td>
<td>1.076</td>
</tr>
<tr>
<td>4</td>
<td>Silicon</td>
<td>Si</td>
<td>0.209</td>
</tr>
<tr>
<td>5</td>
<td>Phosphorous</td>
<td>P</td>
<td>0.137</td>
</tr>
<tr>
<td>6</td>
<td>Manganese</td>
<td>Mn</td>
<td>0.076</td>
</tr>
<tr>
<td>7</td>
<td>Aluminum</td>
<td>Al</td>
<td>0.073</td>
</tr>
<tr>
<td>8</td>
<td>Sulfur</td>
<td>S</td>
<td>0.066</td>
</tr>
<tr>
<td>9</td>
<td>Iron</td>
<td>Fe</td>
<td>0.049</td>
</tr>
<tr>
<td>10</td>
<td>Titanium</td>
<td>Ti</td>
<td>0.009</td>
</tr>
<tr>
<td>11</td>
<td>Zinc</td>
<td>Zn</td>
<td>0.006</td>
</tr>
<tr>
<td>12</td>
<td>Vanadium</td>
<td>V</td>
<td>0.004</td>
</tr>
<tr>
<td>13</td>
<td>Strontium</td>
<td>Sr</td>
<td>0.003</td>
</tr>
</tbody>
</table>

The results of elemental analysis show that the leaves of Catharanthus roseus (L.) consist of higher amount of calcium and potassium than other elements. It indicates that leaves of Catharanthus roseus (L.) are a rich source of minerals for health benefit.

3.3 Determination of Percent of the Decrease Amount of Glucose

The percent of decrease amount of glucose by the ethanol extract of leaves (Condition 1,2,3) of Catharanthus roseus (L.) was determined using iodometric titration method. The results are described in Table 2, Table 3and Table 4 respectively.

Table 2
The Percent of Decrease Amount of Glucose, Condition-1 (room temperature)

<table>
<thead>
<tr>
<th>No.</th>
<th>Contact time (min)</th>
<th>Initial amount of glucose (mmol)</th>
<th>Left amount of glucose (mmol)</th>
<th>Decrease amount of glucose (mmol)</th>
<th>% of decrease amount of glucose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30</td>
<td>7.50</td>
<td>7.50</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>2</td>
<td>60</td>
<td>7.50</td>
<td>7.50</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>3</td>
<td>90</td>
<td>7.50</td>
<td>7.50</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>4</td>
<td>120</td>
<td>7.50</td>
<td>7.42</td>
<td>0.08</td>
<td>1.07</td>
</tr>
<tr>
<td>5</td>
<td>150</td>
<td>7.50</td>
<td>7.35</td>
<td>0.15</td>
<td>2.00</td>
</tr>
<tr>
<td>6</td>
<td>180</td>
<td>7.50</td>
<td>6.90</td>
<td>1.60</td>
<td>8.00</td>
</tr>
</tbody>
</table>
Table 3
The Percent of Decrease in Amount of Glucose, Condition-2 (water bath for 30 min)

<table>
<thead>
<tr>
<th>No</th>
<th>contact time (min)</th>
<th>Initial amount of glucose (mmol)</th>
<th>Left amount of glucose (mmol)</th>
<th>Decrease amount of Glucose (mmol)</th>
<th>% of decrease amount of glucose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30</td>
<td>7.50</td>
<td>7.50</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>2</td>
<td>60</td>
<td>7.50</td>
<td>7.50</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>3</td>
<td>90</td>
<td>7.50</td>
<td>7.50</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>4</td>
<td>120</td>
<td>7.50</td>
<td>7.50</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5</td>
<td>150</td>
<td>7.50</td>
<td>7.25</td>
<td>0.25</td>
<td>3.33</td>
</tr>
<tr>
<td>6</td>
<td>180</td>
<td>7.50</td>
<td>6.07</td>
<td>1.43</td>
<td>19.06</td>
</tr>
<tr>
<td>7</td>
<td>210</td>
<td>7.50</td>
<td>7.00</td>
<td>0.50</td>
<td>6.67</td>
</tr>
<tr>
<td>8</td>
<td>240</td>
<td>7.50</td>
<td>7.50</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>9</td>
<td>270</td>
<td>7.50</td>
<td>7.50</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Table 4.
The Percent of Decrease in Amount of Glucose, Condition-3 (water bath for 60 min)

<table>
<thead>
<tr>
<th>No</th>
<th>contact time (min)</th>
<th>Initial amount of glucose (mmol)</th>
<th>Left amount of Glucose (mmol)</th>
<th>Decrease amount of Glucose (mmol)</th>
<th>% of decrease amount of glucose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>90</td>
<td>7.50</td>
<td>7.50</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>2</td>
<td>120</td>
<td>7.50</td>
<td>7.50</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>3</td>
<td>150</td>
<td>7.50</td>
<td>7.30</td>
<td>0.20</td>
<td>2.67</td>
</tr>
<tr>
<td>4</td>
<td>180</td>
<td>7.50</td>
<td>7.11</td>
<td>0.39</td>
<td>5.20</td>
</tr>
<tr>
<td>5</td>
<td>210</td>
<td>7.50</td>
<td>7.26</td>
<td>0.24</td>
<td>3.20</td>
</tr>
<tr>
<td>6</td>
<td>240</td>
<td>7.50</td>
<td>7.50</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7</td>
<td>270</td>
<td>7.50</td>
<td>7.50</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

From the determination of glucose lowering activity by iodometric titration, the percent of decrease mount of glucose of sample for condition 1 was found for contact time 180 minutes and 210 minutes. The percent of decrease amount of glucose of sample for condition 2 was found for contact time 120 minutes to 210 minutes and for condition 3 was found for content time 180 minutes to 240 minutes. These facts
indicated that the sample would have the glucose lowering activity. Among three conditions, condition 2 is the best for lowering glucose activity of leaves *Catharanthus roseus* (L.)

3.4 Determination of Antioxidant Activity of Ethanol Extract of leaves of *Catharanthus roseus* (L.)

The antioxidant activity of the leaves of *Catharanthus roseus* (L.) was measured by DPPH assay method. The percent inhibition of different concentrations of standard ascorbic acid was shown in Table 5 and Figure 4. IC$_{50}$ value was calculated by using linear regressive equation.

Table 5
Percent Inhibition of Different Concentrations of Standard Ascorbic Acid

<table>
<thead>
<tr>
<th>Sample Concentration (μg/ml)</th>
<th>Mean Absorbance</th>
<th>Mean % inhibition</th>
<th>IC$_{50}$ (μg/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>0.297</td>
<td>68.50</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>0.350</td>
<td>61.61</td>
<td></td>
</tr>
<tr>
<td>12.5</td>
<td>0.483</td>
<td>48.78</td>
<td></td>
</tr>
<tr>
<td>6.25</td>
<td>0.562</td>
<td>40.41</td>
<td>17.99</td>
</tr>
<tr>
<td>3.125</td>
<td>0.608</td>
<td>35.52</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4: Percent Inhibition of Different Concentration of Standard Ascorbic Acid

The result of antioxidant activity using DPPH assay in ethanol extract of leaves of *Catharanthus roseus* (L.) was shown in Table 6 and Figure 5.
Table 6
Percent Inhibition of Various Concentrations of Ethanol Extract of leaves of Catharanthus roseus (L.)

<table>
<thead>
<tr>
<th>Concentration (µg/ml)</th>
<th>Mean Absorbance</th>
<th>Mean % inhibition</th>
<th>IC&lt;sub&gt;50&lt;/sub&gt; (µg/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>0.108</td>
<td>66.25</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>0.162</td>
<td>49.37</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>0.188</td>
<td>41.25</td>
<td>38.52</td>
</tr>
<tr>
<td>20</td>
<td>0.246</td>
<td>23.12</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>0.265</td>
<td>17.18</td>
<td></td>
</tr>
</tbody>
</table>

Figure 5: Percent Inhibition of Different Concentrations of Ethanol Extract of leaves of Catharanthus roseus (L.)

According to the results, the IC<sub>50</sub> values of selected sample is 38.52 µg/mL which compare with the standard ascorbic acid IC<sub>50</sub> 17.99 µg/mL. The sample leave has lower antioxidant activity than the standard ascorbic acid but it has significant antioxidant activity.

E. Determination of Acute Toxicity of Water Extract of leaves of Catharanthus roseus (L.)

The toxicity of watery extract of leaves of Catharanthus roseus (L.) was determined using the control groups of selected mice. The result was described in Table 7.
Table 7
The Result of Acute Toxicity Test of Watery Extract of Leaves of Catharanthus roseus (L.)

<table>
<thead>
<tr>
<th>No</th>
<th>Dose</th>
<th>Tested Mice</th>
<th>Dead</th>
<th>Alive</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>500 mg/ kg/ day</td>
<td>5</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>1000 mg/ kg/ day</td>
<td>5</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>1500 mg/ kg/ day</td>
<td>5</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>2000 mg/ kg/ day</td>
<td>5</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>2500 mg/ kg/ day</td>
<td>5</td>
<td>-</td>
<td>5</td>
</tr>
</tbody>
</table>

From the toxicity test, the mice were treated with different doses of water extract of leaves of Catharanthus roseus (L.). After ten days, acute toxicity on mice was studied. It was found that all mice were alive when even 2.5 g of water extract of leaves of Catharanthus roseus (L.) was given to the mice.

Conclusion

In this research work, the leaves of Catharanthus roseus (L.) were selected for the chemical analysis. The preliminary phytochemical tests for the leaves of Catharanthus roseus (L.) were performed by using test tube method. According to the phytochemical tests, the leaves sample contains alkaloids, flavonoid, glycoside, phenolic, polyphenol, saponin, steroid, tannin and terpene.

The elemental compositions of the leaves of Catharanthus roseus (L.) were determined by EDXRF spectroscopy. The results of the elemental analysis show that the leaves sample contains calcium, chlorine, potassium, phosphorous, sulfur, manganese, iron, aluminium, silicon, barium, strontium, vanadium and rubidium. Among these elements, the amount of calcium and potassium were higher than other elements in this sample.

The iodometric titration method was used to study the glucose lowering activity. The glucose lowering activity of leaves of Catharanthus roseus (L.) was determined by three conditions. The percent of the decrease amount of glucose by leaves sample was found to be the best in condition 2 (leaves extract by heating in waterbath for 30 minutes) in the contact time-180 minutes.

The antioxidant activity of ethanol extract of the leaves of Catharanthus roseus (L.) was studied by DPPH (1, 1-Diphenyl-2-picrylhydrazyl) assay. Ascorbic acid was used as a standard antioxidant. It was found that ethanol extract of sample has significant antioxidant activity.

The acute toxicity of water extract of leaves of Catharanthus roseus (L.) was determined at the department of Biotechnology, Mandalay Technological University, Myanmar. According to the results of the acute toxicity test for the control groups of the selected mice, the water extract of leaves has no toxic effect on mice. They were survived till 10 days after administration.
These results suggest that *Catharanthus roseus* (L.) extract is a good natural source of bioactive compounds and that they may have beneficial health effects for consumption.

**Recommendation**
In this research work, our production cost is not expensive and is also suitable for our society. Moreover, we can get easily the raw material which is used in this research work. Therefore, by consuming this leaf, we can get a lot of benefit for our health and we can also use it as a traditional medicine in our country.

**References**


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Determination of Iron in the Soil Samples from Pyin Oo Lwin Township

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Abstract

Three soil samples were collected from Pyin Oo Lwin Township, Mandalay division. The absorption spectrum of pure Fe (SCN)²⁺ in 0.35M nitric acid was taken to choose λmax. The absorbances of the sample solutions were also determined at the wavelength of 460nm and the masses of iron in the samples were calculated directly through the Beer's law. The amounts of iron were also explored by redox titration method, complexometric titration method, spectrophotometric titration method and atomic absorption spectrophotometric method. The amounts of iron (weight percent) were compared by various results from five different analytical methods. The least amount of iron in the soil samples was found to apply for the production of Portland cement.

Keywords: Absorption spectrum of Fe (SCN)²⁺, Beer's law, Redox titration, Complexometric titration, Spectrophotometric titration method, Production of Portland cement

Introduction

Iron is probably the most precious of all metals, since man would certainly miss this element more than any other. In the beginning of the 14th century, when iron was rare, iron was classified as jewels (Mitra.L, 1928). Actually iron has been known and used since prehistoric times. There is evidence that iron was known more than 7000 years ago (Sienko.M.J. and Plane.A, 1957). Iron is the most used of all the metals, including 95% of all the metal tonnage produced worldwide. Due to the combination of low cost and high strength it is indispensable. Its applications from food containers to family cars, from screw - drivers to washing machines, and from cargo ships to paper staplers. The major deposits of iron are in USA, France, Germany, England, Austria, Sweden and Russia. Other important producers are Brazil, Chile, Venezuela and Canada. In Myanmar, iron ore deposits are found in the Shan State, Myitkyina, Myingyan, Thaton, Kyaukphyu and Yamethin townships (Hla Myint, 2006). In Myanmar, the geological study of iron ore deposits began since annexation of upper Myanmar by English. German Krupp Company and Burma Geological Department (B.G.D) first explored in detail Pyin Oo Lwin area in 1961-62. Bore hole and test pit data indicate that iron ore deposits overlie the Maymyo
Dolomite. The iron ore deposits occurring in Kyatwinye, Pyin Oo Lwintownship, are used in the present iron and steel production of the No.1 Iron and Steel Plant which is located in Anisakan (Tin Aung Myint, 2002). This element occurs in almost all the rocks (though in small amounts) and in living animals, beans, leaf vegetables and strawberries. It is also easy to find in natural water spring (Mitra.L, 1928). Steel is the best known alloy of iron and some forms are pig iron, cast iron, wrought iron and iron oxide. Iron is essential to almost living things, from micro-organisms to humans. At present, world production of iron is over 500 million tonnes a year (Sienko.M.J and Plane.R.A, 1957).

Objectives

To determine the amount of iron in the soil samples, to compare the analytical data obtained from five different methods and to investigate that the soil samples for using the production of steel and Portland cement production.

Research Methodology

3.1 Determination of Iron by Spectrophotometric Method

Traces of iron are usually determined colourimetrically with thiocyanate as reagent. Ferric iron reacts with thiocyanate to give an intensely red coloured compound which remains in true solution, whereas ferrous iron does not react.

More than one product can be formed when thiocyanate reacts with ferric iron. Depending upon the thiocyanate concentration a series of complexes represented by $\text{Fe (SCN)} \text{ }^{n+3-n}$ where $n=0, 6$ can be obtained. At low thiocyanate concentration the predominant species is $\text{Fe (SCN)} \text{ }^{2+}$. Kirsten found that with a large excess of thiocyanate the colour is practically independent of the concentration of nitric acid or hydrochloric acid if the acid concentration in the mixture is between 0.05 M and 0.5 M. Karsten preferred nitric acid to hydrochloric acid since the colour obtained with the former is more stable. Therefore, $5.0 \times 10^{-4}$ M ferric solution, $1.0 \times 10^{-2}$ M thiocyanate solution and 0.35 M nitric acid solution are used in this research work.

3.1.1 Measurement of absorbance

Before taking measurements, the instrumental adjustments are performed as follows:

Firstly, the spectrophotometer is switched on and is allowed to stand for ten minutes to get warm-up. Since all the measurements of absorbance are taken at 460 nm, the wavelength dial is set at 460 nm. The needle on the meter from which the absorbance value is read, is adjusted to zero position by means of the zero controlling knob. During the operation, there is no absorption cell in the cell holder and the cover of sample cell compartment is kept opened. Then, a sample holding cell containing the blank solution ($0.35 \text{ M nitric acid solution}$) is properly placed in the cell holder. The sample compartment lid is closed and the mode switch of the instrument is set to 0 - 2 A. The needle on the meter which is not in the zero position is returned to zero position. After the removal of the blank solution, the instrument is ready to measure the absorbance of the solution.
3.1.2 Absorption spectrum of Fe (SCN)\(^{2+}\) in 0.35 M nitric acid

To perform the determination of iron in the form of Fe (SCN)\(^{2+}\) by spectrophotometric means, it is needed to choose an appropriate absorption wavelength. To obtain this wavelength, the absorption spectrum of Fe(SCN)\(^{2+}\) in 0.35 M nitric acid is taken experimentally on a UV and Visible spectrophotometer (721 G GRATING SPECTROPHOTOMETER). The stock solutions of Fe\(^{3+}\) (0.1M), SCN\(^{-}\) (0.4M) and nitric acid (3.5M) are prepared. Then the standard solution of Fe (SCN)\(^{2+}\) (0.0005M) in 0.35M nitric acid is prepared and the absorbances of the solution are measured in the wavelength range of 400 nm to 670 nm at intervals of 10 nm. The experimental data are given in Table (3.1) and the absorption spectrum of the solution is shown in Figure (2.2). The maximum absorption peak is observed at the wavelength of 460 nm and therefore this wavelength is selected as \(\lambda_{\text{max}}\).

![Figure 2.1: UV/Visible spectrophotometer](image)

**Table 2.1**

<table>
<thead>
<tr>
<th>Wavelength (nm)</th>
<th>Absorbance</th>
<th>Wavelength (nm)</th>
<th>Absorbance</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>0.560</td>
<td>540</td>
<td>0.500</td>
</tr>
<tr>
<td>410</td>
<td>0.700</td>
<td>550</td>
<td>0.400</td>
</tr>
<tr>
<td>420</td>
<td>0.850</td>
<td>560</td>
<td>0.325</td>
</tr>
<tr>
<td>430</td>
<td>0.950</td>
<td>570</td>
<td>0.250</td>
</tr>
<tr>
<td>440</td>
<td>1.020</td>
<td>580</td>
<td>0.195</td>
</tr>
<tr>
<td>450</td>
<td>1.060</td>
<td>590</td>
<td>0.150</td>
</tr>
<tr>
<td>460</td>
<td>1.070</td>
<td>600</td>
<td>0.110</td>
</tr>
<tr>
<td>470</td>
<td>1.060</td>
<td>610</td>
<td>0.080</td>
</tr>
<tr>
<td>480</td>
<td>1.040</td>
<td>620</td>
<td>0.060</td>
</tr>
<tr>
<td>490</td>
<td>1.000</td>
<td>630</td>
<td>0.040</td>
</tr>
<tr>
<td>500</td>
<td>0.930</td>
<td>640</td>
<td>0.030</td>
</tr>
<tr>
<td>510</td>
<td>0.830</td>
<td>650</td>
<td>0.020</td>
</tr>
<tr>
<td>520</td>
<td>0.710</td>
<td>660</td>
<td>0.015</td>
</tr>
<tr>
<td>530</td>
<td>0.600</td>
<td>670</td>
<td>0.010</td>
</tr>
</tbody>
</table>
3.1.3 Molar absorptivity of Fe (SCN)$^{2+}$ solution

The standard solutions of Fe (SCN)$^{2+}$ in 0.35 M nitric acid having the various concentrations are prepared and their absorbances are measured at the wavelength of 460 nm. The molar absorptivities of the respective solutions are calculated from the equation, $A = \varepsilon bc$. The results are depicted in Table (2.2). It becomes obvious that of the standard solutions having the concentration range between $2.00 \times 10^{-4}$ M and $2.70 \times 10^{-3}$ M give the same value of molar absorptivity, $2.00 \times 10^3$. This value may be used in the determination of iron in the samples by spectrophotometric means.

3.1.4 Determination of iron in the soil samples

Three soil samples from three different places of Pyin Oo Lwintownship (Inya, InhtakeOo and Doe Gwin), Mandalay division are taken for the determination of iron. They are dried in air and ground to fine powdered form. And then 1.00 gram of each sample is placed in 250 cm$^3$ beaker and 20 cm$^3$ of concentrated hydrochloric acid are added. It is heated on a steam bath until a white residue is obtained. To oxidize the ferrous to ferric ions, 0.5 cm$^3$ of concentrated nitric acid is added and the liquid is evaporated to dryness. Then the residue is taken up in 20 cm$^3$ of dilute hydrochloric acid. The insoluble material is filtered off and the residue is washed with dilute hydrochloric acid. The total filtrate is diluted to 100 cm$^3$ in a volumetric flask to give a sample solution. An appropriate volume of sample solution is treated with excess thiocyanate solution in a medium of 0.35 M nitric acid. The absorbance of the resultant solution is measured at the wavelength of 460nm and finally, the amount of iron in the soil sample can be calculated directly through the Beer’s Law, $A = \varepsilon bc$. The experimental data are described in Table (2.3).
Table 2.2:  
**Relationship of concentration of Fe (SCN)₂⁺ and its molar absorptivities**

<table>
<thead>
<tr>
<th>Concentration of Fe (SCN)₂⁺</th>
<th>Absorbance</th>
<th>Molar absorptivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00 × 10⁻⁴ M</td>
<td>0.125</td>
<td>1.00 × 10³</td>
</tr>
<tr>
<td>1.50 × 10⁻⁴ M</td>
<td>0.245</td>
<td>1.40 × 10³</td>
</tr>
<tr>
<td>2.00 × 10⁻⁴ M</td>
<td>0.478</td>
<td>1.99 × 10³</td>
</tr>
<tr>
<td>2.10 × 10⁻⁴ M</td>
<td>0.505</td>
<td>2.00 × 10³</td>
</tr>
<tr>
<td>2.20 × 10⁻⁴ M</td>
<td>0.528</td>
<td>2.00 × 10³</td>
</tr>
<tr>
<td>2.30 × 10⁻⁴ M</td>
<td>0.555</td>
<td>2.01 × 10³</td>
</tr>
<tr>
<td>2.40 × 10⁻⁴ M</td>
<td>0.579</td>
<td>2.01 × 10³</td>
</tr>
<tr>
<td>2.50 × 10⁻⁴ M</td>
<td>0.600</td>
<td>2.00 × 10³</td>
</tr>
<tr>
<td>2.60 × 10⁻⁴ M</td>
<td>0.624</td>
<td>2.00 × 10³</td>
</tr>
<tr>
<td>2.70 × 10⁻⁴ M</td>
<td>0.651</td>
<td>2.01 × 10³</td>
</tr>
</tbody>
</table>

Table 2.3  
**Experimental results for the determination of the average amounts of iron in three soil samples**

<table>
<thead>
<tr>
<th>Sample</th>
<th>Mass of sample</th>
<th>Absorbance</th>
<th>Mass of iron in 1 g of soil samples</th>
<th>Percentage of iron</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.1 Inya</td>
<td>1.00 g</td>
<td>0.482</td>
<td>0.2804 g</td>
<td>28.04 %</td>
<td>27.98 %</td>
</tr>
<tr>
<td></td>
<td>1.00 g</td>
<td>0.600</td>
<td>0.2792 g</td>
<td>27.92 %</td>
<td></td>
</tr>
<tr>
<td>No.2 InhtakeOo</td>
<td>1.00 g</td>
<td>0.525</td>
<td>0.1629 g</td>
<td>16.29%</td>
<td>16.27%</td>
</tr>
<tr>
<td></td>
<td>1.00 g</td>
<td>0.610</td>
<td>0.1625 g</td>
<td>16.25 %</td>
<td></td>
</tr>
<tr>
<td>No.3 Doe Gwin</td>
<td>1.00 g</td>
<td>0.508</td>
<td>0.1689 g</td>
<td>16.89%</td>
<td>16.88%</td>
</tr>
</tbody>
</table>

3.2 Determination of Iron by Titration Method Using Mercurous Nitrate Solution (Redox Titration Method)  

Evidently mercurous ion reduces the ferric thiocyanate ion with the production of mercuric thiocyanate ion. Thus, ferric ion can be directly titrated with mercurous nitrate solution in the presence of a large excess of thiocyanate. The titration reaction may be

\[
\text{Hg}_2^{2+} + 2 \left[ \text{Fe(SCN)}_6 \right]^{3-} \rightarrow 2\text{Fe}^{2+} + 2\left[ \text{Hg(SCN)}_4 \right]^{2-} + 4\text{SCN}^{-}
\]

Since mercurous nitrate cannot be obtained in a sufficiently pure state, it must therefore be standardised with a standard solution of ferric ammonium sulphate, potassium permanganate, potassium dichromate, or ceric sulphate.

3.2.1 Preparation of mercurous nitrate solution  
About 3.0 g of miraculous nitrate, Hg₂(NO₃)₂. 2 H₂O are dissolved in
100 cm$^3$ of 0.80 M nitric acid to produce about 0.05 M solution. The nitric acid solution should be free from dissolved oxides of nitrogen. Mercurous nitrate solution is not necessary to prevent atmospheric oxidation.

3.2.2 Standardisation of mercurous nitrate solution with ferric ammonium sulphate

1.0300 g of A.R ferric ammonium sulphate are accurately weighed and dissolved in 60 cm$^3$ of 0.05 M nitric acid to give standard solution (0.0356 M). After the addition of 10 cm$^3$ of 40% ammonium thiocyanate solution, ferric solution is titrated with mercurous nitrate solution, with continuous shaking until the blood red colour shows palar orange. Then the titrant is added dropwise, and the reacting system is shaken well and allowed about 15 seconds between each drop. Very pay yellow colour signals are the end point of the titration. From the stoichiometric equation of titration reaction, concentration of mercurous nitrate solution can be calculated.

\[
yM_AV_A = xM_BV_B
\]

\[
2M_{\text{Hg}_2^{2+}}V_{\text{Hg}_2^{2+}} = 1M_{\text{Fe}^{3+}}V_{\text{Fe}^{3+}}
\]

\[
2M_{\text{Hg}_2^{2+}} \times 21.4cm^2 = 1 \times 0.0356 \times 60cm^3
\]

\[
M_{\text{Hg}_2^{2+}} = 0.04991M
\]

3.2.3 Determination of ferric iron

The procedure is similar to that described for the standardisation of mercurous nitrate solution. 100 cm$^3$ of each sample solution are prepared from one gram of each soil sample as described in the previous section (2.1.4). A certain volume of sample solution is taken in 60 cm$^3$ of 0.50 M nitric acid and 10 cm$^3$ of 40% ammonium thiocyanate solution are added. (Excess of thiocyanate is not harmful). Then the solution is titrated with standard mercurous nitrate solution to reach the end point. The experimental results are described in Table (2.4).

\[
1cm^3 \times 0.1M \text{Hg}_2^{2+} = 0.0055852g \text{Fe}
\]

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>*Volume of sample solution</th>
<th>Titre (0.0499 M Hg$_2^{2+}$)</th>
<th>Mass of iron in 1.0 g of sample</th>
<th>Percentage of iron</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5.00 cm$^3$</td>
<td>2.58 cm$^3$</td>
<td>0.2879 g</td>
<td>28.79%</td>
</tr>
<tr>
<td>2</td>
<td>10.00 cm$^3$</td>
<td>3.10 cm$^3$</td>
<td>0.1730 g</td>
<td>17.30%</td>
</tr>
<tr>
<td>3</td>
<td>10.00 cm$^3$</td>
<td>3.20 cm$^3$</td>
<td>0.1785 g</td>
<td>17.85%</td>
</tr>
</tbody>
</table>

3.3 Determination of Iron by Titration Method Using EDTA Solution (Complexometric Titration Method)

This method can be applied to determine the ferric iron in the presence of ferrous iron and divalent ions. Aluminium does not interfere, but titanium, zirconium, antimony, and bismuth should be absent.

3.3.1 Standardisation of EDTA solution

Standard magnesium sulphate solution is prepared by dissolving about 2.405g of accurately weighed pure magnesium sulphate heptahydrate in 100 cm$^3$ of
3.3.2 Determination of ferric iron

Sample solutions are prepared as described in section (2.1.4). An appropriate volume of sample solution is taken and ammonia solution is followed by dropwise until the pH value as indicated by test paper is about 4.0. At this point, a light precipitate of ferric hydroxide is formed. The solution is warmed to about 50 °C and 0.5 g of salicylic acid is mixed. On shaking the solution, the deep violet colour of complex salicylate is obtained and the precipitated iron redissolves. Until the violet colour gives a bright yellow, the hot solution is titrated with standard EDTA solution. Then the concentration of ferric iron can be found out on the basis of 1:1 molar equivalence. The experimental data are shown in Table (2.5).

1 cm³ 0.1 M EDTA = 0.005585 g Fe

Table 2.5
Experimental results for EDTA titration

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Volume of sample solution (cm³)</th>
<th>Titre (0.0750 M EDTA)</th>
<th>Mass of iron in 1.0g of sample</th>
<th>Percentage of iron</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10.00</td>
<td>6.90</td>
<td>0.2890 g</td>
<td>28.90%</td>
</tr>
<tr>
<td>2</td>
<td>20.00</td>
<td>8.25</td>
<td>0.1728 g</td>
<td>17.28%</td>
</tr>
<tr>
<td>3</td>
<td>20.00</td>
<td>8.45</td>
<td>0.1785 g</td>
<td>17.85%</td>
</tr>
</tbody>
</table>

3.4 Determination of Iron by Spectrophotometric Titration Method

Three ferric sample solutions are prepared from each 1.00 g of soil samples. 10 cm³ or 20 cm³ of ferric sample solution are taken in a conical flask. About 10 cm³ of buffer solution of pH = 4 (0.80 M acetic acid and 0.20 M sodium acetate solution) and 120 cm³ of water are added. The pH of the resulting solution should be 1.7 to 2.3. Then 1.0 cm³ of 6% salicylic acid solution is mixed and 4.5 cm³ of standard EDTA solution (0.09346 M) is added from micro - burette with stirring. At this stage, absorbance should be about 0.100 at wavelength of 525 nm. EDTA solution in 0.10 cm³ aliquot is introduced and absorbances are recorded after each addition. Titration is carried out until at least five readings give constant absorbance value. The experimental data are given in Table (2.6), (2.7) and (2.8). The absorbances are plotted against the volumes of titrant; the intersection of the two straight lines gives the end point. The titration plots are given in Figure (2.3), (2.4) and (2.5). Finally, the masses of iron can be calculated and the experimental results are shown in Table (2.9).

1 cm³ 0.1 M EDTA = 0.005585 g Fe
### Table 2.6
**Volume of EDTA solution and their corresponding absorbances for sample (1) solution**

<table>
<thead>
<tr>
<th>Volume of EDTA solution (cm³)</th>
<th>Volume of EDTA solution (cm³)</th>
<th>Volume of EDTA solution (cm³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.50</td>
<td>0.088</td>
<td>4.60</td>
</tr>
</tbody>
</table>

### Figure 2.3: Plot of absorbance against volume of EDTA solution for sample (1) solution (λ=525nm)

![Figure 2.3: Plot of absorbance against volume of EDTA solution](image)

**end point = 5.45 cm³**

### Table 2.7
**Volume of EDTA solution and their corresponding absorbances for sample (2) solution**

<table>
<thead>
<tr>
<th>Volume of EDTA solution (cm³)</th>
<th>Volume of EDTA solution (cm³)</th>
<th>Volume of EDTA solution (cm³)</th>
</tr>
</thead>
</table>

989
Figure 2.4 Plot of absorbance against volume of EDTA solution for sample (2) solution (λ=525nm)
Table 2.8
Volume of EDTA solution and their corresponding absorbances for sample (3)
solution

<table>
<thead>
<tr>
<th>Volume of EDTA solution (cm³)</th>
<th>Absorbance</th>
<th>Volume of EDTA solution (cm³)</th>
<th>Absorbance</th>
<th>Volume of EDTA solution (cm³)</th>
<th>Absorbance</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.50</td>
<td>0.120</td>
<td>6.60</td>
<td>0.067</td>
<td>8.70</td>
<td>0.067</td>
</tr>
<tr>
<td>4.60</td>
<td>0.118</td>
<td>6.70</td>
<td>0.067</td>
<td>8.80</td>
<td>0.067</td>
</tr>
<tr>
<td>4.70</td>
<td>0.117</td>
<td>6.80</td>
<td>0.067</td>
<td>8.90</td>
<td>0.067</td>
</tr>
<tr>
<td>4.80</td>
<td>0.115</td>
<td>6.90</td>
<td>0.067</td>
<td>9.00</td>
<td>0.067</td>
</tr>
<tr>
<td>4.90</td>
<td>0.112</td>
<td>7.00</td>
<td>0.067</td>
<td>9.10</td>
<td>0.067</td>
</tr>
<tr>
<td>5.00</td>
<td>0.110</td>
<td>7.10</td>
<td>0.067</td>
<td>9.20</td>
<td>0.067</td>
</tr>
<tr>
<td>5.10</td>
<td>0.108</td>
<td>7.20</td>
<td>0.067</td>
<td>9.30</td>
<td>0.067</td>
</tr>
<tr>
<td>5.20</td>
<td>0.105</td>
<td>7.30</td>
<td>0.067</td>
<td>9.40</td>
<td>0.067</td>
</tr>
<tr>
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<td>0.102</td>
<td>7.40</td>
<td>0.067</td>
<td>9.50</td>
<td>0.067</td>
</tr>
<tr>
<td>5.40</td>
<td>0.100</td>
<td>7.50</td>
<td>0.067</td>
<td>9.60</td>
<td>0.067</td>
</tr>
<tr>
<td>5.50</td>
<td>0.098</td>
<td>7.60</td>
<td>0.067</td>
<td>9.70</td>
<td>0.067</td>
</tr>
<tr>
<td>5.60</td>
<td>0.095</td>
<td>7.70</td>
<td>0.067</td>
<td>9.80</td>
<td>0.067</td>
</tr>
<tr>
<td>5.70</td>
<td>0.092</td>
<td>7.80</td>
<td>0.067</td>
<td>9.90</td>
<td>0.067</td>
</tr>
<tr>
<td>5.80</td>
<td>0.090</td>
<td>7.90</td>
<td>0.067</td>
<td>10.00</td>
<td>0.067</td>
</tr>
<tr>
<td>5.90</td>
<td>0.088</td>
<td>8.00</td>
<td>0.067</td>
<td>10.10</td>
<td>0.067</td>
</tr>
<tr>
<td>6.00</td>
<td>0.085</td>
<td>8.10</td>
<td>0.067</td>
<td>10.20</td>
<td>0.067</td>
</tr>
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<td>6.10</td>
<td>0.082</td>
<td>8.20</td>
<td>0.067</td>
<td>10.30</td>
<td>0.067</td>
</tr>
<tr>
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<td>0.080</td>
<td>8.30</td>
<td>0.067</td>
<td>10.40</td>
<td>0.067</td>
</tr>
<tr>
<td>6.30</td>
<td>0.078</td>
<td>8.40</td>
<td>0.067</td>
<td>10.50</td>
<td>0.067</td>
</tr>
<tr>
<td>6.40</td>
<td>0.075</td>
<td>8.50</td>
<td>0.067</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.50</td>
<td>0.072</td>
<td>8.60</td>
<td>0.067</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 2.5 Plot of absorbance against volume of EDTA solution for sample (3) solution \((\lambda = 525\text{nm})\)
Table 2.9
Experimental results for spectrophotometric titration methods

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Volume of sample solution</th>
<th>Titre (0.09346 M)</th>
<th>mass of iron in 1.0g of sample</th>
<th>percentage of iron</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10 cm³</td>
<td>5.45 cm³</td>
<td>0.2845 g</td>
<td>28.45%</td>
</tr>
<tr>
<td>2</td>
<td>20 cm³</td>
<td>6.40 cm³</td>
<td>0.1670 g</td>
<td>16.70%</td>
</tr>
<tr>
<td>3</td>
<td>20 cm³</td>
<td>6.70 cm³</td>
<td>0.1750 g</td>
<td>17.50%</td>
</tr>
</tbody>
</table>

3.5 Determination of Iron by Atomic Absorption Spectrophotometric Method

Three soil samples are dried in air and ground to fine powder. These samples are then sent to chemistry division, Central Agriculture Research Institute, Yezin. Investigations of the samples are taken out and CARI informs that the majority of the constituents, in all soil samples, are iron. The analytical report is given in Table (2.10)

Table 2.10
Experimental results of atomic absorption spectrophotometric method

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Total percentage in gram</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ca</td>
</tr>
<tr>
<td>1</td>
<td>0.0500</td>
</tr>
<tr>
<td>2</td>
<td>0.0476</td>
</tr>
<tr>
<td>3</td>
<td>0.0822</td>
</tr>
</tbody>
</table>

Table 2.11
Comparison of experimental data of iron percentage

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Spectrophotometric method</th>
<th>Hg(NO₃)₂ titration method</th>
<th>EDTA titration method</th>
<th>Spectrophotometric titration method</th>
<th>Atomic absorption spectrophotometric method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>27.98 %</td>
<td>28.79%</td>
<td>28.90%</td>
<td>28.45%</td>
<td>27.37%</td>
</tr>
<tr>
<td>2</td>
<td>16.27%</td>
<td>17.30%</td>
<td>17.28%</td>
<td>16.70%</td>
<td>15.97%</td>
</tr>
<tr>
<td>3</td>
<td>16.88%</td>
<td>17.85%</td>
<td>17.70%</td>
<td>17.50%</td>
<td>16.09%</td>
</tr>
</tbody>
</table>
Results and Discussion

Determination of iron in the soils from Pyin Oo Lwintownship is done by five different methods. Since the experimental results are close to each other, all the methods used in this research work may be precise and acceptable as the points of analytical chemistry. Examination of the results reveals that the percentages of iron obtained by redox titration method and complexometric titration methods are slightly larger than the other methods. It may be due to the fact that the location of end point is performed by visual eyes, in these methods. Thus, more titrant may be required to see the colour change at the end point. Moreover, modern instruments can give more accurate results. And then, while the ferric thiocyanate complex is measured its absorbance of light, it was found that very stable colour. Therefore, instrumental methods can produce better results. Among the methods described in this paper, the spectrophotometric method (using Beer’s Law) is the best one because even a small amount of ferric iron can be determined in this method. The No. 1 Iron and Steel plant in Anisakan needs the iron ores containing the minimum percentage of 50 to produce iron and steel. Therefore, all the three soil samples investigated in this research work cannot be applied in iron and steel production.

According to the cement industrial (Tiger Head Co,Ltd and Triple A Co,Ltd) report, the soil which contains at least 5% iron can be used in the production of cement. Thus, all the three soil samples interested in this research work can be treated in cement production.

Conclusion

In this paper, the absorption spectrum of Fe (SCN)$^{2+}$ is taken in 0.35 M nitric acid to select the λmax. The absorbances of the sample solutions are also determined and masses of iron in the soil samples are calculated by using Beer’s Law. Determination of iron in the soil samples are also performed by redox titration method, complexometric titration method, spectrophotometric titration method and atomic absorption spectrophotometric method. Examination of the experimental data obtained by different analytical methods demands that all the results meet in agreement with each other and are acceptable.

The three soil samples studied in this research work can be applied in the production of cement. Therefore, this research work provided effectively not only for the production of cement but also in the construction of developing country.

Recommendation

After the three soil samples had been investigated by various analytical methods, it can be applied commercially as the raw materials for the production of Portland cement in construction of buildings and bridges. These soil samples should be done soil analysis (other minerals, soil pH, climate, temperature, moisture content...etc.) to grow the trees and crops. If the soil samples will be red colour and will contain at least 3% Fe, 0.35%K, 0.1%Ca, 0.25%Zn and 0.4%Mn, it can be applied to grow crops and short-trees especially red coloured fruits. Thus, I would like to strongly recommend that these soils should be applied to grow especially strawberry, water melon and damson etc.
References

Investigation on Some Bat Species and Their Habitats in Northern Chin State, Myanmar

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Abstract

Bats were collected from limestone karsts of Northern Chin state, Hakha, Falam and Tedim Townships. This study was conducted from January 2014 to December 2015. Bats were captured by hand net and mist net. A Total of nine species of bats belonging to four families and four genera, were recorded. Among the recorded species, Rhinolophus luctus and Hipposideros armiger have been recorded since 90 years ago in Chin hills. Therefore all the bat species collected represented as the first time record for Chin State. Habitat destruction and hunting for bush meat are big threats to the bats in the limestone karsts. Therefore there should be conserved for their sustainability and ecosystem services.

Keywords: bat, Chin State, first record, sustainability, ecosystem

Introduction

Bats are widely distributed and have been recorded throughout the world excepting the Antarctic and a few Oceanic islands. They are absent only from Polar Regions and from some cut off islands (Mickleburgh et al., 2002). Although bats are moderately common in temperate regions, they get to their greatest diversity in tropical and subtropical regions (Corbet & Hill, 1992).

Bats are important members of many communities, with pollinators and seed disperses being keystone species and insectivorous regulating nocturnal insect populations (Mickleburgh et al., 2002).

The majority of bats are insectivorous bat. They are the primary consumers of nocturnal insects and probably play an important role in the control of insect numbers in many part of the world. Insectivorous bat are found to be roosted in the caves. Some of the largest bats colonies in cave contain millions of bats (Huston et al., 2001)

Although the systematic research of bats in Myanmar has been conducted since 1863, very few studies were conducted in Chin state. In lower Myanmar Bats of limestone karst areas of Kayin and Mon State and caves of Myeik and Tanintharyi Division (Bates et al, 2000). In Upper Myanmar, bats of limestone karst researches were conducted in Mandalay and Sagaing Regions and Shan and Kachin States from 2002 to 2012 (Struebig et al., 2005 and lei Lei Thin 2012).
In Myanmar, species diversity of bats was previously recorded, but there is no research on bats in Chin hill. Bat species recorded in study areas presented the different level of species (i.e., threatened, endangered and endemic) yet systematic study on bats had been conducted in other parts of Myanmar. As Chin hill was suffered by erosion in monsoon season annually, limestone karsts were destroyed rapidly. Therefore, review of bats of the limestone karsts in Chin hill was needed to conduct for confirmation of the species. Present research was conducted to fulfill the following objectives:

1. To investigate the bat species of limestone karsts from Northern Chin State
2. To outline measures of conservation of bats in the limestone karsts.

Methodology
Study period and study sites
This study was conducted at limestone karsts of Chin hill from January 2014 to December 2015. The study sites were at the limestone cave surrounded by pine forest (N 23° 05’ 59.9”, E 093° 44’ 13.2”, 5254 ft), Lambar cave (N 23° 05’ 20.5”, E 093° 42’ 27.0”, 5283 ft) near Phaizawl village, Lungdong cave near maize plantation (N 23° 01’ 14.8”, E 093° 4’ 2.3”, 4428 ft) in Falam township. Limestone outcrop surrounded by paddy field (N 22° 39’ 48”, E 093° 36’ 00”, 4820 ft) in Hakha township and Nat Taung cave surrounded by evergreen forest (N 23° 24’ 56.8”, E 093° 56’ 41.3”, 2285 ft) in Tedim township, Northern Chin State (Figure 1 and 2).

Capturing the bats
Mist net and hand net were used to capture the bats. Hand net was used to capture the roosting bat inside the cave. Mist net was set at the entrance of the cave to capture the emerged bat outside the cave.

Identification of the specimens
The specimens were identified by Bates and Harrison (1997), Csorba et al., (2003) and Francis (2008).

Measuring the specimens
External measurements were taken with a dial caliper following Bates and Harrison (1997).

Echolocation call analysis
Call frequency was detected by Petterson Electrode bat detector and recorded on Zoom H2 recorder. The sound was analysed using Bat Sound Pro software 3.31 version.
Figure 1: Location of Chin State in Myanma, (Source from Google Earth, 2014)

A. Cave in Falam Township  B. Entrance of the Cave  C. Roosting Bats in the Cave

D. Mountain Range in Hakha Township  E. Cave Entrance in Tedim Township

Figure 2: Study sites

Results
A total of nine species belonging to four genera and four families were identified and recorded.

Taphozous melanopogon (Temminck, 1841)
Black-beard Tomb bat
External characters: This species is medium-size black-beard bat. Forearm length is 65 mm. The body colour of upper part is grey-brown and under part usually paler. This species is lacking a gular pouch. Particular interest is the present male have not
black-beard. Wings are well developed metacarpal pouch. The eyes are large (Table 1 and Figure 3 A).

**Habitat:** The specimen was collected from the limestone cave surrounded by mixed bamboo and evergreen forests, Tedim township.

**Status:** This species is worldwide in distribution and not endanger. Lower risk (IUCN, 2013).

**Echolocation call frequency:** 29.58± 0.88 kHz (Table 1 and Figure 4 A)

*Rhinolophus affinis* Horsfield, 1823

**Intermediate Horseshoe bat**

**External characters:** This species is small to medium size bats. Forearm length is (52.25 ±1.42 mm). The anterior section is rounded and horseshoe-shaped. The body colour of upper part is dark-brown to redish-brown. Under part is only slightly paler. The noseleaf is relatively large and cover the muzzle. The lancet is tall. The ears are moderately large. Sella is narrow and concave sides (Table 1 and Figure 3 B).

**Habitat:** A limestone cave surrounded by pine forest in Falam and a cave surrounded by paddy fields and mountains in Hakha.

**Status:** Worldwide: Not currently at risk. Least concern (IUCN, 2013).

**Echolocation call frequency:** 88.85 ± 0.45 kHz (Table 1 and Figure 4 B)

*Rhinolophus thomasi* Andersen, 1905

**Thomas’s Horseshoe bat**

**External character:** This horseshoe bat is a small bat. Forearm length is (45.74±3.29 mm). The body colour of upper part is darkbrown and slightly paler below. Noseleaf is moderately broaded. Lancet is short. Sella is parallel sided and slightly broader at base. The noseleaf is darkgrey and pinkish in the middle. The ears are large (Table 1 and Figure 3 C).

**Habitat:** Limestone cave surrounded by pine forest in Falam and a cave surrounded by paddy fields and mountains in Hakha.

**Status:** This species is not currently at risk. Least concern (IUCN, 2013).

**Echolocation call frequency:** 90.69 ± 0.24 kHz (Table 1 and Figure 4 C)

*Rhinolophus lepidus* Blyth, 1844

**Blyth’s Horseshoe bat**

**External characters:** This is a small horseshoe bat. Forearm length is (40.8±1.57 mm). Connecting process is triangular and pointed. Lancet is well developed. The sella is also less conspicuously emarginated. Noseleaf is narrower than muzzle. The pellage colour is grey to orange. The ears are large (Table 1 and Figure 3 D).

**Habitat:** The specimen was collected from the limestone cave surrounded by pine forests, Falam Township.

**Status:** This species is worldwide in distribution. Not currently at risk. Least concern (IUCN, 2013)

**Echolocation:** not recorded

*Rhinolophus luctus* Temminck, 1835

**Woolly Horseshoe bat**

**External characters:** *Rhinolophus luctus* is the greatest horseshoe bat. Forearm length is (72.3 mm). Fur is long. The colour of upper part is brownish-black and under part is slightly greyer. The lancet is tall. The sella is broad and parallel-sided. The horseshoe is very broad and emargination. The noseleaf is rounded and broad. The
ears are large. The pelage is dark and long. It is usually black with paler tips (Table 1 and Figure 3 E).

**Habitat**: Limestone cave surrounded by forests near Lunghawh village, Falam Township.

**Status**: This species is worldwide in distribution but little studied species. Not currently at risk. Least concern (IUCN, 2013)

**Echolocation call frequency**: 33.0 ± 0.1kHz (Table 1 and Figure 4 D)

**Hipposideros armiger** Hodgson, 1835

**Great Himalayan Leaf-nosed bat**

**External characters**: This is a large Hipposiderid bat with an average forearm length is (95.2 ± 1 mm). The body colour of the upper part is dark brown and grey brown below. The anterior noseleaf is relatively small. This species has four lateral leaflets. The outer leaf is very smaller than the other three. The ears are large (Table 1 and Figure 3 F).

**Habitat**: Limestone cave surrounded by forests near Lunghawh village, Falam Township.

**Status**: Threatened species (IUCN, 2013)

**Echolocation call frequency**: 66.88 ± 0.31kHz (Table 1 and Figure 4 E)

**Hipposideros pomona gentilis** Andersen, 1918

**Andersen’s Leaf-nosed bat**

**External characters**: This is a small roundleaf bat. Forearm length is (40.7 ±0.49mm). The body colour is dark brown and only slightly paler below. The anterior noseleaf is relatively small. The ears are large and rounded (Table 1 and Figure 3 G).

**Habitat**: Limestone cave surrounded by pine forests, Falam Township.

**Status**: Threatened species (IUCN, 2013)

**Echolocation call frequency**: 123.23 ± 0.39 kHz (Table 1 and Figure 4 F)

**Hipposideros cineraceus** Blyth, 1853

**Least Leaf-nosed bat**

**External characters**: This is a small roundleaf bat. Forearm length is (41± 0.58 mm). The body colour of upper part is brown to grayish-brown and pale brown to buffy-white below. Noseleaf is simple and no lateral leaflets. The ears are large and rounded (Table 1 and Plate 2 H).

**Habitat**: Limestone cave surrounded by pine forests, Falam Township.

**Status**: The population status is worldwide. Not currently at risk (IUCN, 2013).

**Echolocation call frequency**: Not recorded

**Myotis horsfieldii** Temminck, 1840

**Horsfield’s bat**

**External characters**: This is a small species of *Myotis*. Forearm length is (35.87±1.54 mm). The body colour of upper part is grey brown and greyer below. The ears are relatively large. Tragus is short. The feet are moderately large. Wing membranes are attached to side of foot (Table 1 and Plate 2 I).

**Habitat**: Limestone cave surrounded by pine forests, Falam Township.

**Status**: Threatened species, (IUCN,2013).

**Echolocation call frequency**: Not recorded.
### Table 1
Morphometric measurements (mm) and echolocation call frequency of species recorded in Northern Chin State

- H.B: Head and body; T: Tail; HF: Hind foot; TIB: Tibia; FA: Foram; E: Ear; 5MT, 4MT, 3MT: Fifth, fourth, third metacarpals

<table>
<thead>
<tr>
<th>No</th>
<th>Species</th>
<th>Sex</th>
<th>HB</th>
<th>T</th>
<th>HF</th>
<th>TIB</th>
<th>FA</th>
<th>E</th>
<th>5MT</th>
<th>4MT</th>
<th>3MT</th>
<th>Frequency kHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><em>Taphozous melanopogon</em></td>
<td>♂♂</td>
<td>84.1</td>
<td>16.1</td>
<td>13</td>
<td>25.5</td>
<td>65</td>
<td>16.1</td>
<td>39</td>
<td>45.3</td>
<td>58.8</td>
<td>29.58±0.88</td>
</tr>
<tr>
<td>2</td>
<td><em>Rhinolophus affinis</em></td>
<td>♂♀</td>
<td>57.39±1.77</td>
<td>23.78±2.56</td>
<td>10.63±1.10</td>
<td>23.5±1.56</td>
<td>52.25±1.42</td>
<td>20.07±1.41</td>
<td>41.92±1.43</td>
<td>40.82±1.13</td>
<td>39.87±1.09</td>
<td>88.85±0.45</td>
</tr>
<tr>
<td>3</td>
<td><em>Rhinolophus thomasi</em></td>
<td>4♂3♀</td>
<td>48.88±6.36</td>
<td>23±4.46</td>
<td>9.4±1.13</td>
<td>19.36±3.30</td>
<td>45.74±3.29</td>
<td>20.88±3.65</td>
<td>35.64±2.69</td>
<td>35.14±2.83</td>
<td>34.82±2.28</td>
<td>90.69±0.24</td>
</tr>
<tr>
<td>4</td>
<td><em>Rhinolophus lepidus</em></td>
<td>♂♂</td>
<td>40.8±3.33</td>
<td>21.03±1.15</td>
<td>6.1±1.09</td>
<td>16.9±0.61</td>
<td>40.8±1.57</td>
<td>20.7±2.1</td>
<td>31.13±1.05</td>
<td>31.5±1.12</td>
<td>30.4±1.21</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td><em>Rhinolophus luctus</em></td>
<td>♂</td>
<td>83.7</td>
<td>50.4</td>
<td>18.1</td>
<td>34.8</td>
<td>72.3</td>
<td>40</td>
<td>58.8</td>
<td>58.8</td>
<td>50.5</td>
<td>33.0±0.1</td>
</tr>
<tr>
<td>6</td>
<td><em>Hipposideros armiger</em></td>
<td>1♂2♀</td>
<td>96.97±0.58</td>
<td>53.87±1.58</td>
<td>15.07±1.00</td>
<td>41.1±2.1</td>
<td>95.2±1</td>
<td>34.8±1</td>
<td>63.3±0.61</td>
<td>67.47±0.64</td>
<td>67.1±1</td>
<td>66.88±0.31</td>
</tr>
<tr>
<td>7</td>
<td><em>Hipposideros pomona gentilis</em></td>
<td>2♂5♀</td>
<td>41.73±1.07</td>
<td>30.13±1.48</td>
<td>7.63±0.79</td>
<td>18.37±0.60</td>
<td>40.7±0.49</td>
<td>23.73±0.97</td>
<td>31.17±0.52</td>
<td>32.63±0.73</td>
<td>31.57±0.97</td>
<td>123.23±39</td>
</tr>
<tr>
<td>8</td>
<td><em>Hipposideros cineraceus</em></td>
<td>♂♀</td>
<td>41.33±2.5</td>
<td>27.68±2.31</td>
<td>6.38±1.3</td>
<td>17.58±1.46</td>
<td>41.0±0.58</td>
<td>21.98±2.26</td>
<td>31.07±0.02</td>
<td>31.13±0.86</td>
<td>30.05±0.06</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td><em>Myotis horsfieldii</em></td>
<td>3♂</td>
<td>42.63±2.45</td>
<td>32.13±1.47</td>
<td>7.97±10.15</td>
<td>16.6±0.87</td>
<td>35.87±1.54</td>
<td>14.5±0.46</td>
<td>31.97±0.55</td>
<td>32.97±1.10</td>
<td>33.63±0.86</td>
<td>-</td>
</tr>
</tbody>
</table>
Figure 3: Recorded bat species
A. Taphozous melanopogon (Male)

B. Rhinolophus affinis (Male)

C. Rhinolophus thomasi (Male)

D. Rhinolophus luctus (Female)
Discussion

A total of nine species of bats belonging to five genera and four families were identified and recorded during the study. One species under Emballonuridae, four species to the family Rhinolophidae, three confined to Hipposideridae and one species represented Vespertilionidae.

In this study, *Taphozous melanopogon*, *Rhinolophus affinis*, *Rhinolophus thomasi*, *Rhinolophus Lepidus* and *Rhinolophus luctus* are common species and not currently at risk. Distributions of these species are worldwide. Among these species, *Rhinolophus luctus* was found very rare to study.

In the family Hipposidae, *Hipposideros Pomona gentilis* and *H.armiger* are threatened species and *H.cineraceus* is common species and not currently at risk. At present, *H. cineraceus* appears to be widespread, relatively abundant and with no significant threats to its overall population status within Thailand and Myanmar (Douangboubpha et al., 2010). *Myotis horsfieldii* is also a threatened species.

Bats of the Hipposideridae and Rhinolophidae emit conspicuous echolocation call that indicates a constant frequency (CF) component (Schnitzler, 1968), Emballonuridae include (FM) component in their calls, which are concentrated on the second harmonic tone (Hartley and Suthers, 1988).

Among all the bat species emitting the sound, *Taphozous melanopogon* showed the long multi-harmonic component in its call. In this study, peak frequency 29.58kHz was closed to the value of 30.10kHz in Guangxi province, China (Wei et
In this study, frequencies of two species of hipposiderid bats were recorded. The smaller bat, *Hipposideros pomona gentilis* emitted higher frequency, 123.22 ± 0.39 kHz and the larger species *H.armiger* produced lower frequency 66.88 ± 0.31kHz. Because small animals possess small vocal equipment which can only produce sound at high frequency (Bradbury & Vanrencamp,1998). This suggests that bats with lower frequency sound which is adapted to searching for larger prey in long distance, correspondingly higher frequency sound is adapted to detecting smaller prey in short distance (Schnitzler and Kalko, 2001 and Shuyi *et al*., 2000).

Similarly in the rhinolophoid species, the smallest species *Rhinolophus thomasi* emitted the highest frequency 90.69 ± 0.24 kHz, the median bat *R.affinis* produced 88.85 ± 0.45kHz and the largest species *R.luctus* produced lowest frequency 33.0 ± 0.1kHz respectively. Therefore they have species specific call frequency that facilitate their identification (Huges *et al*.,2010). Therefore echolocation call frequency is one of the key characteristics in the taxonomy as well as ecology and conservation of bats.

**Recommendation**

This study brings to light some bat species in Chin Hills along with their habitats. The information in this study suggests that there exists a considerable potential for future research on the management and conservation strategies of bats in Chin Hill. In doing so, it would help the bats to survive and thrive in these Chin Hills for many generations to come.

Habitat destruction and hunting for bush meat are threats to the bat species in this area. Particular interest is all these bats collected from Limestone karsts represented as the first time records for the Chin State. So the bats and their habitats of Chin State should be conserved for their sustainability.

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Gonadal Developmental Stages of Polynemus Paradiseus in Twante Canal at Yangon Region, Myanmar

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Abstract

A total of 303 specimen of Polynemus paradiseus collected from Twante canal, Yangon Division was carried out sex ratio, gonadosomatic index (GSI), hepatosomatic index (HSI), condition factor (K), macroscopic and microscopic gonad development stages form June 2014 to December 2017. According to GSI value, macroscopic and microscopic observation, mature stage for male was found in June and female was in May. All seven stages of ovary were observed in May but the percentage of germinal vesicle breakdown stage (75.2%) was dominant on all. The size of the oocytes was larger more nearer to the germinal vesicle breakdown stage. The study on maturity stages of oocytes in the ovaries on these species showed firmly supported by ovarian developmental stages of histological slides with photographs. These findings are very important to fishery management to fix closed season and closed areas for conservation of fish population.

Keywords: fishes, Polynemus paradiseus, GSI, HSI, macroscopic, microscopic, spawning

Introduction

Fishes in nature exhibits very diverse at various habitats with their different spawning sites and time according to their species. Reproductive biology of the fish has been conducted all over the world. Reproductive studies of the fishes require knowledge of the stage of the gonad development, to understand the physiology of reproduction, the study of the seasonal developmental changes of gonads through both macroscopic and microscopic observation is necessary (Priyadharsini et al., 2013). Gonado somatic index (GSI), Hepato somatic index (HSI), and macroscopic and microscopic gonadal maturation stages play an important role to determine the maturation stages of gonads and the fish species population. The determination of the gonads developing cycle is one of the most appropriate methods for the examination of the seasonal development of gonads (Sivakumaran et al., 2003).

Classification system for teleost ovarian developmental classes based both on macroscopic and microscopic criteria. Morphologically, the stages can be classified according to the shape, size and color of the gonads (Halfawy et al., 2007).

Histological analysis of gonads provides more accurate and specific information to identify the reproductive maturity stage and oocyte development pattern than traditional, macroscopic gonad examinations (Cushion et al., 2008; Ganga, 2010). Many authors defined different stages of gonad developments based on histological studies. Mohamed (2010) stated that general pattern of the histological
development of the ovaries includes six periods; (1). Immaturation period, (2) maturation period, (3) vacuolization period, (4) yolk deposition period, (5) ripening period and (6) spawning-spent period.

*Polynemus paradiseus* is under order Perciformes and family Polynemidae. This species is one of the commercially important fish in Bangladesh. English name was ‘Paradise threadfin’ and locally known as Nga ponna. This species is important commercial fish in South Asia and Southeast Asia, especially in India, Thailand, Vietnam, and Bangladesh. An anatropous fish since they migrate from marine to freshwater for breeding purposes (David, 1954). Found both in estuarine and offshore waters to the depth of less than 27 m usually inhabiting the sandy bottom, tidal forests, marshes and swamps. This species is highly consumed by Myanmar people because of its palatable taste.

In Myanmar, the previous works studied the reproductive biology of fish species focused on the gonadosomatic index, hepatosomatic index and histological examination of gonads to predict the spawning season of these fish species from natural water system. The finding from these results were valuable suggestive step to monitor the aquatic medium to protect the fish reproductive physiology thus fish population as a whole.

Therefore the present study was carried out reproductive strategy of, *Polynemus paradiseus*, the present work was conducted with the following objectives:

1. to find out the GSI, HSI and condition factor (K) of examined species
2. to observe gonad developmental stages of these fish species by macroscopically and microscopically
3. to estimate the spawning season from monthly data collection

**Materials and methods**

Monthly fish specimen was caught with the help of fisherman from the local fisherman at the study site during June, 2014 to May, 2018. The collected samples were identified referring to Talwar and Jhingran (1991) and Jayaram (2010). Standard length (tip of the snout to the end of the caudal pentacle) and body weight were measured. Fish specimens were dissected out ventrally to remove gonads carefully and then surface moisture of gonads was removed using blotting paper. Photographed and weighted prior to fixation in 10% natural buffer formalin for histology slide preparation. Sexes of the sampled fish specimens were determined after examination of the gonads.

Gonadosomatic Index (GSI), hepatosomatic Index and the condition factor (K) were calculated using the formula, (Nikolsky, 1963, Biswas, 1993, Jones, 1970)

\[
\text{GSI} = \frac{GW}{BW} \times 100
\]

Where, \(GW\) = gonad weight of fish in milligrams and \(BW\) = body weight of fish in milligrams.

\[
\text{HSI} = \frac{LW}{BW} \times 100
\]

Where, \(LW\) = liver weight of fish in milligrams and \(BW\) = body weight of fish in milligrams.

\[
K = \frac{W}{L^3} \times 100
\]

K=condition factor

W=body weight of fish in milligrams, L=body length of fish in mm
The gonads appearance, color, space occupied in the body cavity, size of the gonads were noted down. Macroscopic gonads maturity stages were classified according to Jacob (2005), Bucholtz (2008). For histological study, gonads (testes and ovary) were collected by dissecting out the fish. The tissues were trimmed into 5 to 6 mm size for better penetration of fixatives into 10% neutral buffer formalin for 24 to 48 hours as per size of tissues. The histological sections on the prepared slides were thoroughly observation under light microscopes at different magnifications. The developmental stages of germ cells in the testes and changes of the oocytes of ovary were noticed carefully. Developmental stages of gonads were classified according to the Jacob, 2005, Lambert-JG, 1970 and Selman-K et al, 1993.

Results

In Polynemus paradiseus, the sizes of mature males were smaller than mature female during the breeding season. A single circular genital aperture was observed in female and two slender genital apertures were in male. Among the total number of 303 specimens of Polynemus paradiseus, 177 were male and 126 were female.

In Polynemus paradiseus, GSI of female was peak (5.71 ± 1.79) in May and lowest (0.81 ± 1.6) in August. The highest HSI mean value (1.17 ± 1.63) was observed in July and lowest (1.03 ± 0.48) in April. The condition factor (k) value (0.87 ± 0.52) was observed in January and the lowest (0.53 ± 0.08) in July. In male, GSI mean value (1.62 ± 3.67) was also highest in May and lowest (0.26 ± 0.12) in February. The highest HSI mean value (0.67 ± 0.12) was observed in January and
lowest (0.42 ± 0.19) was observed in May. The highest condition factor k) was observed (0.62 ± 0.13) in December and lowest (0.52 ± 0.03) was in June.

Figure 4: Monthly changes of GSI of female and male Polynemus paradiseus

![Monthly changes of GSI of female and male Polynemus paradiseus](image)

Figure 5: Monthly changes of HSI of female and male Polynemus paradiseus

![Monthly changes of HSI of female and male Polynemus paradiseus](image)

Figure 6: Monthly changes of K of female and male Polynemus paradiseus

![Monthly changes of K of female and male Polynemus paradiseus](image)

**Macroscopic Developmental stages of female reproductive organ**

Ovary of *Polynemus paradiseus* was paired elongated sac-like structure. The left ovary was slightly longer than the right. A pair testis was lie on each side of the rectum and attached to the dorsal body wall by the peritoneum. The size of the testes was small when there was no function (Fig. 7)

**Immature ovary**

Ovary was small, thin, tube-like structure and white color. Ovary was occupied one-third of the body cavity. Ova were not visible with naked eye. It was found in August to October (Fig. 8, A).

**Developing Ovary**

Developing ovary was increased in the weight and size more than the above stage. The size of the early developing ovary was no larger than the late ovary and also not clearly seen blood capillaries. The color was opaque and red tints. The ovary was occupied nearly one half of the body cavity. Then vascular supplied was
increased and blood capillaries were became distinct in late developing ovary. This stage ovary was found from November to February (Fig. 8, B, C)

**Mature ovary**

Ovary was enlarge and turgid and occupied the entire length of the body cavity. Color was opaque and almost whitish. Large number of spherical ova was found and blood capillaries were more conspicuous. Mature ovaries were found in March and April (Fig. 8, D).

**Ripe ovary**

Ovary was occupied the entire volume of the body cavity length and pearl color. This ovary was found in May. No oocytes were released when slightly pressure on the abdomen (Fig. 8, E)

**Spent ovary**

Ovary was found only in July. This ovary was shrieked sac-like structure, reduced in volume and red dull color. Ovary was small size and occupied less than half of the body cavity length (Fig. 8, F).

*Figure 7: Structure of reproductive organ of studied fish specie (A= Ovary, B = Testis)*

*Figure 8: Macroscopic developmental stages of female reproductive organ*

**Macroscopic developmental stages of male reproductive organ**

**Immature testis**

Testis was very small and reddish in color and contained within a transparent membrane. Testis was occupied one-third of the body cavity. This stage was found from August to October (Fig. 9, A).
Developing testis
In this stage, testis was occupied greater than one third of the body cavity length and more increased in weight and volume than above stage. The color was pale whitish and opaque. Developing testis was found from November to February (Fig. 9, B).

Mature testis
Mature testis was milky white in color and occupied two-third of the body cavity. Mature testis was found from March to April (Fig.9, C).

Ripe testis
Testis was occupied more than two third of the body cavity. Weight and volume were increased than the previous stages. The color was opaque and milky white and found in May (Fig.9, D)

Spent testis
Spent testis was found in July. Testes were formed diminished weight and volume. Flaccid and pale white testis was found in this stage (Fig.9, E).

Microscopic developmental stages of oogenesis of Polynemus paradiseus
Oogonial cells were embedded in the ovigerous tissue. They were young germ cells and found periphery of the ovarian lamellae.

First growth phase
Chromatin nucleolus stage
These cells were found small and rectangular shape. The size of the cells were 35.6 ± 10.10 µm and arranged either singly or small group in the lamellae epithelium. Large nucleus was surrounded by cytoplasm (Cy). Nucleoli (Nu) were appeared in the nucleus and range from 2 to 3 in number.

Pre-nucleolus stage
The shape of the cells was rectangular and sizes were 125.67±22.54 µm. The size of nucleus (N) and cytoplasm were bigger than chromatin nucleolus stage. Nucleus now referred to as germinal vesicle was less basophilic. In this stage, number
of nucleoli (Nu) was increased range from 6 to 16 which arranged peripherally of the nucleus (Fig.10, A).

**Second growth phase**

**Primary yolk stage**

In this stage, the cells were rounded and sizes were $119.17 \pm 15.20 \, \mu m$. Size of nucleus and cytoplasm became increase above stage. Cytoplasm with stains lightly basophilic color was observed. Vacuoles were slightly appearance of rings in the cytoplasm (Fig.10, B).

**Secondary yolk stage**

This stage cell was initiated vitellogenesis in the cytoplasm, distinct appearance of vacuoles and distinct zona radiata were observed. The cells were rounded and sizes of these cells were $257 \pm 24.93 \, \mu m$ (Fig. 10, C).

**Tertiary yolk stage**

Size and number of vacuoles were gradually increased in the periphery and central zones. The sizes of the cells were $560.33 \pm 55.12 \, \mu m$. Extravascular granules were fused in the perinuclear region of the cytoplasm (Fig.10, D).

**Germinal vesicle migration stage**

Nuclear membrane was disintegrated and moved to animal pore which was prominent feature of this stage. Scattering of nucleolus (No) was found in the nucleus (N). In this stage, cytoplasm was almost completely filled with yolk globules. The size of the cells in this stage was the largest than the others stages. The cell diameter was $706.67 \pm 49.22 \, \mu m$ (Fig. 10, E).

**Germinal vesicle breakdown stage**

This was final stages of vitellogenesis, yolk granule (Yg) were initially accumulated in the periphery and still presented cortical granules at the end of the vitellogenesis. Sizes of cells were large and nucleus and nucleolus were disappeared. Follicular layer was separated from the ova. The sizes of the cells were $660.66 \pm 64.54 \, \mu m$ (Fig. 10, F).

**Postovulatory follicle stage**

In this stage, a large follicular lumen, tertiary vitellogenesis oocytes, primary oocyte (Po) were observed. Hydrated oocytes were also found which were irregular in shaped (Fig. 10, G).

**Microscopic developmental stages of spermatogenesis of Polynemus aradiseus**

**Spermatogonia stage**

Spermatogonia (SG) were the first appear grouped of cell and spherical shape. The spermatogonia were observed in the testicular periphery and largest cell of the spermatogenesis (Fig.11 (A).

**Spermatocytes stage**

In mature testis, spermatogonia (SG), spermatocytes (SC) and spermatid (ST) were observed. Distinctive changes from spermatogonia (SG) to spermatocyte (SC) was found and decreased in size and move into the inner layer of seminiferous tubules (Fig. 11, B).

**Spermatid stage**

In this stage testes dense cluster of spermatozoa (Sz) and few spermatids (ST) were occupied (Fig.11, C).
Spermatozoa stage

The shape of the spermatozoa shape was tube like structure and oval at the head and then tapered to the tail. Sperm unattached to any cells was remained free in the lumens of the lobules. Residual sperm was present in some tubules. New germ cells (Gm) were produced and gradually testes same as early maturation (Fig.11, D).

Figure 10: Microscopic developmental stages of oogenesis in Polynemus paradiseus, H&E stain, Cytoplasm (Cy), Nucleus (N), Nucleolus (Nu), Yolk granule (Yg), Oil droplet (Od), Follicular epithelium (FE), Zona radiata (ZR)
Figure 11: Microscopic developmental stages of spermatogenesis. H&E stain, transverse section, Spermatogonia (SG), Spermatocytes (SC), Spermatid (ST) and Spermatozoa (SZ)

Monthly percentage composition of gonad maturity stage and oocytes size

In *Polynemus paradiseus*, there are three stages of immature; chromatinucleolus stage (66.56%), prenucleolus stage (21.37%) and primary yolk stage (7.2%) was observed in August. In May, seventh developing stages; chromatinucleolus (7.04%), prinucleolus (8.4%), primary yolk (5.8%), secondary yolk (2.31%) and tertiary yolk (1.52%), germinal vesicles migration (30.5%) and germinal vesicles breakdowns (75.2%) were recorded during the study period (Fig.12).

The mean size of the oocytes was range from 35.6 µm to 706.67 µm during the study period. The smallest size was occurred in Chromatin nucleolus stage and the largest was in germinal vesicle migration stage.

Figure 12: Monthly cell composition (%) of *Polynemus paradiseus*
Figure 13: Measurement oocyte diameter for Polynemus paradiseus

Discussion

In the recent study macroscopic examination of the ripe ovaries were rather different. Paired ovaries were fused at the dorsal end. The male testes are thin slender shapes. Among teleost fishes, the testes are generally a paired organ that develops longitudinally, elongating horizontally in relation to the body axis, despite the fact that testes morphology varies among species and they are located either dorsally or ventrally in the abdominal cavity (Helfman et al., 1997).

The peak value of GSI was found once a year during the study period. According to this result, the value of GSI was peak in May from the studied fishes, Polynemus paradiseus but Thida Aung (2006) mentioned that the peak value of GSI of the same species was in July. These differences in GSI among the same species could be caused by different in food resources, environmental temperature or evolutionary adaptation of different population to the specific ecological properties of specific ecosystem.

The gonadosomatic index GSI is an important tool in establishing the breeding period of animals and fish (Assem et al., 2015; Saxena, 1986). The liver has the role in the ovarian development therefore, the hepatosomatic index HSI was negatively correlated with gonadosomatic index GSI. The GSI and HSI of male and female Polynemus paradiseus showed irregular patterns in the present finding. Singh and Srivastava (2015) pointed out the variation between GSI and HSI of Heteropenustes fossilis which exposed to higher sub-lethal concentrations.

Different authors have divided the gonads developmental stages according to their prominent features of changes during the process of gametogenesis (Gopalakrishnan, 1991; Saat and Veersalu, 1990, Maddock & Burton, 1999, Jacob, 2005). Thida Aung (2006) described five macroscopically stages of testes and ovary and six microscopically stages of testes and seventh stages of ovary from her studied fish species, Polynemus paradiseus. On the basis of gross morpho-histological changes occurred in the ovary and testes, occurrence of developing oocytes was divided into eight stages and observation of developing spermatogonia was divided into four stages from studied fish species during the study period.

Oogonia give rise to immature oocytes with multiple peripheral nucleoli, in which the number of nucleoli was not more than 20 in the present study. Dutt and
Govindan, (1975) reported that the lipid vesicles in *Anabas scandens* moved to the peripheral ooplasm from the center. In the present study, during oocyte, the oil droplets were found to coalesce and formed a single large oil droplet in the cytoplasm, which might help the eggs to keep buoyant but the cytoplasm was filled with yolk granules instead of lipid droplets.

During oogenesis, the size of the oocytes increased considerably due to a progressive accumulation of lipid and protein-yolk within the cytoplasm by vitellogenesis (Montchowui *et al.* 2012). The present study agrees with this statement as the sizes of oocytes were larger more nearer to the germinalvesicle breakdown stage, ripe stage.

As a result of histological stages of testes, accumulation of unstained spermatogonia and dot like structure of stained spermatocytes were dominance over immature stages and all stages (spermatogonia, spermatocytes, spermatids and spermatozoa) were observed in developing. Abundance of deep stain, basophilic and oval shaped head with distinct tail spermatozoa were observed in maturation stages during this study period.

According to the finding result, the highest mean value of GSI correspond to where the gonads were at ripe and while the lowest value indicate spent stage or starting developing stage. All developmental stages of ovaries were found in the month where the values of GSI were highest. However percentage of germinalvesical migration and germinalvesicle breakdown stages were dominance over the other stages. In the finding of this result, the highest percentage of germinalvesical migration and germinalvesical breakdown was occurred in May.

The irregular pattern of GSI and HSI of studied species were now an evidence of potential indicator which directly reflect the hazard conditions of aquatic medium. This study is suggestive to take necessary step to monitor the aquatic medium to protect the fish reproductive physiology and fish population as a whole. Indeed, the present finding of the different developmental stages of gonads of *Polynemus paradiseus* from natural brackish water, Twante Canal will provide valuable information of fishery resources concerning with their breeding season and also evidence outcomes for closing season to conservation and management on threatened fishes from natural water fishery resources.

**References**


Wine Brewing as a Sustainable Economic Activity in Empowering Women: A Case Study of Andro Village, Manipur (India)

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Abstract

The research presented here contributes to the understanding of the women rice wine brewers of Andro. The study emphasizes various factors affecting empowerment. A sample of 308 respondents have been chosen for the study through a random sample generated through a random sampling process. The Statistical Package for Social Sciences (SPSS) is used for the data analysis purpose, descriptive statistical tools like percentage and Chi Square test has been applied to test the hypotheses. The statistical analysis shows significant relationship between age and the in Decision Making, Economic activities, Autonomy, Political participation & Social Attitude.

Keywords: Andro, Empowerment, Political Participation, Rice Wine

Introduction

The household industry is a type of small industry performed with a small capital investment in the premise of a house by an individual member or members of the family itself. It is found everywhere in the world. Though this type of industry is small in its size, it has a great economic and social significance for sustaining and supporting livelihood of many sections of the society. Majority of the population in Manipur depends on agriculture as their primary activity. This can be attributed to the absence of large industries which can provide gainful employment to the increasing population from time to time. As the agricultural land is very limited; there is not much scope for further expansion of agricultural activities. In such condition, the importance of household micro and small scale industries should not be overlooked. Till now, handloom (weaving) remained one of the most dominant household income generating activities in Manipur as majority of rural households has a weaving loom. Only women are engaged in weaving in Manipur. There are other household industries also like carpentry, cane and bamboo works, embroidery, basket making, tailoring and stitching, poultry farming and wine brewing etc. which provide a large number of people with part-time or full-time employment in Manipur. Besides, women take major role in all these household micro and small scale industries.

Among the household industries in Manipur; in some localities, wine brewing from rice is a traditionally and culturally inherited practice for generations. The wine brewing methods and practices has unique and distinctive features for each of these different localities. Rice wine brewing is practice in some definite areas by the Loi and some Tribal communities in Manipur. The Loi people of Andro, Sekmia,
Phayeng, Khurkhul, Koutruk and Chairen; tribal communities such as Kabui tribes residing in different areas in Manipur practise their own traditional methods of wine brewing. Among the wine brewing villages in Manipur, Andro a remote village on the outskirt of the eastern side of Imphal Valley which is part of the Imphal East in Manipur is one of the most popular rice wines producing village. The Rice wine of Andro is taken to be the best in terms of quality and flavor.

This small scale household brewing industry support income generation to the population of this village. Women have been shouldering major role in these wine brewing activities; a legacy followed for generations. These activities serve as a backbone for this locality. Thus their role in the family and the society cannot be undermined and it ensures women empowerment.

Geographical setting and village economy of Andro

Andro village which is situated at the eastern remote corner of Imphal Valley in Manipur. It lies at about 25 Kms from Imphal City. This village is surrounded by Thaiyong Village in the North, Uchon Village in the South, Kamu Koireng Village in the East, and Nongmaiching Hills in the West. This village touches the latitudes of 24° 77’ North and longitude of 94° 6’ East. The climate of Andro exhibits a typical Monsoon type of climate. The yearly range of temperature range is about 12° C. Summer is generally hot and wet, while winter is cold and dry. In summer maximum temperature is obtained in May and sometimes by about September. Minimum temperature recorded in January which drops to near freezing but them time temperature ranges between 14° -16° C. The amount of rainfall is around 150 cm – 200 cm. Most of the rainfall occur in the month of June to Sept. The combination of ample amount of rainfall accompanied with warm temperature is very beneficial for rice cultivation. Rice is the most important crop cultivated in this region. Agriculture is the main occupation; about 98% of the total geographical area of Andro is agricultural land. Rice is the main crop which occupies 91.06% of the total agricultural land followed by wheat (4.89%), maize (3.3 % and other crops (0.89%). Majority of the population engaged in Agriculture and its allied activities like wine brewing and pottery making.

Objectives of the Study

The overall objectives of the study are:
1. To access the income generation from wine brewing and its support to their livelihood
2. To study the impact of women’s income level increase on their involvement in family decision making and autonomy
3. To examine generation of more income affect the women’s role in political participation and social attitude
4. To analyze whether differences in age and education level has an impact on their involvement in making vital decisions

To established the above objectives following null hypotheses are postulated.

Null Hypotheses:
(i). H01: Age Group has no effect on the involvement in Decision Making, Economic activities, Autonomy, Political participation & Social Attitude
(ii). $H_02$: Education Level has no effect on the involvement in Decision Making, Economic activities, Autonomy, Political participation & Social Attitude

### Background of the Study

Women’s income generation has a definite and direct impact on women’s empowerment. Sell & Minot (2018) opined that as income level improves, women shoulder a larger role in decision-making resulting in improvement of household well-being. They further added age and education are associated with higher empowerment and understanding the patterns influencing women's empowerment in rural areas is important.

Wouterse (2016) observed that the income-earning potential of an individual is vital determinant of the distribution of bargaining power within the household. Households do not act in one entity when making decisions, the power of individuals to exert their own preferences may determine welfare outcomes like spending on nutritious foods and others.

Lack of public and social support, traditional view, lack of confidence, lack of financial means, lack of capacity building opportunities, lack of access to technology gender discrimination, violence were major obstacles refraining women from political participation (Hawkey, 2007). Earlier studies indicate higher numbers of women representation in parliament contributes to stronger attention to women's issues. Women's political participation is a fundamental prerequisite for gender equality and genuine democracy. Equitable representation ensures women's direct engagement in public decision-making resulting in better accountability to women (UN Women, n.d.). Studies conducted by OECD has also noted that supporting women in political participation is essential for advancing matters of significance to women on national agendas, which in turn benefits both women and men (Bijlani, 2017).

In light of the above studies on women empowerment and various factors which by and large impacts the socio-economic conditions of women, the case of analyzing women rice wine brewers of Andro would be highly relevant. Various factors like autonomy, social attitude, awareness and political participation along with economic and social empowerment has been considered in the present study.

### Research Methodology

Survey carried out on 342 respondents through random sampling technique. Feedbacks from only 308 respondents were used for this study. 34 samples are rejected due to incomplete information. Information and feedbacks are collected by using questionnaire. The questionnaire touches the different aspects like empowerment, economic aspects, autonomy, political participation and social attitudes.
5.1 Research Instrument
Both open ended and closed ended questionnaire were used to get the opinion from the respondents.

1.2 Limitations of the Study
Few limitations for this study are as follows:
- The study is limited to areas of Andro Village
- The study is restricted to women brewing rice wine only
- Reluctance on the part of the respondents to furnish details is also one bottleneck
- Dynamic changes in the business environment implicates that the findings may be subjected to changes in due course of time.

1.3 Data Analysis
SPSS package is used to analyze the data collected through structured questionnaire. Descriptive statistics like percentage and Chi Square test are mainly used to test the hypotheses.
The results of the analysis are discussed and presented using the following tables.

Table 1
Profile of the Respondents

<table>
<thead>
<tr>
<th>Personal information</th>
<th>No. of respondents</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-34</td>
<td>23</td>
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</tr>
<tr>
<td>35-44</td>
<td>89</td>
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</tr>
<tr>
<td>45-54</td>
<td>126</td>
<td>40.9</td>
</tr>
<tr>
<td>55-64</td>
<td>59</td>
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</tr>
<tr>
<td>65 &amp; above</td>
<td>11</td>
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<tr>
<td>Illiterate</td>
<td>23</td>
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<tr>
<td>Primary &amp; middle</td>
<td>85</td>
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<td>Graduate</td>
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<tr>
<td>Total</td>
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</table>

Source: Primary Data

From the above Table 1, majority (above 40%) of the respondents belong to the age Group 45 – 54 and above 35% of them have completed Secondary Education and above.
Table 2
**Family Income, Earning, Size and Earning Members in the Family**

<table>
<thead>
<tr>
<th>Income &amp; Earning</th>
<th>No. of respondents</th>
<th>Percent (%)</th>
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<td>10000 &amp; below</td>
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<td>Above 40000</td>
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<td>Above 40000</td>
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<td>2.9</td>
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<td>2</td>
<td>0.6</td>
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<tr>
<td>Total</td>
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<td>100.0</td>
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</tbody>
</table>

Source: Primary Data

From the above Table 2, majority of the respondents belong to the middle income group i.e. above 26% in the income Group (Rs. 10,001 – Rs.20,000) and above 28% in Rs. 20,001 – 30,000/- while a sizeable section of the respondents (above 20%) belong to the high income bracket i.e. earning more than Rs. 40,000 per month. An almost equal sizeable section of the respondents (approx. 50 %) belongs to family size of above five (5) and below five (5). Most of the respondents (above 77%) do not have any income earner from other jobs within the family.

Table 3
**Decision making on Vital Issues like Family Planning, Property, Daughter’s Schooling, Marriage and Birth Controls**

<table>
<thead>
<tr>
<th>Involvement in Decision Making</th>
<th>No. of respondents</th>
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</thead>
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<tr>
<td>Buying &amp; Selling of property</td>
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<td>282</td>
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<td></td>
<td>No</td>
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<td>Sending daughter to school</td>
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<td>No</td>
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<tr>
<td>Children's marriage</td>
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</tr>
<tr>
<td>Use of birth control methods</td>
<td>Yes</td>
<td>217</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>91</td>
</tr>
<tr>
<td>Total</td>
<td>308</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Primary Data

From the Table above, most of the respondents (above 90%) are involved in decision making process pertaining to vital issues on Family Planning, Buying &
Selling of property, Sending daughter to school and Children’s marriage. While still above 70% exercises their decision on the use of birth control methods but then nearly 30% does not have a say on this matter.

**Table 4**

<table>
<thead>
<tr>
<th>Economic Activities</th>
<th>No. of respondents</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary economic activity</td>
<td>308</td>
<td>100.0</td>
</tr>
<tr>
<td>Improvements in repairs, renovation in their home</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>215</td>
<td>69.8</td>
</tr>
<tr>
<td>No</td>
<td>93</td>
<td>30.2</td>
</tr>
<tr>
<td>Confidence in meeting financial crisis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>214</td>
<td>69.5</td>
</tr>
<tr>
<td>No</td>
<td>94</td>
<td>30.5</td>
</tr>
<tr>
<td>Arrange Credit and Other Input in Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>308</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Source: Primary Data*

From the table above, the primary economic activity of all respondents is wine brewing. Majority (around 70%) of the respondents use the income earned from wine brewing for repairing and renovation of their homes. Besides, majority of them acknowledges the increased confidence level and they can arrange credit and other input in time.

**Table 5**

<table>
<thead>
<tr>
<th>Autonomy</th>
<th>No. of respondents</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crucial Decision in Purchase of raw materials, pricing of product of your activity</td>
<td>Yes</td>
<td>308</td>
</tr>
<tr>
<td>Plan Work and get things done by others</td>
<td>Yes</td>
<td>222</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>86</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>308</td>
</tr>
</tbody>
</table>

*Source: Primary Data*

From the table above, all respondents experience full autonomy in matters directly link to purchase of raw materials and pricing of products. Majority (above 72%) plan their work and also get their things done by others.

**Table 6**

<table>
<thead>
<tr>
<th>Political participation</th>
<th>No. of respondents</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness of Reservations in Panchayats</td>
<td>Yes</td>
<td>168</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>140</td>
</tr>
<tr>
<td>Involved in Local Level Politics</td>
<td>Yes</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>207</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>308</td>
</tr>
</tbody>
</table>

*Source: Primary Data*
From the above Table, in matters of political participation, a slight majority (around 55%) of the respondents are aware of reservations in local self-government (Panchayats). Significantly, above 45% of the respondents is not aware of any reservations in Panchayats. Overall, above 67% of the respondents are not involved in local level politics.

Table 7
Social Attitude

<table>
<thead>
<tr>
<th>Social Attitude</th>
<th>No. of respondents</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment from your spouse</td>
<td>Usual</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>More respectful</td>
<td>306</td>
</tr>
<tr>
<td>Involvement in all decisions of the family increased</td>
<td>Yes</td>
<td>307</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>1</td>
</tr>
<tr>
<td>After generating income from wine brewing, has your self-confidence Increased</td>
<td>Increased</td>
<td>308</td>
</tr>
</tbody>
</table>

Source: Primary Data

From the above Table 7, remarkable changes in the social attitude are observed. Majority of the respondents (above 99%) experiences a more respectful treatment from their spouses. Drastic increased in the involvement (above 99%) in all decisions on matters related to the family and cent percent (100%) of the respondents opined that their self-confidence has increased after income generation from wine brewing.

Table 8
Age and involvement in Decision Making, Economic activities, Autonomy, Political participation & Social Attitude

<table>
<thead>
<tr>
<th>Involvement in</th>
<th>Age</th>
<th>Total Chisquare</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
</tr>
<tr>
<td>Buying &amp; Selling of property</td>
<td>Yes</td>
<td>21</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Sending daughter to school</td>
<td>Yes</td>
<td>23</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Use of birth control methods</td>
<td>Yes</td>
<td>15</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>8</td>
<td>24</td>
</tr>
<tr>
<td>Improvements in repairs</td>
<td>Yes</td>
<td>15</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>15</td>
<td>64</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confidence in meeting</td>
<td>Yes</td>
<td>16</td>
<td>63</td>
</tr>
<tr>
<td>financial crisis</td>
<td>No</td>
<td>7</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plan Work and get</td>
<td>Yes</td>
<td>15</td>
<td>46</td>
</tr>
<tr>
<td>things done by others</td>
<td>No</td>
<td>8</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Awareness of</td>
<td>Yes</td>
<td>15</td>
<td>46</td>
</tr>
<tr>
<td>Reservation in Panchayats</td>
<td>No</td>
<td>8</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Involved in Local Level</td>
<td>Yes</td>
<td>6</td>
<td>38</td>
</tr>
<tr>
<td>Politics</td>
<td>No</td>
<td>17</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment of your spouse</td>
<td>Usual</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>More respectful</td>
<td>23</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>23</td>
<td>89</td>
</tr>
<tr>
<td>Involvement in all</td>
<td>No</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>decisions of the family</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>increased</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>23</td>
<td>89</td>
</tr>
</tbody>
</table>

Significance at P<0.05

Source: Primary Data

(Whereas I -> 25-34 Age Group; II -> 35-44 Age Group; III -> 45-54 Age Group; IV -> 55-64 Age Group; V -> 65 & above Age Group)

From the above Table, it is observed that there is a highly significant relationship between age and increase in the involvement of decision making (Social Attitude) with p-value <0.001. While all other factors like decision making, economic activities, autonomy and political participation are found to be insignificant with p-value above 0.05.
Table 9
Education and involvement on Decision making, Economic Activity, Autonomy, Political Participation & Social Attitude

<table>
<thead>
<tr>
<th>Involvement on</th>
<th>Education</th>
<th>Total</th>
<th>Chi-square</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Illit</td>
<td>P&amp;M</td>
<td>Sec</td>
<td>Grads</td>
</tr>
<tr>
<td>Involvement in Decision Making on</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buying &amp; Selling</td>
<td>Yes</td>
<td>21</td>
<td>78</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>2</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Involvement in Decision Making on</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daughter Schooling</td>
<td>Yes</td>
<td>23</td>
<td>85</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Involvement in Decision Making on</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>use of Birth Control</td>
<td>Yes</td>
<td>18</td>
<td>62</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>5</td>
<td>22</td>
<td>39</td>
</tr>
<tr>
<td>Improvement in repairs, renovation in</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>their home</td>
<td>Yes</td>
<td>18</td>
<td>63</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>5</td>
<td>22</td>
<td>41</td>
</tr>
<tr>
<td>Confidence in meeting financial</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>crisis</td>
<td>Yes</td>
<td>18</td>
<td>63</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>5</td>
<td>22</td>
<td>41</td>
</tr>
<tr>
<td>Plan Work</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>18</td>
<td>66</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>5</td>
<td>19</td>
<td>39</td>
</tr>
<tr>
<td>Awareness of Reservations in Panchayats</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>10</td>
<td>47</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>13</td>
<td>38</td>
<td>51</td>
</tr>
<tr>
<td>Involved in Local Level Politics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>7</td>
<td>32</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>16</td>
<td>53</td>
<td>79</td>
</tr>
<tr>
<td>Treatment of your spouse</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Usual</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>More respectful</td>
<td>23</td>
<td>85</td>
<td>10</td>
</tr>
</tbody>
</table>
Involvement in all decisions of the family increased

<table>
<thead>
<tr>
<th>Yes</th>
<th>23</th>
<th>84</th>
<th>11</th>
<th>0</th>
<th>307</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>85</td>
<td>11</td>
<td>0</td>
<td>308</td>
</tr>
</tbody>
</table>

Significance at $P<0.05$

Data
(Whereas Illit. -> Illiteracy; P&M -> Primary and Middle; Sec. -> Secondary; Grad. -> Graduation)

From the above Table, it is observed that there is no statistical significance found between education and Involvement in Decision Making, Economic Activity, Autonomy, Political Participation and Social Attitude as the p-value is greater than 0.05.

Findings

Most of the respondents belong to the middle age Group 45-54 and also they tend to be educationally qualified (completed secondary and above level education). Most of the respondents earn an income in the range Rs. 10,000 – Rs. 40,000 per month (approx. $145 - $575 per month)

Income generation has empowered most of the respondents to be a part of the decision making process on vital issues like family planning, Property buying and selling, daughter’s schooling and child’s marriage and use of birth control methods. Wine brewing is the major economic activity and income earned from wine brewing is utilized in building immovable assets. Confidence level has risen and exercise full autonomy on fresh material inputs. Social attitudes towards women have seen drastic improvements. Lastly but not the least, there is a close linkage of age to the increase in the involvement of decision making on social attitude

Recommendations and Conclusions

The rice wine produced at Andro is well known for its quality and flavor. Therefore, opportunity for exploiting this wine through proper packaging and marketing can yield high returns to the women brewers. High quality spirit content makes the rice wine suitable for use in medicinal and drugs. If rice wine brewing is systematically controlled and legalized in Andro and other adjoining areas in Manipur, it may be the single industry which can easily transform the economic fortune of the state.

Only native rice is used for brewing good quality rice wine. The study made that the rice wine brewing in Andro may easily become a powerful agent of earning state income if a positive policy is adopted by the authority. Modern methods and scientific equipments can easily boost up this industry. The restrictions imposed in the large scale production should be reconsidered and the production, quality control and selling in the market should be legalized and be properly controlled by the Government.
References


Sen, S. (1992). *Tribes and caste of Manipur*


Water Parameter and Quantity of Microorganisms from the Natural Pond, Loilem Township, Southern Shan State

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² Demonstrator, Department of Zoology, Panglong University

Abstract

The research was reported the water parameter and quantity of microorganisms from natural pond, Loilem Township, Southern Shan State. The objective was to know whether the natural pond is suitable or not to aquatic organisms and animals. The results of water parameter were within the permissible limit assigned by WHO standard except colour and turbidity. Four study sites were divided on this pond and the water samples were monthly collected. Four groups of microorganisms observed were phytoplanktons, diatoms, cyanobacteria and zooplanktons. Among these four groups, the largest total number percentage (%) was recorded as 32.42% in phytoplankton group, 29.41% in diatom group and 24.59% in zooplankton group during the study period. The lowest total number percentage (%) was 13.57% in cyanobacteria group. It is therefore the natural pond is recommended as non-blooming situation. In addition, non polluted water is ready to drink for some birds and animals that are live in and around these environs. It may be concluded that the water physicochemical parameters and quantity of microorganisms from this pond is suitable condition for aquatic organisms and animals as well as recreation for people.

Keywords: natural pond, microorganisms, water quality and quantity.

Introduction

In natural pond, one factor of water pollution is based on the effect of water quality and quantity. It is necessary to study on the water quality which is favorable for the good water condition in natural pond. In addition, the significantly influenced of microorganisms may lead to conclude the quality and quantity of water in pond. Water pollution is one of the main crises faced by millions of people and majority of water-borne diseases are spreading because of the poor quality of water (El-Adly et al., 2008).

Microorganisms are found in the water of natural pond and they can be observed blooming type under favorable conditions such as light, nutrients and environmental condition. Blooming microorganisms in the water gave positive and negative effect of their environment and aquatic animals. It is therefore aquaculturists were investigated microorganisms in the fresh water of natural pond and lake. Phytoplankton is microorganism which possesses important roles in the waters, not only as primary producer in food chain but also one of the parameters for fertility level of the waters (Veronica, 2014).

There are 43 species of freshwater fishes found in Loilem Township reported by Nwe Nwe Yin, et al., 2005. The research should be concerned about the
characterization of water quality and quantity which play a vital role in aquatic live food or supplement feed for fish. Live food organisms include all plants (phytoplankton) and animal (zooplankton) lives grazed upon by economically important fishes (Das, et al., 2012). Beside these, some birds and animals around these environs depend to drink water.

This research tend to be investigated the effect of water quality in natural pond are beneficial or harmful to aquatic animals in this pond. The previous studies of the effect of water quality and quantity in natural pond, Loilem Township was lacking to date in Department of Zoology, Panglong University. It may thus be considered for the effect of water quality and quantity in natural pond is needed to examine. Thus it is undertaken on the water quality of in this pond according to the following objectives.

**Objectives of the study**

1. To investigate and determine the water quality of natural pond, Loilem Township,
2. To study and record the quantity of microorganisms in water sample,
3. To know about the pond is suitable or not for aquatic organisms and animals.

**Research Methodology**

1. **Study site and period**
The study site is natural pond, Loilem Township which situated at latitude 21° 18' 54" N and 21° 19' 41" N, and at longitude 95° 2' 38" E and 95° 3' 43" E. It is a significant area of natural freshwater pond in in Loilem Township. The length is 2334 ft and the widest point is 1867 ft in width (Fig 1). The study period was carried out from June 2016 to June 2017.

2. **Sample collections**
The water samples were monthly collected from the study site of natural pond, Loilem Township for the study. There were four study sites divided on this pond: Site I was east of pond, Site II was west of pond, Site III was south of pond and Site IV was north of pond, Loilem Township (Fig.2). From each study site, the water sample put into the sterile-bottles and immediately taken to the laboratory of Zoology Department, Panglong University.

3. **Equipment and preparation methods**
Light microscope, beaker, micropipette and pointer were used. Firstly, each collected water sample from sterile plastic bottles was placed settable for sedimentation. Secondly, after sedimentation the supernatant and bottom water of each sterile plastic bottles were carefully put in beaker. Thirdly, water sample in beaker was carefully stirring and than 0.1 ml (one drop of water) was collected with micropipette and placed on a glass slide and covered with cover slip for the observation of microorganisms.

4. **Identification methods**
The taxonomic identification of microorganism was immediately carried out after observation of water sample. This involved identification of dominant microorganism in the water sample as well as the composition of it. Carefully examined by counting the number of cells under light microscope (with the
magnification of x100 and x400); at least 5 slides were observed. The occurrence of microorganisms were roughly recorded on each slide as abundance (n > 20), few (n > 10) and rare (n < 5). The average percentage (amount and compositions) of microorganisms on the glass slide were also calculated.

The occurrence and quantity of microorganisms were roughly recorded on each slide by the method of Jochem (2001) and Elder (2003). Microorganisms were identified down to the genus and species level according to Desikachary (1959), Edmondson (1966) and Bellinger and Sige (2010). The recorded microorganisms were taken as microphotographs (with the magnification of x40, x100 and x400) by using camera attached to digital microscope at Department of Zoology, Taunggyi University and Mandalay University.

5. Water analysis

The analysis of water was made in the Laboratory of Water Supply and Sanitation Department, Mandalay City Development Committee (MCDC) for determination of physicochemical factors such as pH, colour, turbidity, conductivity, calcium, total hardness, magnesium, chloride, total alkalinity, total iron, manganese and sulphate.

6. Weather data collection

Temperature, humidity and rainfall data were obtained from Department of Meteorology and Hydrology, Loilem Township, Southern Shan State, during the study period.

Results

In the present study, there are four groups of microorganisms divided were phytoplankton, diatom, cyanobacteria and zooplankton. Monthly recorded microorganisms found in water sample from natural pond was shown in Fig. 3 and total composition percentage (%) of microorganisms under four groups in terms of number was also shown in Fig. 4.

Microorganisms in water sample from natural pond in terms of grouping by genera were shown in Table 1. Microorganisms in water sample from natural pond under phytoplanktons group with phyla in terms of quantity were shown in Table 2. Microorganisms in water sample from natural pond under diatoms and cyanobacteria group with phyla in terms of quantity were shown in Table 3. Microorganisms in water sample from natural pond under zooplanktons group with phyla in terms of quantity were shown in Table 4.
Figure 1: Location map of natural pond, Loilem Township (Source: Google earth)

Figure 2: Four sample collection sites of natural pond, Loilem Township (Source: Google earth)
Figure 3: Monthly record of microorganisms found in water sample from natural pond

Figure 4: Total composition percentage (%) of microorganisms under four groups in terms of number
Table 1
Microorganisms in water sample from natural pond in terms of grouping by genera names

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of the genera in groups</th>
<th>Phytoplanktons</th>
<th>Diatom</th>
<th>Cyanobacteria</th>
<th>Zooplanktons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chlorococcum</td>
<td>Stauroneis</td>
<td>Chroococcus</td>
<td>Actinosphaerium</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Eudorina</td>
<td>Neidium</td>
<td>Merismopedia</td>
<td>Acanthocystis</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Pediastrum</td>
<td>Navicula</td>
<td>Oscillatoria</td>
<td>Actinophry</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Westella</td>
<td>Caloneis</td>
<td>Lyngbya</td>
<td>Amoeba</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Tetraedron</td>
<td>Gyrosigma</td>
<td></td>
<td>Dinobryon</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Oocystis</td>
<td>Amphipleura</td>
<td></td>
<td>Euglypha</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Coelastrum</td>
<td>Fragilaria</td>
<td></td>
<td>Difflugia</td>
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</tr>
<tr>
<td>8</td>
<td>Scenedesmus</td>
<td>Synedra</td>
<td></td>
<td>Centropyxix</td>
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</tr>
<tr>
<td>9</td>
<td>Schroederia</td>
<td>Epithemia</td>
<td></td>
<td>Arcella</td>
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</tr>
<tr>
<td>10</td>
<td>Cosmarium</td>
<td>Gomphonema</td>
<td></td>
<td>Coleps</td>
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<tr>
<td>11</td>
<td>Closterium</td>
<td>Pinnularia</td>
<td></td>
<td>Tetrahymena</td>
<td></td>
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<tr>
<td>12</td>
<td>Staurastrum</td>
<td>Cymbella</td>
<td></td>
<td>Parameciun</td>
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<tr>
<td>13</td>
<td>Phithophora</td>
<td>Amphora</td>
<td></td>
<td>Euplotes</td>
<td></td>
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<tr>
<td>14</td>
<td>Ulothrix</td>
<td>Nitzschia</td>
<td></td>
<td>Stylonchya</td>
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</tr>
<tr>
<td>15</td>
<td>Euglena</td>
<td>Surirella</td>
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<td>Vorticella</td>
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<tr>
<td>16</td>
<td>Phacis</td>
<td>Cyclotella</td>
<td></td>
<td>Notholca</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Peranema</td>
<td>Diatoma</td>
<td></td>
<td>Lepadella</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Peronia</td>
<td>Peronia</td>
<td></td>
<td>Keratella</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Tribonema</td>
<td>Tribonema</td>
<td></td>
<td>Argonotholca</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td>Monostyla</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td>Macrocylop</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td>Cyclops</td>
<td></td>
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<tr>
<td>23</td>
<td></td>
<td></td>
<td></td>
<td>Daphnia</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td>Phagocata</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td>Lepidodermella</td>
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</tr>
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</table>
### Table 2
Microorganisms in water sample from natural pond under phytoplankton group with phyla in terms of quantity

<table>
<thead>
<tr>
<th>Phylum</th>
<th>Genus</th>
<th>Abundance</th>
<th>Few</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorophyta</td>
<td>Chlorococcum</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eudorina</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pediasstrum</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Westella</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Tetraedron</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oocystis</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coelastrum</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Scenedesmus</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Schroederia</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Cosmarium</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Closterium</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Staurastrum</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Pithophora</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ulothrix</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Euglenophyta</td>
<td>Euglena</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phacus</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Peranema</td>
<td>+</td>
<td></td>
</tr>
</tbody>
</table>

abundance (n > 20); few (n > 10); rare (n < 5); n=number
Table 3
Microorganisms in water sample from natural pond under diatom and cyanobacteria groups with phyla in terms of quantity

<table>
<thead>
<tr>
<th>Phylum</th>
<th>Genus</th>
<th>Abundance</th>
<th>Few</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chrysophyta</td>
<td>Stauroneis+</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neidium   +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Navicula  +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Caloneis  +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gyrosigma +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Amphipleura +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fragilaria +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Synedra   +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Epithemia +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gomphonema+</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pinnularia+</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cymbella  +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Amphora   +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nitzschia +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Surirella +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cyclotella+</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diatoma   +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Peronia   +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tribonema +</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyanophyta</td>
<td>Chroococcus+</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Merismopedia+</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oscillatoria+</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lyngbya   +</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

abundance (n > 20); few (n > 10); rare (n < 5); n=number
Table 4
Microorganisms in water sample from natural pond under zooplankton group with phyla in terms of quantity

<table>
<thead>
<tr>
<th>Phylum</th>
<th>Genus</th>
<th>Abundance</th>
<th>Few</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protozoa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Actinosphaerium</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Acanthocystis</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Actinophrys</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Amoeba</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Dinobryon</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Euglypha</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Diffugia</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Centropyxis</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amoebozoa</td>
<td><em>Arcella</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ciliophora</td>
<td><em>Coleps</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Tetrahymena</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Paramecium</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Euplotes</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Stylonychia</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Vorticella</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rotifera</td>
<td><em>Notholca</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Lepadella</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Keratella</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Argonotholca</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Monostyla</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arthropoda</td>
<td><em>Macrocyclop</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Cyclops</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Daphnia</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Platyhelminthes</td>
<td><em>Phagocata</em> +</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chaetoida</td>
<td><em>Lepidodermella</em> +</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

abundance (n > 20); few (n > 10); rare (n < 5); n=number

Discussion
This research was reported that the water quality and quantity of natural pond, Loilem Township and was determined suitable or not for aquatic organisms and animals live in and around these environs.
The most common weather indicators are rainfall, humidity and temperature. In Loilem Township, the average rainfall was 6.06 Inch and average humidity was 81.43%. The average minimum temperature was 13.8°C and maximum was 26.26°C during the study period. These values were fall within the range for aquaculture recommended. The temperature range of 29.8-30.4°C is good for the phytoplankton (Veronica, et al., 2014). The polluted or nonpolluted water quantity and quality depends on the environmental, geological, biological and climatological condition. Although the plankton blooms that result from fertilization can be highly desirable, too much bloom can cause problems (Brunson, et al., 1999).

In this research, the pH value was 7.1, and 7-8.5 as in WHO standard. The measurement of pH is to know acidity or alkalinity of water and the pH scale 7 is neutral. The result show pH value of water is suitable for aquatic microorganisms and natural this pond ecosystem. Thus pH of water from natural this pond is found to be the range between neutral and alkaline condition. The result agree to that of Ahmed, et al., 2003, they observed the value of pH in the river water found to range from neutral to alkaline (7.0-8.0) at the sampling stations.

The colour of water sample was >50, and 5 in desirable by WHO standard but imperative was 50. This result showed the colour of water is imperative condition compared to WHO standard. The turbidity of water sample in this this pond is 58.9, and 5 NTU in desirable and 25 NTU in imperative as WHO standard. The result also shows that more than imperative condition compares to WHO standard. The conductivity is show 475 micros/cm in the present examination.

According to the chemical analysis, the parameters such as Calcium (Ca) is 64 ppm, total hardness (CaCO₃) is 168 ppm, Magnesium (Mg) is 5 ppm, Chloride (Cl) is 8 ppm, total alkalinity is 160 ppm, total iron (Fe) is >0.2 ppm, Manganese (Mn) is 0.03 ppm and Sulphate (SO₄) is <200 ppm in the present study. As desirable and imperative chemical analysis of WHO standard, for Ca 75 ppm and 200 ppm, CaCO₃ 100 ppm and 500 ppm, Mg 30 ppm and 150 ppm, Cl 200 ppm and 600 ppm, total alkalinity 200 ppm and 500 ppm, Fe 0.1 ppm and 1.0 ppm, Mn 0.05 ppm and 0.5 ppm, SO₄ 200 ppm and 400 ppm respectively. Therefore, the result values of all chemical parameters showed within the acceptable range and permissible value.

The physicochemical parameters of freshwater are important to the population of microorganisms in the water and animals. The present finding showed physicochemical parameters of water are suitable for aquatic microorganisms and animals except colour and turbidity. The higher imperative result of colour and turbidity may be possible that during the water sample collection, this natural this pond was prepared to Mya Kan Thar Resort Park by digging soil.

The present results revealed that there are four groups of microorganisms such as phytoplankton's group (phyla Chlorophyta and Euglenophyta), diatom group (phylum Chrysophyta), cyanobacteria group (phylum Cyanophyta) and zooplanktons group (phyla Protozoa, Amoebzoa, Ciliophora, Rottifera, Arthropoda, Platyhelminthes and Chaetoide) divided from the results of present study.

Among these four groups, the largest total number percentage (%) was recorded as 32.42% in phytoplankton group followed by 29.41% in diatom group and 24.57% in zooplankton group during study period. The lowest total number percentage (%) was also recorded as 13.57% in cyanobacteria group. According to the results phytoplankton, diatom and zooplankton groups are dominant species in natural
this pond. However blooming condition was not found when water sample collection and thus it can be assumed non-polluted still now.

The results of microorganism's composition were found nearly the same and distinctly not differ. In food chain, phytoplankton is eaten by herbivores (such as zooplankton) which will also be eaten by larger carnivores (fish and others) and etc. (Veronica, et. al., 2014). However the lowest total number and genus percentage was found in cyanobacteria group.

Nevertheless, many microorganisms community are altogether observed in this pond. The microorganisms serve as the base of the aquatic food web, providing an essential ecological function for all aquatic life. They have also high protein content not only which is abundantly occurred in natural this pond but also suitable live food for fishes. New New Yin, et al. (2006) studied that 26 species of fish were collected from Loilem environ. The research data will be guideline for next study and needed for future study of monitoring this pond.

The research was concluded that physicochemical parameters of water and quantity of microorganisms from natural pond, Loilem Township. Physicochemical parameters of water are within permissible value for aquatic organism's based on the results of the physical examination and chemical analysis. The quantity of microorganisms were found non-blooming situation and divided into four groups such as phytoplanktons, diatoms, cyanobacteria and zooplanktons in natural pond. The dominance group of microorganisms found in water sample was phytoplankton followed by diatom and zooplankton groups. According to the results, it may be concluded that the physicochemical parameters of water and quantity of microorganisms in this lake is suitable condition for aquatic organisms. In addition, non-polluted water is ready to drink for some birds and animals that are live in and around this environ.

**Recommendations**

The water quality and quantity of microorganisms in this pond are also suitable conditions as recreation for people coming to natural pond, Loilem Township. The results will provide a tool for biomonitoring of aquatic status and environmental health in natural aquatic ecosystem. It is therefore the natural pond is recommended as suitable for aquatic organisms and animals.
References


Medicinal uses, Acute Toxicity of Crude Extract and Structure Elucidation of Isolated Spiro Compound from the Root of Myanmar Indigenous Medicinal Plant, *Tribulus Terrestris* L.

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**Abstract**

In this research paper, one of the Myanmar medicinal plants, the root of *Tribulus terrestris* L. was selected for pharmacological investigation and chemical analysis. Firstly, preliminary phytochemical screening of the crude extract of root of *Tribulus terrestris* L. was done by usual methods which inform the presence of alkaloid, flavonoid, glycoside, reducing sugar, saponin, steroid, terpene, polyphenol and phenolic compound, respectively. Furthermore, acute toxicity study of 10 g/kg of ethanol extract of sample showed confidence dose and this sample is practically non-toxic. Moreover, the antimicrobial activities of crude extract of ethyl acetate responded high activities on all tested organisms. In addition, the antimicrobial activities of isolated spiro compound responded medium activities on *Staphylococcus aureus* and *Bacillus pumilus*. The molecular formula of isolated compound could be determined as C$_{26}$H$_{44}$O$_{4}$ by applying FT-IR, $^1$H NMR (500MHz), $^{13}$C NMR (125 MHz), DEPT, HMQC, DQF-COSY, HMBC and FAB-Mass spectral data respectively. The complete structure of isolated compound could be elucidated by DQF-COSY, HMQC and HMBC spectroscopic methods and hydrogen deficiency index is 5. Since, there is no such scientific studies conducted previously in Myanmar, this will be the first research paper on the acute toxicity and the structure elucidation of isolated compound from the root of *Tribulus terrestris* L..

**Keywords**: Acute toxicity, antimicrobial activities, C$_{26}$H$_{44}$O$_{4}$, spiro compound

**Introduction**

Many drugs are commonly used as herbal origin. Some are made from herbal extract. Herbal medicines comprise the whole plant (roots, stems, barks, leaves, fruits and seeds) or just the part of the plant required and often mixing it with other plants. It is used of herbs for their therapeutic or medicinal value and the oldest form of healthcare known to mankind. Herbal medicines and phyto-constituents (chemical compounds) resembles safely and efficacy, produce a little or no side effect when compare to synthetic drugs and have a physiological effect on the body (Sen S, Chakraborty, De and Mazumder, 2009).

During the past decade, traditional system of medicine had become topics of global interest. World Health Organization (WHO) has also urged countries to promote the role of traditional practitioners in the health care system of developing countries and to allocate financial support for the development of traditional medical system (Damintoti, *et al*, 2005).
Tribulus terrestris L. Belongs to family Zygophyllaceae and known as Puncture-vine, caltrop, yellow vine, goat head and devil’s horn in English. Local name in Myanmar is Tsu le. Tribulus terrestris L. is widespread in Mediterranean, subtropical and desert climates worldwide, but now widely distributed in warm regions of Europe, Asia, America, Africa, and Australia (Adaikan et al., 2000; Kostova and Dinchev, 2005; Verdu and Mas, 2006; Dinchev et al., 2007). Tribulus terrestris L. medicinally very important multipurpose herb recently lot of research is reported on its chemical composition. The presence of steroidal glycoside, steroidal saponin, flavanoids and alkaloids in the plant has been reported (Sengpracha, W., 2001).

There are many different systems of traditional medicine, and the philosophy and practices of each are influenced by the prevailing conditions, environment, and geographic area within which it first evolved (WHO, 2005), however, a common philosophy is a holistic approach to life, equilibrium of the mind, body, and the environment, and an emphasis on health rather than on disease.

Research Objectives

The Objectives of the present research work are:
1. To evaluate scientifically acute toxicity of crude extracts of Tribulus terrestris L. (Tsu le)
2. To elucidate the structure of pure bioactive organic compound (spiro compound)
3. To describe the medicinal uses of Tribulus terrestris L.

Research Methodology

3.1 Sample Collection
For chemical analysis and pharmacological investigation, the sample (root of Tsu le) was collected from Butarhown Quarter, Meiktila Township, Mandalay Region, Myanmar. After cleaning, the root of collected sample was cut into small pieces and dried in the shade for about three weeks. Then, the air-dried samples were stored in an air-tight glass bottle to prevent moisture changes, contamination and causing the growth of mold and used throughout the experiment.

3.2 Instrumentation
(i) The FT-IR spectrum
(ii) $^1$H NMR Spectrophotometer (500 MHz)
(iii) $^{13}$C Spectrophotometer (125 MHz)
(iv) FAB-Mass Spectrophotometer
(v) Common laboratory apparatus and equipment were used throughout the research work.

3.3. Materials
(i) Commercial grade reagents and solvents were used.
(ii) Iodine-vapour and UV lamp were used for location of the spots.
(iii) Silica gel G-60, (70-230) mesh was used for column chromatography.
3.4 Study of Acute Toxicity (Litchfield & Wilcoxin, 1949)

3.4.1 Site of Study
These experiments were done at Pharmacology Research Division, Department of Medical Research (DMR), Upper Myanmar (UM).

3.4.2 Materials
(i) 50 Institute of Cancer Research (ICR) mice of both sexes (body weight 20–30 g); (ii) mouse cages (iii) Animal balance
(iv) Different concentrations of ethanol extract of root of Tsu le
(v) Distilled water (vi) Drinking water bottles (vii) Surgical gloves and masks (viii) Picric acid for marking (ix) Cannula and (x) Feeding nozzle

3.4.3 Method
A total of 50 (ICR) mice of both sexes (body weight 20 – 30 g) used in this study were randomly divided into five groups with 10 animals in each. Four were tested groups and one was control group. 10 (ICR) mice in each group were fasted overnight before administration of the ethanol extract of Tsu le root and distilled water. The acute toxicity study was carried out with an oral single administration of ethanol extract of *Tribulus terrestris* L. root at increasing doses of 4 g/kg, 8 g/kg, 10 g/kg and 16 g/kg on the four test groups and 10 ml/kg of distilled water on control group. After administering of the test extract and vehicle orally, mice were kept in individual cage with free access to food and water and were observed toxic effects daily for two weeks. The median lethal dose (LD₅₀) was determined from the number of animals surviving at the end of two weeks period.

Research Results

4.1 Botanical Description of *Tribulus terrestris* L.

| Family name | Zygophyllaceae |
| Botanical name | *Tribulus terrestris* L. |
| Local name | Tsu le |
| English name | Goathead, Puncture vine, small caltrops |
| Part used | Root |
| Flowering time | April to September |

![Figure 1: The Plant and Root of Tribulus terrestris L. (Tsu le)](image)

4.2 Extraction and Isolation of Pure Bioactive Spiro Compound from the Root of *Tribulus terrestris* L. (Tsu le)(Mc Murry, 1999 and Stable, 1965)

The air-dried root sample (700 g) of *Tribulus terrestris* L. was percolated with 95 % ethanol (2.8 l) for two months. During percolation, the crude extract was frequently shaken to achieve maximum extraction of sample. The ethanol extract was filtered and the resulting ethanol soluble solution was evaporated to obtain the concentrated residue. Then, the residue was extracted with ethyl acetate (300 ml). The
ethyl acetate crude extract (2.5 g) was obtained. It was isolated by column chromatographic method using silica gel (70–230 Mesh) as an adsorbent and various ratios of n-Hexane and EtOAc ranging from non-polar to polar were used as eluent. The procedure of isolation of spiro compound had been reported at December 2011. (Yin Yin Aye, 2011).

4.3 Antimicrobial Activities on the Root of Tsu le.

The antimicrobial activities of the crude extracts in three solvent systems were determined by applying Agar-well diffusion method in DCPT, In-Sein, Yangon. The resulting data of different types of organisms are tabulated in Table (1). According to this table, the ethyl acetate extract of Tsu le root informs high activities on six selected microorganisms with inhibition diameter (20–25 mm). Moreover, the ethanol extract also shows medium activities on four microorganisms such as Bacillus subtilis, Staphylococcus aureus, Pseudomonas aeruginosa, Bacillus pumilus and low activity on E. coli.

Table 1

<table>
<thead>
<tr>
<th>Sample</th>
<th>Solvent</th>
<th>n-Hexane</th>
<th>EtOAc</th>
<th>EtOH</th>
<th>Organisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>The root of Tsu le</td>
<td>EtOAc</td>
<td>25mm(++)</td>
<td>15mm(++)</td>
<td>15mm++</td>
<td>Bacillus subtilis</td>
</tr>
<tr>
<td></td>
<td>EtOH</td>
<td>23mm(++)</td>
<td>15mm(++)</td>
<td>15mm(++)</td>
<td>Staphylococcus aureus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21mm(++)</td>
<td>15mm(++)</td>
<td>20mm(+)</td>
<td>Pseudomonas aeruginosa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>22mm(++)</td>
<td>15mm(++)</td>
<td>20mm(+)</td>
<td>Bacillus pumilus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20mm(++)</td>
<td>15mm(++)</td>
<td>20mm(+)</td>
<td>Candida albican</td>
</tr>
</tbody>
</table>

Agar well – 10 mm

| 10 mm ~ 14 mm | (+) | (1) Bacillus subtilis |
| 15 mm ~ 19 mm | (++) | (2) Staphylococcus aureus |
| 20 mm above | (+++) | (3) Pseudomonas aeruginosa |

Figure 2: Antimicrobial Activities of Root of Tsu-le
4.4 Preliminary Phytochemical Screening on the root of Tsu le (Harbone, 1984)

The phytochemical examination of root of Tsu le was tested by usual method. In accordance with phytochemical tests, the root of Tsu le contains flavonoid, alkaloid, glycoside, terpene, steroid, phenol, polyphenol, saponin, and reducing sugar, respectively. These results are shown in table (2).

Table 2
The Result of Phytochemical Screening for Root of Tsu le

<table>
<thead>
<tr>
<th>No.</th>
<th>Constituent</th>
<th>Reagent used</th>
<th>Observation</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Flavonoid</td>
<td>Mg turning, Conc: HCl</td>
<td>Pink color</td>
<td>+</td>
</tr>
<tr>
<td>2</td>
<td>Alkaloid</td>
<td>Dragendorff’s reagent</td>
<td>Orange ppt</td>
<td>+</td>
</tr>
<tr>
<td>3</td>
<td>Glycoside</td>
<td>10% Lead Acetate</td>
<td>Cream ppt</td>
<td>+</td>
</tr>
<tr>
<td>4</td>
<td>Terpene</td>
<td>CHCl₃, Conc: H₂SO₄, Acetic Anhydride</td>
<td>Pink color</td>
<td>+</td>
</tr>
<tr>
<td>5</td>
<td>Steroid</td>
<td>Pet ether, Conc: H₂SO₄, Acetic Anhydride</td>
<td>Green color</td>
<td>+</td>
</tr>
<tr>
<td>6</td>
<td>Phenol</td>
<td>10% FeCl₃</td>
<td>Deep color</td>
<td>+</td>
</tr>
<tr>
<td>7</td>
<td>Polyphenol</td>
<td>10% FeCl₃ + 1% K₃Fe(CN)₆</td>
<td>Greenish blue</td>
<td>+</td>
</tr>
<tr>
<td>8</td>
<td>Saponin</td>
<td>Distilled water</td>
<td>Frothing</td>
<td>+</td>
</tr>
<tr>
<td>9</td>
<td>Reducing Sugar</td>
<td>Benedict’s solution</td>
<td>Brick red</td>
<td>+</td>
</tr>
</tbody>
</table>

(+) = presence of constituents  (-) = absence of constituents

4.5 Acute Toxicity of Ethanol Extract of Root of Tribulus terrestris L.

The institute of Cancer Research (ICR) mice administered with 4 g/kg, 8 g/kg, 10 g/kg and 16 g/kg doses of ethanol extract of Tribulus terrestris L. root were kept under observation for two weeks. After two weeks, all mice in (4 g/kg, 8 g/kg and 10 g/kg) were alive and did not show any toxic symptoms such as body weight loss and restlessness. So it was found that 10 g/kg dose of ethanol extract of root of Tsu le showed confidence dose and considered as safe.

Table 3
Lethal activity of 95% Ethanol Extract of Tribulus terrestris L. root.

<table>
<thead>
<tr>
<th>Group No.</th>
<th>Treatment (g/kg)</th>
<th>No. of mice used</th>
<th>No. of mice death</th>
<th>No. of mice survived</th>
<th>% death</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4 g/kg</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>8 g/kg</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>10 g/kg</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>16 g/kg</td>
<td>10</td>
<td>8</td>
<td>2</td>
<td>80</td>
</tr>
<tr>
<td>5</td>
<td>10 ml/kg (vehicle)</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

4.6 Antimicrobial Activities of Isolated Spiro Compound

The antimicrobial activities of isolated spiro compound were tested by using Agar well diffusion method. These results were shown in Table 4. According to
this table, ethyl acetate extract of isolated compound responds medium activities on Staphylococcus aureus and Bacillus pumilus.

**Table 4**

*Antimicrobial Activities of the Isolated Spiro Compound*

<table>
<thead>
<tr>
<th>Sample</th>
<th>Solvent</th>
<th>Organism</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolated Compound</td>
<td>EtOAc</td>
<td>-10 mm - 14 mm (+)</td>
<td>12 mm (+)</td>
<td>19 mm (+)</td>
<td>-</td>
<td>18 mm (+)</td>
<td>14 mm (+)</td>
<td>14 mm (+)</td>
</tr>
<tr>
<td>Control</td>
<td>EtOAc</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Agar well – 10 mm ~ 14 mm (+) : 15 mm ~ 19 mm (++) : 20mm above (+++)  
Organisms :  
(1) Bacillus subtilis  
(2) Staphylococcus aureus  
(3) Pseudomonas aeruginosa  
(4) Bacillus pumilus  
(5) Candida albican  
(6) E. coli

**Figure 3: Antimicrobial Activities of Isolated Spiro Compound**

4.7 **Medicinal Uses of Tribulus terrestris L.**

4.7.1 Uses as anticancer agent


4.7.2 Medicinal uses in India

*Tribulus terrestris* L. is a famous herb traditionally used by different cultures for a number of conditions. In India and China, the medicinal use of this herb is traced 5,000 year back (Balch F. 1990, Bartram T. 1995). In India, the fruits have been long used as a tonic and calculus infections, urinary discharges; it has a 5,000 year-old history of medicinal use in India. Traditionally it has been used for boosting hormone production in men and women. It is recommended as a diuretic and against kidney diseases and gravel. *T. terrestris* extract is used as a tonic to treat sexual dysfunction. It is an important constituent of various medicinal preparations
worldwide like Dashmularishta and Tribestan. (Sarwat M, Das S, Srivastava PS., 2008). The fruits of *T. terrestris* L. have been used in traditional Chinese medicine for the treatment of eye trouble, edema, abdominal distention, emission, morbid leucorrhea, sexual dysfunction and veiling. Roots and fruits are useful in rheumatism, piles, renal and vesical calculi, menorrhagia, impotency, premature ejaculation. It is indicated for use in treating headaches, dizziness, premature ejaculation and spermatorrhoea (escape of sperm without orgasm)( Adimoelja, A., 2000).

### 4.8 Molecular Formula Determination of Isolated Spiro Compound

From DEPT spectrum, the number and kinds of carbons as well as protons containing in this compound could be assigned. FT-IR spectrum represents the existence of the prominent functional groups. In accordance with these spectra, the number and kinds of carbon, proton and oxygen are tabulated in Table 5.

<table>
<thead>
<tr>
<th>Assignments</th>
<th>No. of carbon</th>
<th>No. of proton</th>
<th>No. of oxygen</th>
</tr>
</thead>
<tbody>
<tr>
<td>From DEPT spectrum, Five sp³ methyl carbons</td>
<td>5</td>
<td>15</td>
<td>-</td>
</tr>
<tr>
<td>Nine sp³ methylene carbons</td>
<td>9</td>
<td>18</td>
<td>-</td>
</tr>
<tr>
<td>Seven sp³ methine carbons</td>
<td>7</td>
<td>7</td>
<td>-</td>
</tr>
<tr>
<td>Two sp³ carbinol methine carbons</td>
<td>2</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Three sp³ quaternary carbons</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>From FT-IR spectrum, One ether bearing group</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Total number of carbon, proton and oxygen</td>
<td>26</td>
<td>44</td>
<td>3</td>
</tr>
</tbody>
</table>

The Results given by DEPT Spectrum and FT-IR Spectrum

Partial molecular formula = C₂₆H₄₄O₃
Partial molecular mass = 404.

From FAB-Mass spectrum, the molecular ion peak m/z = 420
Therefore, the remaining partial molecular mass = 420 – 404 = 16

The remaining partial molecular mass (16) must be one oxygen atom. Consequently, the real molecular formula of isolated spiro compound could be assigned as C₂₆H₄₄O₄ which agrees with “Nitrogen Rule”.

### 4.9 Structure Elucidation of Isolated Spiro Compound from the Root of *Tribulus terrestris* L.

According to the DEPT, HMQC and DQF-COSY spectral data, the following fragments **a** and **b** could be assigned.
In addition, the observation of \( \alpha \) and \( \beta \) \( ^1 \text{H}-\text{C} \) long range signal in HMBC spectrum produces the following fragments \( c \) and \( d \).

Fragment \( c \)

Moreover, the following fragment \( e \) could be assigned by using DQF-COSY spectrum. This spectrum indicates the medium graphic area between sp\(^3\) methine proton (\( \delta \) 1.69 ppm) and one of the ether bearing methylene protons (\( \delta \) 3.94 ppm).

The fragment \( b \) and \( d \) could be connected by the occurrence of \( \gamma \) \( ^1 \text{H}^\text{13} \text{C} \) long range signal between sp\(^3\) methyl protons (\( \delta \) 0.98 ppm) and the other methyl carbon (\( \delta \) 13.56 ppm) in HMBC spectrum. It describes the following fragment.

In DQF-COSY spectrum, the existence of small graphic area (W-coupling) between oxygen bearing sp\(^3\) methine proton (\( \delta \) 3.57 ppm) and another sp\(^3\) methine proton (\( \delta \) 3.38 ppm) gives rise to the following fragment.
The investigation of medium graphic area between sp³ methyl protons (δ 1.07 ppm) and sp³ methine proton (δ 1.80 ppm) in DQF-COSY spectrum which reveals the following fragment f.

![Fragment f](image)

The appearance of the following longer fragment g could be done by the connection of fragment e and fragment f using the HMBC spectrum in which α and γ ¹H–¹³C long range coupling between sp³ methine proton (δ 1.80 ppm) and sp³ methyl protons (δ 0.98 ppm) with ether bearing sp³ quaternary carbon (δ 109.71 ppm) could be observed.

![Fragment g](image)

Consequently, the partial molecular formula of the above fragment g could be assigned as C_{26}H_{44}O_3. The real molecular formula is C_{26}H_{44}O_4. So that, the remaining partial molecular formula must be (C_{26}H_{44}O_4) – (C_{26}H_{43}O_3) = OH. This hydroxy group must be attached to more down filed chemical shift (δ 76.44 ppm) of sp³ methine carbon. Therefore, the complete structure of isolated spiro compound could be elucidated as follows.

![Complete structure](image)

**Discussion**

According to the antimicrobial activities of root of Tsu le, ethyl acetate extract responds high activities on all selected organisms. Information from phytochemical results, the sample consists of flavonoid, alkaloid, glycoside, terpene, steroid, phenol, polyphenol, saponin and reducing sugar respectively. Moreover, antimicrobial activities of isolated spiro compound respond medium activity on *Staphylococcus aureus* and *Bacillus pumilus*. The molecular formula of isolated spiro compound is determined as C_{26}H_{44}O_4 by using spectral data. The hydrogen deficiency index is 5. The IUPAC name of this spiro compound is 3', 5', 5', 6', 10a-pentamethylicosahydrospiro [naphtho [1, 2-h] isochromene-2, 2'-pyran] -4', 8-diol.
Conclusion

In this research, the root of *Tribulus terrestris* L. was selected for preliminary phytochemical screening, antimicrobial activities, acute toxicity and structure elucidation of spiro compound. The ethyl acetate extract of sample gives rise to high activities on all tested organisms. Furthermore, acute toxicity study of 10 g/kg of ethanol extract of sample showed confidence dose and considered as safe and this sample is practically non-toxic. In addition, the antimicrobial activities of isolated spiro compound gave rise to medium activities on *Staphylococcus aureus* and *Bacillus pumalis*. Finally, the isolated spiro compound is the type of steroidal glycoside. Therefore, the selected plant and isolated compound are very important for the treatment of many diseases to Human society.

Recommendation

It is recommended that 12 g/kg and 14 g/kg dose of ethanolic extract of root of *Tsu le* should be studied for acute toxicity. Moreover, antioxidant activities and cytotoxicity of this medicinal plant should be conducted for the treatment of cancer disease.

References


Utilization of Fishing Gears and Occurrence of Fish Species in Vicinity of Mingun Village, Sagaing Township

Tin Tin Lynn / Nang Aye Aye Shein
Department of Zoology, University of Sagaing, Myanmar

Abstract

A total number of 41 species belonging to 28 genera, 17 families and nine orders of freshwater fishes were recorded from the Ayeyarwady River of Mingun Village, Sagaing Township, during the study period from December 2018 to June 2019. Six types of fishing gears, namely-big beach seine net, small beach seine net, beach surrounding net, shallow water seine net, bottom set gillnet and trammel drift net are described. Among recorded 41 fish species, 38 species caught by 0.5 cm mesh size (big beach seine), 22 species caught by outer 2.5 cm and inter 1.3 cm mesh size (small beach seine net), 26 species caught by 0.5 cm (beach surrounding net) and 12 species caught by 0.5 cm mesh size (shallow water seine net) and 19 species caught by outer 5 cm and inter 3.5 cm (bottom set gillnet) and 12 species caught by outer and inter11.5cm and middle 2cm (trammel net). Measurement of fishing gears are expressed in meter or millimeter.

Keywords: fishes, utilization of fishing gears, Mingun Environ

Introduction

In the world, there are known about 33,600 species of fish (Joseph Kiprop 2018). The Ayeyarwady River Basin (ARB) features at least 388 fish species; 311 of these species are present in Myanmar portion of the watershed (Eric Baran et al (2017)).

Myanmar is considered to have some of the richest inland fisheries resources in the world. Beside, Myanmar is reported to possess one of the highest levels of fish and seafood consumption of any country in the world (Ben Belton et al, 2015).

The utilization of fisheries resources increases year by year to support the need for food in the world population. Quality of fishing gears use for harvesting of the resources is one of the most important factors for fisheries development.

Fishing gears used in inland fisheries are traditionally developed from small scale fishing activities. In land, capture fisheries provide a valuable contribution to food security in many parts of the developing countries including Myanmar.

Fishing gears are commonly classified into two groups; active and passive. Active methods are effectively pursue at sedentary species (e.g seine net). Passive methods; the capture of fish is generally base on movement of target species towards the gears (e.g gill net) (AungLwin 2008).
The majority of fish are ectothermic which means they are cold blood and can vary their temperatures with the change in temperature. Light penetration and water temperature determine physical conditions that fish encounter. (Joseph, 2018)

Normally Myanmar people prefer to eat fresh fish but there are several traditional types and preserved fisheries product. Fish meal and fish fertilizer are used to feed poultry pigs, cattle and chickens. Fish have played a significant role in the culture of humans since time immemorial (Joseph, 2018).

In Myanmar, Ayeyarwady, Thanlwin, Chindwin and Sittaung rivers are the most distinguishing rivers. Among them Ayeyarwady is the most conspicuous and longest. The 2170 km long Ayeyarwady River runs through the country from South Eastern Himalayas to Andaman Sea in the Bay of Bengal (Simmance, 2013). Therefore, fish fauna and fishing gears of the entire Ayeyarwady River would not be taken on within a limited period. Therefore, only the environs nearby area of Mingun village in Sagaing Township are select to study the Varieties of freshwater fishes and use of fishing gears are found in these area.

**Objectives** of the Study

1. to observe the fish species inhabit in study site
2. to know fishing gears utilized in study site

**Methodology**

**Study area**

Mingun Village near the Ayeyarwady River segment, Sagaing Township were designated as the study area. This area is located between 22°3’ 57.47" N and 96°0’ 58.72" E.

**Study period**

This study period was conducted from December 2018 to June 2019.

**Identification**

Identification and classification were made according to Talwar and Jhingran (1991), Day (2013) and ChavalidVidthayanin et al. (2005).

**Data Collection**

The specimens were collected from fishermen of chosen study area. Collected specimens were photographed, examined, identified and preserved in 5-10 percent formalin depending on the size of fish. Types of fishing gears, measurement of fishing gear, fishing period, fishing places and number of fishing gears were recorded from fishermen of the study area.
Results

A total of 41 species belonging to 28 genera, 17 families and nine orders of freshwater fishes were recorded from the study area during the study period, from December 2018 to June 2019.

Table 1

Species composition in different orders in the study area

<table>
<thead>
<tr>
<th>Order</th>
<th>No. of species</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Osteoglossiformes</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Clupeiformes</td>
<td>2</td>
<td>4.9</td>
</tr>
<tr>
<td>Cypriniformes</td>
<td>16</td>
<td>39.0</td>
</tr>
<tr>
<td>Siluriformes</td>
<td>12</td>
<td>29.3</td>
</tr>
<tr>
<td>Mugiliformes</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Beloniformes</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Synbranchiformes</td>
<td>3</td>
<td>7.3</td>
</tr>
<tr>
<td>Perciformes</td>
<td>4</td>
<td>9.7</td>
</tr>
<tr>
<td>Tetraodontiformes</td>
<td>1</td>
<td>2.4</td>
</tr>
</tbody>
</table>

Total 41 100
(A) Hilsa toil  (B) Dugusiavariegata  (C) Notopterusnototpterus

(D) Catlacatla  (E) Cirrhinusmarigala  (F) Labeocalbasu

(G) Labeo microphthalmus  (H) Labeoudaipurensis  (I) Labeorohita

(J) Labeoboga  (K) Osteobramabelaneri  (L) Osteobramacunma

*Figure 1: Recorded fish species*
(M) Osteobramafeae  (N) Puntiussarana  (O) Puntiuschola

(P) Salmophasiasardinella  (Q) Aspidopariamorar  (R) Botiadayi

(S) Acantopsis choiorrhychos (T) Sperata acicularis  (U) Mystus cavasius

(V) Mystus pulcher  (W) Mystus lecuophasis  (X) Mystus menoda

*Figure 1: Continued*
Figure 1: Continued
(AI) Parambassis ranga  (AJ) Oreochromis mossambica  (AK) Glossogobius giuris

(AL) Channa striata  (AM) Tetraodon cutcutia

Figure 1: Continued
Table 3
Utilization of fishing gears

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of gear</th>
<th>Local name</th>
<th>Length (m)</th>
<th>Width (m)</th>
<th>Mesh size (cm)</th>
<th>Dec</th>
<th>Jun</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Surrounding net</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Big beach seine</td>
<td>Wampum pike</td>
<td>1176m</td>
<td>10.6m</td>
<td>0.5 cm</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Small beach seine (Double)</td>
<td>Thoungswae pike</td>
<td>44m</td>
<td>5m</td>
<td>Outer – 2.5 cm</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inter – 1.3 cm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Beach surrounding net</td>
<td>Foxsar pike</td>
<td>176m</td>
<td>10.6m</td>
<td>0.5cm</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>II</td>
<td>Push net</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Shallow water seine net</td>
<td>Swae pike</td>
<td>9m</td>
<td>5m</td>
<td>0.5 cm</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Table 3
Continued

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bottom set gillnet</td>
<td>Kayu pike</td>
<td>882.4m</td>
<td>52.9m</td>
<td>Outer – 5cm</td>
<td>Inter - 3.5cm</td>
<td>]</td>
<td>]</td>
<td>]</td>
<td>]</td>
<td>]</td>
</tr>
<tr>
<td></td>
<td>(Double)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>Drift gill net</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Trammel drift net</td>
<td>Myaw pike</td>
<td>45.43m</td>
<td>10.6m</td>
<td>Outer-11.5cm</td>
<td>Middle-2cm</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>]</td>
</tr>
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</tbody>
</table>


Utilization of fishing gears

A total of four types of fishing gears were recorded from study area. These are surrounding net, push net, bottom set gillnet and drift gillnet. Three types of surrounding net and one types of push net, gillnet and trammel net.

Recorded fish species by different fishing gears

In the present study, most of the recorded fish species caught by big beach seine net. These net utilization was nearly all fish species and in small beach seine net was 22 species. Beach surrounding net was 26 species and the bottom set gillnet was 19 species. The remaining shallow water seine net and trammel drift net was lesser.
Discussion

The fish species recorded from Ayeyarwady river segment vicinity of Mingun Village included both native and introduced exotic species. In the present study, a total of 41 species of fish confined to 28 genera, under 17 families and nine orders were recorded.

Belong to eight order, Osteoglossiformes (1 species), Clupeiformes (2 species), Cypriniformes (16 species), Siluriformes (12 species), Mugiliformes (1 species), Beloniformes (1 species), Synbranchiformes (3 species), Perciformes (4 species), Tetraodontiformes (1 species).

Order Cypriniformes was predominated; second predominant group was observed in order Siluriformes, Osteoglossiformes, Beloniformes, Mugiliformes and Tetraodontiformes were the lowest order. The freshwater fish faunas of East and South Asia are dominated by cyprinids (Htay-Htay, 2008).

Cypriniformes was the largest order of freshwater. The family cyprinidae contain 16 subfamilies and about 3042 species (Eschmeyer et al. 2016). Almost all cyprinids are restricted to freshwater habitats: only a few species are found in brackish water habitats (Nelson 2006).

Various workers presented that the similar result in their study area in adjacent country. Cyprinids are important dominant species of the freshwater fish fauna in China and Taiwan (Htay-Htay, 2011). (Bakalial et al. 2014) reported that family Cyprinidae was dominant in lower Subansiri River, India.
In the present study, *Mystusmenoda*, *Gagatacenia* and *Oreochromismossambicus* were recorded. According to fishbase (2016), *M.menoda* was recorded as misidentification species and *G.cenia* was recorded as questionable species in Myanmar. *O.mossambicus* is introduced species.

During the study period, monthly abundance of occurrence are the highest number of species (Cypriniformes) were found in December, the second highest number of species (Siluriformes) in May. The lowest number of species Osteoglossiformes, Cypriniformes, Perciformes are normally and Clupeiformes, Beloniformes, Synbranchiformes, Tetraodontidae were not abundance found in recent.

In this research, the commercially important species are *Notopterusnotopterus*, *Hilsa toil*, *Labeorohita*, *L.calbasu*, *L.udaipurensis*, *Botiadayi*, *Ompokpobo*, *O. bimaculatus*, *Wallagoattu*, *Eutropiichthysvacha*, *Oreochromismossambica*, *Channastriatus*, *Sperataacicularis*, *Mystusmenoda*, *M.cavasius*, *Mastacembelusarmatus*, *Glossogobiusgiuris*. Mainly, *Wallagoattu* and *Channastriatus* achieved prize for local fisherman.

Four different types of gillnet; there are three types of surrounding net, one type of gillnet, one type of push net and drift gill net.

Big beach seine net, small beach seine net and beach surrounding net were included in surrounding net. Beach surrounding net do not used in all seasons. Beach surrounding net used in December, January, February, March. These net was used in only winter season because fish species were not abundance. Mesh size of surrounding net is 0.5 cm. Beach surrounding net may be set unbaited or baited depending on the target species. Baits may include rotting meat, rice brand and corn. This surrounding net of bait were caught in many various types of fish species. The target species of beach surrounding net is *Channastriatus*.

Beach seines nets are used in all countries of the region, more in rivers and estuaries; big beach seine net is more achieved many number of fish species because it reached benthopelagic. It is more thick and long and 1.2m bear a big ball. These net is pull more than ten people and 0.5cm mesh size. This target species is *Wallagoattu*. Small beach seine net is put two people. It reached demersal and double net. Outer is 2.5cm and inter is 1.5cm.

Bottom set gillnet was included in set gillnet. These net is double. Outer is 5cm and inter is 3.5cm. These net was set in the river bottom at one night. Next day, fisherman brought these net caught fishes. The target species of bottom set gillnet is *Oreochromismossambica*.

Push net included in shallow water seine net. These net, many fisherman has to set by themselves locally available materials. These net was used in very shallow area. Larvae (*Parambassisranga*, *Mystuspulcher*) were observed in great abundance in the very shallow areas. So, the target species of shallow water seine net is *Parambassisranga* and *Mystuspulcher*.

Trammel drift net used in tide decrease. Trammel drift net mean three layer; inter, middle and outer. Inter and outer is 11.5cm and middle is 2cm. The target species is *Cephalocassisjatia*.

In the present study, 38 species caught by 0.5cm mesh size (big beach seine net), 22 species caught by outer 2.5cm and inter 1.3cm mesh size (small beach seine net), 27 species caught by 0.5cm (beach surrounding net) and 12 species caught by 0.5cm mesh size (shallow water seine net) and 20 species caught by outer-5cm and
inter-3.5cm (bottom set gillnet) and 12 species caught by larger mesh size outer and inter- 11.5cm and middle-2cm(trammel net). It is assumed that, the fish species is greatly influenced by mesh size. It is also supported by (G. Jowett and Richarsin,1996), who reported larger mesh size took fewer species as well as smaller mesh size captured many species.

Surveys were conducted in 1998/99 in five West African countries on the use of potentially harmful fishing gears and techniques. These countries were Cameroon, Gabon, Guinea, Nigeria and Senegal. Virtually the same potentially harmful gears and techniques are found in all countries of the region.

Recommendations

Baran et. al. (2017) Myanmar is located in the tropics and there are extensive areas of mangrove forests, sea grasses and corals, which are important for the productivity and diversity of many fish species. Fish species abundance in Ayeyarwady River, Myanmar. Fishes provide not only protein for people but also economically international trade and medicinal used. So, too people should avoid the use of potentially harmful fishing gears, the catch of immature fishes and juveniles, mainly avoid electroshock fishing. And avoid catching fish during a prohibited period and place are also important. By avoiding these methods, there will be sustainable fisheries development are systematically chosen utilization of fishing gears.

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Determination of Effective Atomic Number of Some Thermoluminescence Compounds by Different Methods

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Abstract

In this research, the effective atomic number of some thermoluminescence materials namely, Lithium Fluoride (LiF), Sodium Fluoride (NaF), Potassium Bromide (KBr) and Potassium Iodide (KI) were determined by using different methods. These thermoluminescence compounds were investigated using gamma rays of energies 662 keV. To measure gamma rays transmission for the thermoluminescence dosimetric (TLD) compound samples,¹³⁷Cs point sources have been used. Effective atomic number (Z_{eff}) of the compounds can be calculated from gamma rays attenuation coefficient data. The effective atomic number (Z_{eff}) of the compounds power and pallet samples at energy (662 keV) were determined. The effective atomic numbers calculated by direct and logarithmic regression analysis methods were a good agreement in both TLD compound powder and TLD compound pallet samples.

Keywords: gamma spectroscopy, gamma rays transmission, thermoluminescence compounds, effective atomic number

Introduction

The basic quantities such as mass attenuation coefficient, atomic cross-section, effective atomic number and electron density are gamma spectrometric parameters. Atomic cross-section and effective atomic number of the material are related to the scattering and absorption of γ-radiations. Several thermoluminescent and photoluminescent materials are commercially available and they are used as radiation detectors in biological and industrial dosimetry of ionizing radiations. From the studies, Kateb (2000) measured the mass attenuation coefficients at 511keV, 662keV and 1274 keV for lithium, sodium and potassium chloride salt solution and employed the results to determine gamma spectrometric parameters for the solutions. [1]. Effective atomic number and electron density of a composite material are very useful parameters in radiotherapy and also in medical imaging. The effective atomic number is most vital parameters for tissue equivalence of human in radiation area. In this research work, the measured values of mass attenuation coefficient, atomic cross-section, effective atomic number of thermoluminescence compound powder samples LiF, NaF, KBr, KI at gamma energy of 662 keV by experiments from Experimental Nuclear Lab, Department of Physics, University of Mandalay, Myanmar and those of thermoluminescence compound pallet samples LiF, NaF, KBr, KI at gamma energy of 662 keV by experiments from Experimental Nuclear Lab, Department of Physics,
Faculty of Science, King Mongkut’s University of Technology Thonburi, Thailand.

Theoretical Background and Computation Process

For any complex material, the total mass attenuation coefficients can be used to determine the total atomic cross-section by the following relation,

\[ \sigma_a = \frac{(\mu/\rho)_c}{N_A \sum_i \frac{W_i}{A_i}} \]

(1)

Where, \((\mu/\rho)_c\) is the photon mass attenuation coefficient for the compound, \(N_A\) is the Avogadro’s number and \(A_i\) is the atomic weight of the constituent element. To calculate effective atomic number, the average electronic cross-section, \(\sigma_{el}\) is given by [2]

\[ \sigma_a = \frac{1}{N_A} \sum_i f_i \frac{A_i}{Z_i} \left( \frac{\mu}{\rho_i} \right) \]

(2)

where \(f_i\) is the fractional abundance and \(Z_i\) is the atomic number of the constituent element in the complex material.

The effective atomic number is a photon interaction parameter which can be calculated using two different methods: the direct method and logarithmic regression analysis method.

By using effective atomic cross-section and electronic cross-section, calculation of the effective atomic numbers for total photon interaction was performed by direct method. The formula is given below [3,4]

\[ Z_{eff} = \frac{\sigma_a}{\sigma_{el}} \]

(3)

In a logarithmic regression analysis, for presentation of results, the photon energy of interest was divided into three viz., (a) 279.2 to 320.07 keV, (b) 514.0 to 661.6 keV and (c) 1115.5 to 1332.5 keV. Within each of these regions, the values of \(\ln \sigma\) were found to vary linearly with \(\ln E\). So, a logarithmic regression analysis was performed between \(\ln \sigma\) and \(\ln E\) in all the three energy regions and the best fit values of the slope \(B(Z)\) and the intercept \(\ln A(Z)\) were determined. Further it can be assume that the values of \(\ln A(Z)\) and \(B(Z)\) are simple functions of atomic number and are given by the relations

\[ \ln A(Z) = \ln A_1 + B_1 \ln Z \]

(4)

and

\[ B(Z) = \ln A_2 + B_2 \ln Z \]

(5)

Equation (4) and (5) represent straight lines with slopes \(B_1\) and \(B_2\) and corresponding intercepts \(\ln A_1\) and \(\ln A_2\) respectively. Using these best-fit values further, the formula for \(Z_{eff}\) is obtained as follow.
\[ Z_{\text{eff}} = \left[ \frac{\sigma_{\gamma}}{\lambda E} \right]^{\frac{1}{d}} \]  

(6)

Where \( d = B_1 + B_2 \ln E \) and \( E \) is the photon energy expressed in keV. [5]

**Measurements**

For all measurements to calculate gamma spectrometric parameters of thermoluminescence dosimetric (TLD) compound powder samples, an Ortec 3”x 3” NaI(Tl) crystal scintillation detector, spectroscopy amplifier (Model-671), multichannel analyzer (MCA) and analyzing program ( Gamma Vision-32) was used. The operating voltage of NaI(Tl) scintillation detector is +1000 V. In the experimental setup, the source, sample and detector are arranged vertically. The standard radioactive source \(^{137}\text{Cs}\) (1 \(\mu\)Ci) was used for all measurements of TLD compound powder samples. All measurements and experimental setup for TLD powder samples were performed at Experimental Nuclear Physics Laboratory, Department of Physics, Mandalay University, Myanmar.

For all measurements to calculate gamma spectrometric parameters of TLD compound pallet samples, 2”x 2” NaI(Tl) crystal scintillation detector, preamplifier, amplifier, multichannel analyzer (MCA) fitted in computer and analyzing software (Spectrum Technique UCS 20) was used. The operating voltage of NaI(Tl) scintillation detector is +900 V. The standard radioactive source \(^{137}\text{Cs}\) (15 mCi) was used for all measurements of TLD compound pallet samples. The source, sample and detector are arranged horizontally in experimental setup. All measurements and experimental setup for TLD pallet samples were performed at Experimental Nuclear Physics Laboratory, Department of Physics, KMUTT, Thailand.

The description for \(\gamma\)-sources is shown in Table (1). TLD samples’ description is as shown in Table (2). To calculate the density of the sample, each sample prepared was weighed. Best fit coefficient values from logarithmic regression analysis method are shown in Table (3). Gamma ray of energy 662 keV emitted by radioactive source \(^{137}\text{Cs}\) was collimated and detected. Lead shielding was used in this measurement to reduce possible background radiation that comes from environment. From this measurement, the linear attenuation coefficients of different compounds were determined. Then the obtained linear attenuation coefficients were applied to calculate the mass attenuation coefficient, atomic cross-section and effective atomic number of the different thermoluminescence compounds.

**Results and Discussion**

From the experimental results, the linear attenuation coefficients and mass attenuation coefficients of thermoluminescence compounds at photon energy 662 keV are obtained. Using the mass attenuation coefficients, the total atomic cross-section in barn per atom was determined. In order to calculate the effective atomic numbers, electronic cross-section were determined. By using atomic cross-section and electronic cross-section of compounds, effective atomic numbers of the experimental
values were determined. The values of effective atomic number for TLD compound power and pallet samples were also estimated by logarithmic regression analysis method. Gamma Spectrometric parameters of TLD compound powder samples at 662 keV are shown in Table (4) and those of pallet samples at 662 keV are shown in Table (5). Comparison of effective atomic number of TLD compound powder and pallet samples by direct method at 662 keV is shown in Fig (1). Almost all values of effective atomic number calculated from direct method were found to be agreement with those calculated from logarithmic regression analysis (LRA) method. Comparison of effective atomic number of TLD compound powder samples by direct method and LRA method at 662 keV is shown in Fig (2). Comparison of effective atomic number of TLD compound pallet samples by direct method and LRA method at 662 keV is shown in Fig (3).

Table 1
The description for γ- sources

<table>
<thead>
<tr>
<th>Gamma ray source</th>
<th>Half-life (Yrs)</th>
<th>Activity</th>
<th>Production Date</th>
<th>Energy (keV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$^{137}$Cs(used for TLD pellet samples in this work)</td>
<td>30.1</td>
<td>15(mCi)</td>
<td>1977</td>
<td>662</td>
</tr>
<tr>
<td>$^{137}$Cs(used for TLD powder samples in this work)</td>
<td>30.1</td>
<td>1(µCi)</td>
<td>2011</td>
<td>662</td>
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</tbody>
</table>

Table 2
TLD samples’ description

<table>
<thead>
<tr>
<th>Sample</th>
<th>Chemical composition</th>
<th>Average Density of Powder Sample(g/cm$^3$)</th>
<th>Average Density of Pallet Sample(g/cm$^3$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium Fluoride</td>
<td>LiF</td>
<td>0.5900</td>
<td>1.6319</td>
</tr>
<tr>
<td>Sodium Fluoride</td>
<td>NaF</td>
<td>1.2532</td>
<td>1.9778</td>
</tr>
<tr>
<td>Potassium Bromide</td>
<td>KBr</td>
<td>1.2813</td>
<td>2.1831</td>
</tr>
<tr>
<td>Potassium Iodide</td>
<td>KI</td>
<td>1.2961</td>
<td>2.4236</td>
</tr>
</tbody>
</table>
Table 3
Best fit coefficient values of ln $A_1$, ln $A_2$, $B_1$ and $B_2$ [2]

<table>
<thead>
<tr>
<th>Photon energy range(keV)</th>
<th>Range of atomic number (Z)</th>
<th>Intercept ln $A_1$</th>
<th>Slope $B_1$</th>
<th>Intercept ln $A_2$</th>
<th>Slope $B_2$</th>
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<tr>
<td></td>
<td>3-8</td>
<td>5.95289</td>
<td>-1.40309</td>
<td>-1.13670</td>
<td>0.37561</td>
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<tr>
<td></td>
<td>514.0-661.6</td>
<td>1.83758</td>
<td>0.73173</td>
<td>-0.54863</td>
<td>0.06533</td>
</tr>
<tr>
<td></td>
<td>13-28</td>
<td>-2.44084</td>
<td>2.19505</td>
<td>-0.00367</td>
<td>-0.12231</td>
</tr>
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</table>

Table 4
Gamma Spectrometric parameters of TLD compound powder samples at 662 keV

<table>
<thead>
<tr>
<th>TLD compound powder sample</th>
<th>Mass attenuation coefficient (cm$^2$/g)</th>
<th>Atomic cross-section (b/atom)</th>
<th>Effective atomic number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Direct Method</td>
</tr>
<tr>
<td>LiF</td>
<td>0.0220</td>
<td>0.4759</td>
<td>1.9142</td>
</tr>
<tr>
<td>NaF</td>
<td>0.0702</td>
<td>2.4552</td>
<td>9.9402</td>
</tr>
<tr>
<td>KBr</td>
<td>0.0421</td>
<td>4.1727</td>
<td>12.8273</td>
</tr>
<tr>
<td>KI</td>
<td>0.0462</td>
<td>6.3414</td>
<td>21.8759</td>
</tr>
</tbody>
</table>

Table 5
Gamma Spectrometric parameters of TLD compound pellet samples at 662 keV

<table>
<thead>
<tr>
<th>TLD compound pallet sample</th>
<th>Mass attenuation coefficient (cm$^2$/g)</th>
<th>Atomic cross-section (b/atom)</th>
<th>Effective atomic number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Direct Method</td>
</tr>
<tr>
<td>LiF</td>
<td>0.0699</td>
<td>1.5097</td>
<td>6.0728</td>
</tr>
<tr>
<td>NaF</td>
<td>0.0668</td>
<td>2.3356</td>
<td>9.4561</td>
</tr>
<tr>
<td>KBr</td>
<td>0.0692</td>
<td>6.8514</td>
<td>21.0620</td>
</tr>
<tr>
<td>KI</td>
<td>0.0798</td>
<td>10.9315</td>
<td>37.7100</td>
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</table>
Figure 1: Comparison of effective atomic number of TLD compound powder and pallet samples by direct method at 662 keV

Figure 2: Comparison of effective atomic number of TLD compound powder samples by direct method and LRA method at 662 keV

Figure 3: Comparison of effective atomic number of TLD compound pallet samples by direct method and LRA method at 662 keV
Conclusions

For the radiation dosimetry system, effective atomic number, one of the energy dependent parameters of the dosimeter is very important. To safe the human working the environment of radiation hazard area, the gamma spectrometric parameter of thermoluminescence compounds must be known. The effective atomic numbers of thermoluminescence materials in dosimeter are required to analyze comparatively with that of human body. To analyze effective atomic number of the thermoluminescence compounds, two methods (from experimental values and estimation from theory) were used in this research. Almost all values of effective atomic number calculated from direct method were found to be agreement with those calculated from logarithmic regression analysis method. As effective atomic number is useful in many technological applications, several investigations have made extensive studies of effective atomic number in variety of composite materials like alloys, polymers, compounds and mixtures, thermoluminescent dosimetric compounds, semiconductors and superconductors.

Acknowledgements

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References

Investigation on Some Bioactivities of Melastoma malabathricum L.

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Abstract

Melastoma malabathricum L is tree wide by distributed on Myanmar, India and Nepal. It is locally called in Myanmar as Say – oh – poke. Relative abundances of elemental analysis by EDXRF was showed that the presence of calcium, potassium, sulphur, iron, manganese are macroelements and titanium, copper, zinc and strontium are microelements. In the leaves of M. malabathricum, alkalodis, α amino acids, carbohydrate, flavonoids, phenolic, compounds, reducing sugar, steroids, tannis and terpenoids were found to be present according to preliminary phytochemical tests. Acute toxicity study of 95% ethanol extract leaves of M. malabathricum was investigated by OECD guidelines. Antibacterial activities of four crude extracts of leaves in petrol ether, ethyl acetate, ethanol and watery were studied on six species of bacteria and yeast namely pseudomonas aeruginosa, Escherichia coli, Bacillus substilis, Bacillus pumilus, staphylococcus aureus, Candida ablicans, using agardisc diffusion methods. Ethanol extract and watery extracts of M. Malabathricum showed inhibition zone diameter in the ranges of (23-35mm) and (19-25mm) against all tested microorganisms, respectively. Ethyl acetate and petrol ether extracts are no possess antibacterial activities. Moreover, in vivo screening of wound healing properties of ethanol and watery extracts of M. Malabathricum was also carried on the staphylococcus aureus infected wound on albino rat model 3 days at (20 mg/mL dose). For control group, the healing time was 10 days. From this study, ethanol and watery extracts may be used in the treatment of boils and microbial infection.

Keywords: Melastoma malabathricum (L), Acute toxicity, Antimicrobial activities, Wound healing activity

Introduction

Medicinal herbs are moving from fringe to main stream use with a great number of people seeking remedies and health approaches free from side effects caused by synthetic chemicals. Melastoma malahaihricurn L., is highly regarded as an universal panacea in the ayurvedic medicine. It is one of the universal plant having medicinal activities. This versatile plant is the source of various types. Pharmacognosy is the first step in deciding the status of a plant organ as a crude medicine, hence the current study was done. The present study comprises macroscopy, microscopy, histochemistry, physicochemical parameters, fluorescence analysis and preliminary phytochemistry. ‘l’he use of traditional medicine and medicinal plants in most developing countries, as a normative basis for the maintenance of good health, has been widely observed.
Traditional medicine is the sum total of the knowledge, skill and practices based on the theories, beliefs, and experiences, indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness. It refers to health practices, approaches, knowledge and beliefs incorporating plants, animal and mineral based medicines, spiritual therapies, manual techniques and exercises, applied singularly or in combination to treat, diagnose and prevent illnesses or maintain well-being (Sirat et al., 2010).

Herbal medicine involves the use of plants for medicinal purposes. Medicinal plants are part of human medicine since the dawn of civilization. These plants are making backbone at traditional medicinal systems in India. Melastoma is a medicinal system primarily practiced in India that has been known for nearly 5000 years. *Melastoma malcibathricurn* L. (Say-Oh-Poke) belongs to family Melastomataceae. *Melastoma* commonly known as the Butter nut tree, *Melastoma* is a medium to large sized deciduous tree distributed in Nepal, India and Sri Lanka. *M. malabathricum* grow as small trees 12-13 ft high, occasionally even up to 20 ft. The plant is branched, and has reddish stems that are covered with bristly scales and minute hairs. Its leaves are simple, elliptic lanceolate with a rounded base, are up to 7 cm long. are have three distinct main veins running from base to apex. Its flowers are borne on short terminal cymes 2 to 8 cm across. Its fruit is a berry, which when ripe breaks irregularly to expose its soft, dark blue pulpy and orange seeds.

**Figure 1:** The shrubs of *Melastoma malcibathricurn* L. **Figure 2:** The leaves and flower of *Melastoma malcibathricurn* L.

**Research Objectives**

1. To investigate the acute toxicity of various extracts of *Melastoma malcibathricurn* L. sample.
2. To investigate the antimicrobial activities of various extracts of sample.
3. To test wound healing properties by *vivo* (an albino rats) method against *Staphylococcus aureus*.

**Research Methodology**

**3.1 Plant Material**

The leaves of *Melastoma malcibathricurn* L. were collected from the Yangon Township. The collected plant was identified as *Melastoma malcibathricurn* L by the authorized botanist at Department of Botany, Yangon University. The dried
samples were cut into pieces and pulverised into powder using a grinding mill. The dried powdered samples were then stored in the air tight container.

3.2 Preparation of Plant Extract
The dried powder(100g) of *M. malabathricum* was extracted with 70% EtOH at R.T(3 x 300 ml) for one week and filtered. The filtrate was evaporated by rotatory evaporator to get 70% EtOH extract. The dried powdered of the plants was also boiled with water to get watery extract. The dried powdered samples (300g) were extracted with methanol (500 ml) for one week by maceration followed by filtration. This procedure was repeated three times. The total combined filtrate was concentrated by rotatory evaporator the one-third volume and further partitioned between pet-ether and water to get the particular soluble extract. The aqueous layer was further dry over water bath to get dry methanol extract. The resulting extract was partitioned with ethyl acetate and ethyl-acetate soluble portion was concentrated by rotatory evaporator and dried over water-bath to get ethylacetate extract. The dried extracts obtained were then stored and kept in the refrigerator for the isolation of phytochemical organic constituents and for screening of bioactivity.

3.3 Elemental Analysis of Plants Sample by ED-XRF Method
Qualitative elemental analysis of *M. malabathricum* by EDXRF spectrum, Ca. K. S. Fe. Mn. Ti. Cu. Zn and Sr were determined Ca and K are macro elements. The results were shown in table 3.

3.4 Phytochemical constituents of *M. malabathricum*
The preliminary phytochemical investigation was carried out for the leaves with a view to determine the presence or absence the types of phytochemical constituents according to the test tube method. The results are shown in (Table.2) From the phytochemical results, it was observed that alkaloids, α-amino acids, carbohydrates. flavonoids. phenolic compounds. polyphenols compounds. reducing sugar. saponins. steroids, tannins and terpenoids are present in the sample but glycosides, starch are absent.

3.5 Acute Toxicity
The acute toxicity test was done according to Litchfield& Wilcoxon, 1949 and OECD fixed dose method with 95% EtOH and watery extracts of the plants, using 60 albino rats (25-34 g body weight). Mice were randomly assigned to 10 groups with 6 animals in each group. The animals were housed in standard cages with food and water at air conditioned rom of 20±5°C temperature. First group was administered 0.1 ml/kg distilled water with normal food and water and considered as control. The groups (Groups II-XVII) were treated with different doses of 95% ethanol and watery extract. By oral route using intragastric needle in increasing dosages 2, 4, 8, 10 g/kg body weight were carried out. After administration of the extract, each group of mice was housed separately in a cage with free access to food and water. Observation for number of death was made in 24 hours after the administration of the extract and survivors were also observed for a total of 14 days. Then, the mice were observed for gross behavioral, neurologic, automic and other toxic effects continuously for two hours and then at six hours interval for 24 hours. To detect the delayed toxicity, the survivors were observed daily for weeks as described in Loomis (1968).
3.6 Antimicrobial Activity

The microorganism and yeast, namely *Pseudomonas aeruginosa*, *Escherichia coli*, *Bacillus subtilis*, *Bacillus pumalis*, *Staphylococcus aureus*, *Candida albicans*, using agar disc diffusion method.

3.6.1 Agar Disc Diffusion Method

(a) Preparation of Agar Medium

Trypticase soy agar (40 g) from Difco, U.S.A was suspended in 1 dm³ of distilled water in a sterile conical flask and covered with aluminium foil. (Finegold *et al.*, 1978). Then suspension was mixed thoroughly and heated to completely dissolved the powder on a hot plate stirrer (Mackie and Macartney, 1960; Finegold, *et al.*, 1978). The Trypticase soy agar solution was sterilized in an autoclave at 121°C for 15 minutes. The temperature of agar solution was reduced to 50°C on a constant temperature bath. Trypticase soy agar medium was then poured into the sterile petridishes near the flame of spirit burner. The agar medium was allowed to solidify and sealed tightly in a pathogene plastic bag. After checking the media by incubating at 37°C over night, the solidified agar medium was dried in an incubator before it was used.

**Agar Slant Medium**

Triple sugar iron agar (65g) from Becton, U.S.A, was suspended in 1000 ml of distilled water in a sterile conical flask, covered with aluminium foil and mixed thoroughly and heated to completely dissolved the powder on a hot plate stirrer (Finegold, *et al.*, 1978). The triple sugar iron agar solution was transferred into the test tubes (4 cm³ for each) and sterilized by autoclaving at 121°C for 15 minutes. After sterilization, the test tubes were placed in a slant position and allowed to solidify.

**Broth Medium**

Trypticase soy broth (30 g) was suspended in 1000 ml of distilled water in a conical flask, covered with aluminium foil, mixed thoroughly and heated to completely dissolve on a hot plate stirrer (Finegold, *et al.*, 1978). The broth solution was transferred into the test tubes (3 cm³ in each tube) and sterilized by autoclaving for 15 minutes at 121°C.

(b) Culture of Bacteria

A few colonies of the organism to be tested were inoculated into the triple sugar iron agar and incubated at 37°C for 24 hours in an incubator. A few colonies of the organisms from triple sugar iron agar were introduced into the trypticase soy broth and incubated for 3 hours at 37°C to obtain the bacterial suspension of moderate aloudiness. This contained approximately $10^5$ to $10^7$ organisms per ml plates the discs were allowed to dry at 42°C incubator.

(c) Procedure

In this method P.E, ethylacetate, ethanol and 70% ethanol watery extracts of *M. malabathricum* used as the sample. The bacterial species used were obtained from the Department of Medical Research (Lower Myanmar). This method is used for the detection of antibacterial activity in eight crude from two plants. The test procedure is as follow. At first the
extracts (1 g each for testing 10 species of bacteria) were introduced into sterile
viz, PE<ethylacetate, ethanol and 70% ethanol. Discs obtained by filter paper
(Toyo NO. 26, Japan) punched to 6 mm diameter were used to impregnate the
extracts to obtain approximately 20 ug/disc, and prior to adherence on to the
culture plates, the discs were allowed to dry at 42°C incubator. The bacterial
suspension from trypticase soy broth was streaked evenly into three planes on the
surface of the trypticase soy agar plates with sterile cotton swab (Puritan, U.S.A).
After the inoculum had dried (5 mins), the dried disc impregnated with extracts
were placed on the agar with flamed forceps and gently pressed down to ensure
proper contact. The plates were incubated immediately or within 30 mins after
inoculation. After overnight incubation diameter including 6 mm discs were
measured by means of a thin transpired ruler or by a divider.

3.7 Test for Wound Healing Properties of Melastoma malcibathricurn L
(a) Preparation of Muller-Hinton Agar Medium
Muller-Hinton agar (40 g) from India, was suspended in 1000 cm$^3$ of
distilled water in a sterile conical flask and covered with aluminum foil. Then
suspension was mixed thoroughly and heated to completely dissolve the powder on
a hot plate stirrer. The Muller-Hinton agar solution was sterilized in an autoclave at
121°C for 15 mins. The temperature of agar solution was reduced to 50 °C on a
constant temperature water bath. The Muller-Hinton agar was then poured into the
sterile Petri-dish near the flame of spirit burner. The agar medium was allowed to
solidify and sealed tightly in a polyethylene plastic bag and solidify agar stored in a
refrigerator until it was used. The medium was dried in an incubator at 37°C before
it was used.

(b) Procedure
Fifteen albino rats were taken and divided into five groups (3 in each group)
(I, II, III, IV & V). All albino rats were then anaesthetized. Anaesthetized rats were
shaved on the back area of about 3 cm diameter with blades. Incised wound about 1
cm in length was made on shaved area of rats. 8 CFU of staphylococcus aureus
were subcutaneously injected to the incised wound of each rat in each group.

The inflammatory and exudates was found within one day. No treatment was
taken in control group (1). The wounds were treated with ethanol extract, watery
extract observation for possible as wounds of rats were treated with 20 mg, 15 mg
and 10 mg of ethanol extract respectively. The dose used and observation of wound
healing of the rats before and after treated with samples are described in Table 4.

Results
4.1 Elemental Analysis
According to EDXRF spectrum, Ca and K are macro elements. The results are
shown in Table (1).
### Table 1

**Elemental Analysis of the Leaves of Melastoma malabathricum L by ED-XRF Spectrometer**

<table>
<thead>
<tr>
<th>No.</th>
<th>Elements</th>
<th>Content (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ca</td>
<td>0.329</td>
</tr>
<tr>
<td>2.</td>
<td>K</td>
<td>0.297</td>
</tr>
<tr>
<td>3.</td>
<td>S</td>
<td>0.083</td>
</tr>
<tr>
<td>4.</td>
<td>Fe</td>
<td>0.015</td>
</tr>
<tr>
<td>5.</td>
<td>Mn</td>
<td>0.012</td>
</tr>
<tr>
<td>6.</td>
<td>Ti</td>
<td>0.002</td>
</tr>
<tr>
<td>7.</td>
<td>Cu</td>
<td>0.002</td>
</tr>
<tr>
<td>8.</td>
<td>Zn</td>
<td>0.001</td>
</tr>
<tr>
<td>9.</td>
<td>Sr</td>
<td>0.001</td>
</tr>
<tr>
<td>10.</td>
<td>CH</td>
<td>99.259</td>
</tr>
</tbody>
</table>

### 4.2 Phytochemical Investigation

From the phytochemical results, starch and glycoside are absent and alkaloids, α amino acids, carbohydrates, flavonoids, phenolic compounds, reducing sugar, saponins, steroids, tannis, terpenoids are present. The results are shown in Table (2).

### Table 2

**Results of Preliminary Phytochemical investigation of Melastoma malabathricum L.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Test</th>
<th>Extract</th>
<th>Reagent</th>
<th>Observation</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Alkaloids</td>
<td>1% HCl</td>
<td>Wagner's reagent, Dragendorff's reagent, Mayer's reagent</td>
<td>Yellow ppt, Orange ppt, White ppt</td>
<td>+</td>
</tr>
<tr>
<td>2.</td>
<td>α-amino acids</td>
<td>H₂O</td>
<td>Ninhydrin reagent</td>
<td>Violet Colour</td>
<td>+</td>
</tr>
<tr>
<td>3.</td>
<td>Carbohydrates</td>
<td>H₂O</td>
<td>10% α-naphthol solution</td>
<td>Red ring</td>
<td>+</td>
</tr>
<tr>
<td>4.</td>
<td>Flavonoids</td>
<td>EtOH</td>
<td>Conc: HCl and Mg trunings</td>
<td>Red Colour</td>
<td>+</td>
</tr>
<tr>
<td>5.</td>
<td>Glycosides</td>
<td>H₂O</td>
<td>10% lead acetate solution</td>
<td>No white ppt</td>
<td>-</td>
</tr>
<tr>
<td>6.</td>
<td>Phenolic compounds</td>
<td>EtOH</td>
<td>1% FeCl₃ solution</td>
<td>Green colour</td>
<td>+</td>
</tr>
</tbody>
</table>
7. Polyphenolic compounds
   EtOH 1% FeCl₃ and 1% [K₃Fe(CN)₆] solution  Blue colour +

8. Reducing sugars
   Dil: H₂SO₄  Dil: NaOH and Benedict's solution  Brick-red ppt +

9. Saponins
   H₂O Distilled water  Frothing +

10. Starch
    H₂O I₂ solution  No blue colour -

11. Steroids
    PE Acetic anhydride and Conc: H₂SO₄  Green colour +

12. Tannins
    H₂O 10% FeCl₃ and Dil: H₂SO₄  Yellowish brown ppt +

13. Terpenoids
    CHCl₃ Acetic anhydride and Conc: H₂SO₄  pink colour +

4.3 Acute Toxicity
   No lethality of the mice was observed up to 14 days, even with the maximum allowed dose of the 95% EtOH and watery extracts (10g/kg).

4.4 Antimicrobial Activity
   According to the results presented in Table 1, it was found that, except PE extracts, EtOAc extracts and other extracts in 70% EtOH and watery showed antimicrobial activities. The mean zone diameters (ID) were found to be in the range from 19 mm to 25 mm. The results are shown in Table (3).

Table 3
Inhibition Zone Diameter of Different Crude Extract Tested against 6 Species of Microorganisms (Disc diameter = 6mm)

<table>
<thead>
<tr>
<th>No</th>
<th>Type of Bacterial</th>
<th>Diameter of Inhibitory Zone (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M.malabathricum</td>
<td>PE</td>
</tr>
<tr>
<td>----</td>
<td>-----------------------------</td>
<td>----</td>
</tr>
<tr>
<td>1</td>
<td><em>Pseudomonas aeruginosa</em></td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td><em>Escherichia coli</em></td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td><em>Bacillus subtilis</em></td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td><em>Bacillus pumalis</em></td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td><em>Staphylococcus aureus</em></td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td><em>Candida albicans</em></td>
<td>-</td>
</tr>
</tbody>
</table>

Acceptance Criteria
Disc Diffusion (mm)

<table>
<thead>
<tr>
<th>Susceptible</th>
<th>Intermediate</th>
<th>Resistant</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 21 (+++)</td>
<td>17.20(++)</td>
<td>≤ 16 (+)</td>
</tr>
</tbody>
</table>
Photograph of *Pseudomonas aeruginosa*  
Photograph of *Escherichia coli*

Photograph of *Bacillus subtilis*  
Photograph of *Bacillus pumalis*

Photograph of *Staphylococcus aureus*  
Photograph of *Candida albicans*
4.5 Wound Healing Properties

Wound healing properties on plant extract of sample was investigated in vitro on *Staphylococcus aureus* infected wound on albino rat model. Both watery and 70% EtOH extract contracted the wound at 20 mg/mL dose after 3 days and in the control group the wound healed after 10 days.

Table 4

<table>
<thead>
<tr>
<th>Extract</th>
<th>Dose mg/ml</th>
<th>Wound period (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M. malabathricum</td>
<td>Control (untreated)</td>
</tr>
<tr>
<td>watery</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>70% EtOH</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>

Discussion

Absence of acute toxicity by OECD fixed dose method up to the maximum does of 10g/kg on albino rats is a good indication for a favorable therapeutic index.

According to the results presented in Table 3, it was found that except PE extracts and EtoAC extracts were not showed activities.

Wound healing properties on plant extract of plant was investigated in vitro on *Staphylococcus aureus* infected and an albino rat model. The watery and ethanol extract contracted the wound at 20 mg/mL dose after 3 days and 4 days in the control group the wound healed after 10 days.

Recommendations

Other bioactivities beside antioxidant, cytotoxicity activity and antipyretic of the extracts should be determined.

Conclusion

These observation suggest the usefulness of the compound or extract as and anti-fungal drug. The observation of extract toxicity also favours a good therapeutic index.
References


Health in Myanmar. (2014). (http://mohs.gov.mm/content/publication/list?category=Health%20In%20Myanmar&pagename=1&page=40)


Using of Bio-Extract and Chemical Fertilizer to Promote Growth and Yield of Chinese Kale (*Brassica alboglabra*) under Acidity Soil Condition

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Abstract

Bio-extract, local wisdom, and chemical fertilizer were studied on growth and yield Chinese kale (*Brassica alboglabra*) under acid soil. The experimental design was randomize complete block design (RCBD) consists of five treatments and three replications namely (1) no fertilizer applied; NF (2) 100 kg rai⁻¹ of 15-15-15 applied; F(3) fermented bio- extract type I + type II applied ; BE1+BE2 (4) 100 kg rai⁻¹ of 15-15-15 and fermented bio- extract type I applied ; F+BE1 and (5) 100 kg rai⁻¹ of 15-15-15 and fermented bio- extract type I + type II applied ; F+BE1+BE2. The experiments was conducted between June, 15th to September, 7th 2015 at Bann Nong Bua Kok, Nong Bua Kok District, Amper Lampaimat, Buriram province, Thailand. ANOVA and mean comparison were analyzed for height, number of leaf, circumference of plant, fresh weight and dry weight. The result showed that combination between chemical fertilizer and two bio-extract (F+BE1+BE2) used gave highest increased growth (p<0.01) and yield (p<0.01) of Chinese kale more than other (NF, F, BE1+BE2, F+BE1). Using of chemical fertilizer showed higher increased number of leaf (p<0.05) and circumference of plant (p<0.05) of Chinese kale comparing with two bio-extract (BE1+BE2) used. The result indicated that in low soil nutrient with acidity condition, chemical fertilizer combined bio-extract will be need for Chinese kale production.

Keywords: Chinese kale, local wisdom, Bio-extract, fertilizer
Development and Promotion of Red-Tailed Silk Products of Na Pho Sub-district in Buriram Province to International Markets

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Abstract

The purposes of this study were to promote the red-tailed silk products of Seesawang sub-district to be known to the society at the international level and make the products of the community to be needed by the markets. The samples of this research were the group of people in Seesawang sub-district, Napho district, Buriram province who make silk clothes. There were 40 people. The design of the research was a mixed research, a quantitative and qualitative. The instrument of quantitative data was a set of questionnaire. The collected data was analysed by percentage, mean, and standard deviation; while the qualitative data was collected by an in-depth interview and a group discussion. Then the data was analysed by the content analysis. The study found that the guidelines to develop and promote the samples’ products were the followings. 1) All members must use their products. Now they have produced silk bags so they should always carry this bag. 2) The designs of the bags must be various and the bags should be multi purposes such as briefcases, backpacks, and carryalls. 3) The bags should be suitable to carry to any occasions, such as participating a funeral, wedding, or festival, etc. 4) The bag makers should persuade the well-known people like the governor and his wife, the community leaders, the directors of the radio stations, or the president of the university, etc. to use. Then the people may follow them. For the ways to make the bags to attract the buyers, there are 5 ways. 1) Produce a variety of advertisement media. 2) Modernize the website and produce several kinds of products. 3) There should be persons who are able to persuade people to buy the products to take charge in market promotion. 4) Construct the interesting description of all products. 5) Take the products to show in community events and international expos.

Keywords: Products Development and Promotion, Red-tailed Silk, Napho District, Buriram Province, Thailand
A Study of Household Level Biomass Stove Using in Banyang Subdistrict, Muang District, Buriram Province, Thailand

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¹, ², ³ Construction Technology Program, Faculty of Industrial Technology, Buriram Rajabhat University, Thailand

Abstract

This community based research focused on the villager’s design and making and also their attitudes towards the household level biomass stoves using reuse accompanying materials. The participants in this research study were villagers in Banyang Sub-district, Muang District, Buriram Province who were interested and attended the training about biomass stove used as cook stove and incinerators held by the researchers team. The field investigation, questionnaires and semi structure interviews were used to collect the data which then analyzed by descriptive statistics. The results showed that the villagers used their knowledge and experiences to design and make the biomass stove which can be used in household level. Most of the villagers highly agreed that the production and cost, quality, and efficiency of the stove are appropriate. Nevertheless, the heat adjustment should be improved together with reduction of smoke at the start of burning.

Keywords: biomass, cook stove, reuse accompanying materials
The Local Wisdom of House Lifting Technician in Buriram Province

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² Associate Professor, Architectural Technology Program, Buriram Rajabhat University, Thailand
³ Lecturer, Construction Technology Program, Buriram Rajabhat University, Thailand

Abstract

This research aimed to study (1) the state of the house that need to renovate and (2) the local wisdom of house lifting technicians in Buri Ram province. The qualitative study was used by investigating the six groups of local technicians. The six houses renovations were studied. It was found that the local wisdom of house lifting technicians was raised by their own experiences without the engineering or architectural background knowledge. The house lifting generated by the local technicians could be applied to houses made from wood, wood and masonry, and also reinforced concrete members. The reasons for house renovation were; 1) to solve settlement problem 2) to extend the ground floor to floor height 3) to strengthen the column and footing structures and 4) to relocate the house. The techniques used for renovation were house lifting, changing the column and footing structures, straightening the wall alignment, and relocating the whole housing structure.

Keywords: architecture, local wisdom, local technician, house lifting, house relocation
The Study of Transformational Leadership, Business Strategies, and Organizational Innovation that Influence the Strategic Management Model of Small and Medium Enterprises in the Automotive Parts Industry in Thailand

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Abstract

The purpose of this research is to investigate several aspects 1) to study transformational leadership that influence the development of strategic management model of small and medium enterprises in the automotive parts industry in Thailand. 2) To study business strategies and organizational innovations that influence the development of an strategic management model of small and medium enterprises in the automotive parts industry in Thailand. The sample consisted of 300 entrepreneurs, small and medium-sized enterprises in the industry, manufacturers of automotive parts in Thailand. Questionnaires were the research tool for data collection. The results indicated that a level of transformational leadership consisted 4 variables which were found in range 5.597 – 5.742, business strategy with 4 variables which were found in range 5.479 – 5.584, organization innovation consisted with 2 variables which were found in range 5.417 and 5.428 and business performance with 2 variables found in range 5.255 and 5.385. The 4 factors had relationship in between 0.414 – 0.877 with statically significant at 0.01. The model was consistent with the pertinent empirical data. Goodness of fit measures were found to be chi-square ($\chi^2$) = 7.859; degrees of freedom (df) = 14; probability value (P-value) = 0.897; goodness of fit index (GFI) = 0.995; and root mean square error of approximation (RMSEA) = 0.000. It is found that there are some factors that affect and business performance organization innovation and business strategy with coefficient 0.672 and 0.275 respectively with statically significant 0.05. The transformational leadership factors had also indirect effect to business performance through business strategy and organization innovation at coefficient. 0.804 and 0.711. Finally the 3 factors in the model were determined to be explanatory of 73.80 percent of the variance in business performance.

Keywords: transformational leadership, business strategies, organizational innovations, strategic management, automotive parts industry
Introduction

It has been accepted that Small and Medium Enterprises or SMEs is the foundation of Thai economy. It is also the driving force behind the Thai economy a plays as an important role in stimulating the economy of the country. It was found that the total number of SMEs in the Thailand is around 3,004,679 or 99.7% of the number of entrepreneurs nationwide. The trend is increasing continuously. Similarly the nationwide employment was 11,747,093 or 78.5% of the total employment (Lohawatanakul, 2018). Thailand's SMEs have been transformed and developed according to the direction of the country's development and the global economy (Office of small and medium enterprises promotion, 2017) Due to the rapidly changing social and economic conditions and globalization, all sectors need to focus and develop SMEs in Thailand seriously so that Thai SMEs would be strong and ready to deal with all kinds of problems and challenges. The global automotive industry continues to grow, especially in developing countries. (Thailand Automotive Institute, 2016). Thailand is the largest auto parts manufacturer and producer in ASEAN (Thailand Automotive Institute, 2016). The automotive industry is one of the key industries in Thailand that can create economic value for the country. The automotive and automotive parts industry is related industries. The component market industry consists of two main parts: 1) Component parts market for automotive assembly (Original Equipment Manufacturer: OEM) which is the main component for domestic automobile assembly and export and the demand for these parts will vary with the volume by cars and motorcycles. 2) Replacement market or replacement parts. (Replacement Equipment Manufacturer: REM). It is a market for replacement damaged or worn out parts. (Kasikorn Research Center, 2015). In addition, the automotive parts industry in the years 2017 - 2019 showed positive growth in accordance with automobile and motorcycle production due to the recovery of Thai economy and trading partners. According to The Board of Investment (BOI) promotion plan, it is expected that the production and sale of eco-car would be increased. (Yingchol, 2016). In 2015, Thailand is the number one exporter in ASEAN. And the 14th in the world. (Kruangsi Research, 2017). In 2017, Thai auto parts generated revenue of $19,844.69 million, it was 15.50% increase compared to 2016 which imports were $16,623.53 million, its 8.15% increased from 2016. In the year 2017, imports - exports were showed more than of $3,221.16 million.

The key issues for driving successful and sustainable SMEs is performance issues of small and medium enterprises. Actually, the growth of the successful marketing business is due to the cost of effective management. Moreover, the business processes and the infrastructure development of the country link both domestically and internationally to enhance efficiency and competitiveness in accordance with line with the changing world, especially the management factor (Nillakarn, 2014). At the heart of the enterprise is to be sustainable to the future. Leader is the key factor of success or failure. If an organization has effective leadership, it can command subordinates to do that activity and can put the right man to the right job. It is suitable for international and Thai SMEs having leadership in transformational style (Chongvisal, 2012). From the background of the above problems, we are interested in conducting information on transformational leadership. Since it is important factors in supporting the organization's business innovation of small and medium enterprises of automotive parts industry in terms of workflow management system focusing on
innovative product development which make a difference and competitive advantages. This would result in maximizing customer satisfaction and creating profitability to the organization under intense competition and the rapidly changing economy. This is the way the organization can survive and grow sustainably. It is also the guideline for business executives to deploy and develop their businesses successfully. This will lead to the promotion of Thailand as an efficiency-driven economy to be innovation driven economy country.

1.1 Purpose of the Study

1.1.1 To study transformational leadership influencing on of strategic management models of small and medium enterprises in the automotive parts industry in Thailand.

1.1.2 To study business strategy and organization innovation influencing on strategic management models of small and medium enterprises in the automotive parts industry in Thailand.

Literature Reviews
Small and Medium Enterprises (SMEs)

The subjects of this study are automotive parts industry in Thailand. The terminology in this analysis refers to what has been defined by the Office of Small and Medium Enterprise Promotion (OSMEP). Table 1 below summarizes the relevant information.

<table>
<thead>
<tr>
<th>Type of Enterprises</th>
<th>Small Enterprises</th>
<th>Medium Enterprises</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Employees (Persons)</td>
<td>Amount of Land, Buildings, and Equipment (Million Baht)</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>Less than 50</td>
<td>Less than 50</td>
</tr>
<tr>
<td>Services</td>
<td>Less than 50</td>
<td>Less than 50</td>
</tr>
<tr>
<td>Wholesale</td>
<td>Less than 25</td>
<td>Less than 50</td>
</tr>
<tr>
<td>Retail</td>
<td>Less than 15</td>
<td>Less than 30</td>
</tr>
</tbody>
</table>

Figure 1: Definition of SMEs Source: www.smebank.co.th
Transformational Leadership (TL)

Leadership of SMEs is a Transformational Leadership by Bass Avolio (1994). In addition, Transformational leadership also has an indirect positive influence on the SMEs performance through Innovation Leader will motivate, and encourage the followers to use creativity and innovation to meet the needs of their customers. (Bass & Riggio, 2006, p.7)

Scholars and researchers are interested in transformational leadership, which is capable of organizational performance. The organization will be changed with the characteristic of transformational leadership theory that motivates and creates inspiration to the employees. Such employees perceive the organization's vision, share its values, and culture. Then they will achieve their goals and objectives (Bass & Avolio, 1994; Griffin & Moorhead, 2006). The transformational leader’s behavior will motivate employees to achieve goals above expectations (Long & Lee, 2011). Also, Gillespie and Mann (2004) found that the potential of a transformational leader to develop followers would promote trust in the relationships of the organization's members (Alsughayir, 2014). The theory of transformational leadership is concerning to the behaviors of leaders in the aspect that the leaders can contribute to change in the organization. The leaders’ actions influence and inspire their followers to perform at full capacity. Therefore, the characteristics of transformational leadership include; influence to the members' ideas, inspiration and motivation, intellectual stimulation, individualized consideration, a creation of strategic vision, ability to communicate a vision, good examples for employees.

Business Strategy (BS)

Porter (1985), posit that three competitive strategies namely; cost leadership strategy, differentiation and focus strategies are key to achieving competitive advantage and improving organizational performance. The focus of this paper is cost leadership strategy as it is one of the commonly used strategy dimensions in the literature.

![STRATEGIC ADVANTAGE](image)

*Figure 2: Michael Porter’s Three Generic Strategies. Source: Wikipedia, the free encyclopedia 2019*
Organization Innovation (OI)

Schumpeter’s work broadened the development of the conceptual approach to innovation way back 1912. According to Schumpeter (1934), is the action of innovating and creating processes which promote the disruption of the economic system while allowing the emergence of novelties. Product or service innovation addresses the source of change which creates a competitive advantage (Jonash & Sommerlatte, 1999). Though, when it comes to services, innovation includes the introduction of new service. Tidd et al. (2005) has reported that an organization’s change on products and services is directly related to product/service innovation. Higgins (1995) remarked that central to the improvement of the efficiency and effectiveness of the product process is process innovation. Tidd et al. (2005) added that process innovation includes the alterations in the way products and services are created and delivered to customers. Process innovation is defined as the implementation of new or significantly improved method of production or delivery (Oslo Manual, 2005). Part of this is the significant changes in techniques and equipment. It even anticipates reducing production or distribution costs in order to improve the quality and distribution of products (OECD, 2005).

Research Methodology

The methodology of research is quantitative research. This study contribute to a causal model of transformational leadership, business strategy, organization innovation. This section comprise of research methods, population and sample size, instrumentation and procedure of the data collection used include data collection via a questionnaire and statistical analysis discussion in meant to both describe the research choices made, particularly for the primary research, and to critique and reflect on what these findings imply.

The methodology was derived from the reviewing of literature mentioned above, and was specifically designed to test the relationships in the conceptual framework. The study deploys structural equation modeling (SEM) techniques as statistical tools for the analysis of the data in the study. To determine the structural model, the measurement model and correlation study path analysis were considered at the same time. The population of interest was top management or owner of firms in Thai Auto Parts Manufacture’s Association (TAPMA) from 1,820 firms. The sample size must be appropriate to the statistics. If the sample size is too small, the correlation coefficient estimation will have a high standard error. (Tabachnick & Fidell, 1996). The researcher selected the sample size of this research sample with the concept of Hair, et al. (2010). Suggesting the size of the sample is appropriate at the level of 200 - 300 samples. Therefore, the appropriate sample size is 300 samples. Measurement models for transformation leadership, Business Strategy, Organization innovation, and Business performance with seven scales were tested through SEM.

Reliability analysis

Alpha coefficient, total confidence of 0.978, alpha coefficient, reliability Transformational Leadership equal to 0.979, Business Strategy equal to 0.933, Organization Innovation equal to 0.943 and Business Performance equal to 0.946, Alpha coefficient In each question, more than 0.70, all values show that the questionnaire is reliable, acceptable (Zikmund et al., 2010).
Research Result
The results are indicated below:

1) The result of transformational leadership that influence on strategic management of SMEs in the automotive parts indicates statistical significance (β=0.804, p=.001), and to organizational innovation (β = 0.711, p = 0.001).

2) The result of business strategies and organizational innovations that influence on a strategic management of SMEs indicates significant effect (β = 0.672, p = 0.001). In addition, it found that business strategy also has a significant effect to the business performance (β = 0.275, p = 0.001). In considering square - multiple correlation (SMC) or the predictive coefficient (R Square), the organization innovation was 0.506. This showed that the variables in the model can be explained the variance in the organization innovation variable of 50.600% and the business strategy was 0.647 or 64.700% of model variance. Business performance was 0.738 indicating that the variables in the model can explain the business variance performance at 73.800 %.

<table>
<thead>
<tr>
<th>factor</th>
<th>Business Strategy (BS)</th>
<th>Innovation Organization (OI)</th>
<th>Business Performance (PM)</th>
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<td>DE</td>
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<tr>
<td>TL</td>
<td>0.804</td>
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<td>OI</td>
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<td>0.672</td>
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<tr>
<td>BS</td>
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Figure 3: Hypothesis model after modified Source: Structural equation analysis results

It is found that there are some factors that affect and business performance organization innovation and business strategy with coefficient 0.672 and 0.275 respectively with statically significant 0.01. The transformational leadership factors had also indirect effect to business performance through business strategy and organization innovation at coefficient. 0.804 And 0.711. Finally the 3 factors in the model were determined to be explanatory of 73.80 percent of the variance in business performance.

The researcher also found that the model was consistent with the empirical data by considering the Chi-square statistic test was equal to 7.859 and p-value was 0.897. Additionally, the Chi-square statistic comparing the tested model and the independent model with the saturated model (CMIN/DF) of the differential was 0.000 and root mean square error of approximation (RMR) was 0.006 (it was below the
threshold). For Goodnees of Fit Index (GFI) was equal to 0.995. Adjusted Goodness-of Fit Index (AGFI) was equal to 0.978 that was higher than the threshold. It concluded that the results of the structural equation analysis according to the objectives were consistent with the empirical data, which is higher than the criteria specified by Parsimony Goodness of Fit Index (PGFI) of the suitability level of 0.531. Normed Fit Index (NFI) was equal to 0.924 and the Tucker - Laws Index (TLI) was 0.910.

Discussion and Conclusion

The result of strategic management model analysis of small and medium enterprises in the automotive parts manufacturing industry found that the transformational leadership factor was the most direct influence on business strategy factors and followed by organizational innovation factors. Two factors directly influenced the business performance: organizational innovation factor and business strategy factors. For indirect influence, factor included transformational leadership factors for business strategies and organizational innovation. The following discussions explain the detail of findings:

1) Transformational leadership influences business strategies and organizational innovation with statistical significance at the level of 0.001. There is a consistency between the model and empirical data and make the business performance achieve the objectives enabling the organization to grow and profit according to goals. Furthermore, it indicates consistency with the results of interviewing summarized from entrepreneurs in the automotive parts industry, the 1 to the 8 persons. Stated that transformational leadership is leadership that appropriates to the situation and the current economic climate. A motivating and persuading employees follows the strategy, and engage in innovative organizations that meet the needs of customers and the needs of the business market, which related to Bass and Avolio's theory (1990, 1994), Bass & Riggio (2006), including the concepts of Matzler, K., Schwarz, E., Deutinger, N. and Harms, R. (2008), Whittington (2007). The findings are consistent with studies of Peerawut Sirisak (2016).

2) Business strategy and corporate innovation Influencing business performance with statistical significance at the level of 0.001. There is a consistency between the model and empirical data and make the business successful to have operational results to achieve the goals. This is consistent with the results of interviews with entrepreneurs in the industry with manufacturers of automotive parts total of 9 people. The strategy of managing business performance for sustainable growth is to responsible for of the production process of quality products, encourages employees to receive knowledge development using skills from expertise, and apply technology in the production process in order to improve the produce quality products, the reducing production time and increasing production volume including systematic management of raw materials and inventory, reducing production costs and create maximum benefits including delivering excellent value to customers. The result related to the theory of Porter, (1990) and consistent to the concept of Slater & Olson (2001), Pryol et al. (2007), and in accordance with the concept of Kanjakad Yingchol (2016), John Parker Yanneey (2014); King, Fowler & Zeithaml (2001); McClelland (1973); Barry & Elmes (1997); Whittington (2007). In terms of organizational innovation focused on creating innovations in creating an atmosphere to learn about
good manufacturing processes. To encourage employees’ preferences which consequently affect to developing product with highest capability. The results are consistent with the results of interviewing with 9 people who are operators, manufacturers, automotive parts. The product innovation and process innovation resulted in profitability and sustainable business growth, which consistent with concept to Schumpeter's (1934); Porter (1990); And the concepts of Hidalgo & Albors, (2008) as well as the concept of Rujirawanich, Addison, & Smallman, (2011) also consistent to the study of Nurul Fadly Habidin (2015) and the result of Hamid Tohidi, Mohammad Mehdi Jabbari (2012), And also consistent with the findings of Sawat Wanarat (2018) as well as result research of Saenz et al. (2008). The limitations of this study are the researcher used quantitative research by collecting data with a questionnaire as a research tool and in-depth interviews to confirm quantitative analysis results. To collect a small and medium enterprise in the automotive parts manufacturing industry, 10 provinces of the Association of Automotive Parts Manufacturers were selected specify (not include a whole business of industrial automotive parts manufacturers in Thailand). Therefore, if the person who uses the research results to apply need to consider this limitation. And the researcher conducted a study on the specific performance of growth and profitability in the management perspectives by not taking into account the in-depth performance of the results. The researcher studied only with small and medium enterprises in the automotive parts industry in Thailand. The study is not covering other manufacturing industries. Therefore, other researchers should conduct their study on other industrial sectors to confirm the results. In addition, specific factors can be studies in depth to find out how they have a relationship with other factors that may contribute to business operation.

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Poster Presentation

Language, Linguistics and Literature
Development of Bilingual Booklet for Recording Community Information of Nong Takai Noi Village in Nangrong District, Buriram Province

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Abstract

The objectives of this research were to 1) study community information of Nong Takai Noi village, Nangrong District, Buriram Province, 2) to develop a bilingual booklet of this village, and 3) to investigate the samples’ satisfaction with the booklet. The population was composed of people residing in Nong Takai Noi village. The samples purposively selected from the population consisted of 30 adults including headman, community tellers and local sages, and 10 youths. Moreover, 10 adults and five youths were again selected as the samples for structured interview. The instruments employed in this research were a set of questionnaires and a structured interview. Regarding the instruments, the questionnaires consisted of four parts: samples’ general information, opinions on their needs of a bilingual document, their needs related to contents, and their other suggestions; the structured interview was composed of three parts: participants’ general information, their opinions about needs of the bilingual document and contents, and their other suggestions. These tools constructed by the researcher were examined by three experts in order to prove the content validity, and the tools’ index of item-objective congruence (IOC) were between 0.67 and 1.00. The descriptive statistics used for analyzing the quantitative data were percentage, mean and standard deviation while the qualitative data were analyzed via content analysis. The research findings revealed that 1) the information relevant to the village covering the village context, demography, local wisdoms, and culture, etc. was recorded. 2) The English-Thai booklet developed by the researcher covering the cultural topics such as Boon Khao Chee, Songran Festival, and Boon Bang Fai Festival, etc. And 3) their satisfaction with the developed booklet was overall found at a high level by which the booklet contents was at the highest level.

Keywords: community information, bilingual booklet, Nong Takai Noi village
Analyzing English Pronunciation of Myanmar Postgraduate Students While Reading Aloud

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Abstract

This research attempts to analyze English pronunciation of Myanmar students from Postgraduate Diploma in English Language Teaching Course (2007-2008) in Mandalay University. It explores what Myanmar learners fail to do in pronouncing English sentences while reading texts aloud, what causes of difficulties are in their pronunciation and what probable solutions to these difficulties are. Setting a native speaker model as a standard, it investigates how the students pronounce English words in connected discourse while they are reading aloud. In analyzing the intonation, computer analysis of speech is applied using such features as F0 (fundamental frequency / pitch) and duration which can be extracted automatically from the acoustic signals of the pronunciation software, and extending these features to pitch range, speaking rate, and loudness. Intonation is found to be the area the learners fail to use correctly in reading aloud. Based on the research findings, mother tongue interference is found to be the main cause of students’ pronunciation problems in intonation. To reduce students' deviation in pronunciation while reading aloud, it is suggested to teach English pronunciation by making a comparison between English and Myanmar sound systems. It is also recommended to introduce acoustic phonetics, applying pronunciation software as a teaching aid.

Keywords: pronunciation, reading aloud, students’ problems

Introduction

To help and promote EFL learning, it is one of the duties of language teachers to balance all four language skills – reading, writing, listening and speaking. In doing so, grammar is the basic need for all four skills and pronunciation plays an important role in practising listening and speaking skills. Due to different characteristics between English and Myanmar languages, Myanmar learners encounter difficulties in learning English. One of the main difficulties is pronunciation. For example, in reading aloud either at the primary level or at the undergraduate or post-graduate levels, students encounter difficulties in pronouncing English words in sentences. So an empirical research is carried out on the pronunciation of students attending Diploma in English Language Teaching Course to explore the areas where Myanmar learners tend to fail to pronounce English correctly and to find out their pronunciation difficulties focusing on one of the suprasegmental features, namely, intonation.
Objectives of the Study

The aim of this study is to analyze English pronunciation of students of Diploma in English Language Teaching in Myanmar while reading texts aloud. In fact, it is focused on what problems they encountered in reading aloud.

The main objectives are the following ones:

1. to give a description of Myanmar non-native pronunciation of English sentences and
2. to uncover the way Myanmar students actually pronounce them.

This research tries to answer the following research questions:

1. What do Myanmar learners fail to do in pronouncing English sentences while reading texts aloud?
2. What are the causes of difficulties in their pronunciation?
3. What are the probable solutions to these difficulties?

Literature Review

A teacher who teaches English as a foreign language needs to give special attention to communicative skills, and intelligible pronunciation is essential for his or her teaching to be effective.

According to Gabrielatos (2002), Reading Aloud (RA) is widely used in first language teaching at the initial stages of reading programmes in order to help children match sounds with the symbols of written language either by combining the sounds of single letters or letter clusters or by decoding the whole word. RA does have a place among modern teaching techniques, provided it is used in a principled way for those EFL learners of elementary level upwards, who have mastered the skill of assigning sounds to letter-combinations in English (with the possible exception of the occasional ‘difficult’ or ‘irregular’ word). It is also said that RA can be used to raise awareness of pronunciation, and provide practice in certain phonological aspects of English as well as certain strategies used to facilitate the production of spontaneous speech and communication.

According to Jenkins (2004), the main interest of pronunciation teaching research, for several decades of the 20th century, was in applying contrastive analysis techniques to the sound segments of the L1 and L2 to identify differences between them and so, it was assumed, to highlight areas where L1 transfer errors were likely to occur. She also points out that, still more recently and radically, a number of researchers have ceased treating pronunciation as a somewhat isolated, self-contained linguistic and pedagogic phenomenon, but are forging links with research into other aspects of language and language teaching and also maximizing the opportunities offered by technological advances.

Jia (2007) discusses that teaching pronunciation for English majoring students has long been considered not as important as other aspects of English learning, but numerous problems related with acquisition of pronunciation have become stumbling blocks for students’ listening comprehension, speaking and reading proficiency.

Since Myanmar is a syllable-timed language, Myanmar learners of English may have difficulty in producing English words and sentences in the way that corresponds to the characteristic rhythm of English language. The reason behind this difficulty seems to be of the fact that, in a syllable-timed language like Myanmar, each syllable is assigned an equal amount of weight, regardless of whether the
syllable is stressed or unstressed. As a result, Myanmar speaker’s pronunciation of English words and sentences may sound something so unnatural to the native speakers’ ears, and the particular type of rhythm can adversely affect the comprehensibility of their English to the native speakers. In addition, the difference in the way of stress markings between Myanmar and English languages also contributes to the difficulty for Myanmar students in both producing and receiving the characteristic stress patterns and the overall rhythm of English.

Finally, the issue of difficulty that Myanmar students might face in realizing the characteristic intonation patterns of English should also be addressed. Both Myanmar and English languages utilize the basic intonation patterns such as rising intonation for yes-no questions or final rising-falling for statements in conveying the meaning of the sentences and also the intention of the speaker. However, the difference between the two rests not in the way of creating intonation patterns but rather in the degree of pitch change or pitch ranges employed differently in creating appropriate intonation contours in each language. As a result, Myanmar students would often fail to display the wider pitch range utilized in creating English intonation patterns, relying heavily on their use of the narrower pitch range of Myanmar intonation patterns.

For example, even if a Myanmar student intends to say a sentence as a statement, a native speaker might misinterpret the statement as a question or assume that the speaker has not finished speaking yet. This example of misinterpretation as to the intent of the speaker’s utterances clearly illustrates one of the most common problems that Myanmar learners of English may encounter in communication. When a speaker fails to lower the pitch level far enough at the end of a sentence, the utterance might be perceived as a continuation of the speech, in spite of the speaker’s initial intention to finish the line.

According to Thein Tun (2007), it is noted that since pitch changes can convey not only the meaning of sentences but also the speaker’s attitude toward a topic of conversation, narrower use of pitch ranges by Myanmar students in their speech might be misinterpreted as a sign of boredom or lack of interest by the native English speakers.

Therefore, depending on the comparison between Myanmar and English pronunciation, many of the potential pronunciation difficulties for Myanmar EFL learners are found to be a clear reflection of the L1 phonological transfer. Through detailed examination of Myanmar and English sound systems, some of the specific problem areas have been identified, especially with reference to some of the characteristic phonological differences between the two languages.

It can also be assumed that pronunciation difficulties for Myanmar learners of English may arise in the following situations:

(i) when they encounter sounds in English that are not part of the sound inventory of Myanmar;
(ii) when the rules of combining sounds into words in Myanmar are different from those in English (i.e., different syllable types); and,
(iii) when the characteristic patterns of stress and intonation in English, which determine the overall rhythm of the language, are different from those in Myanmar (i.e., pitch accent vs. stress accent and syllable-timed vs. stress-timed).
Research Methodology

This research was conducted at the University of Mandalay in the academic year 2007-2008. Out of fifty-seven postgraduate students of Diploma in English Language Teaching Course, twenty-five students were chosen as the subjects of this research. It is a one-year diploma course having two semesters. The students held at least one degree. They were from both upper and lower Myanmar and were aged between 21 and 57 with an average age of 28.52 years.

The students had three periods for lectures and two periods for tutorials each week. During some of their tutorial periods, the researcher made recording. All students were given time to familiarize themselves with the sentences in the tape-script before the recording began. They were asked to read the tape-script naturally and at a normal speed and no explicit instructions were given. In other words, they were not explained how to pronounce or what sort of intonation to use. The recording session for each student lasted for about 5 minutes.

Material

In this research, a tape-script from Unit 13 of “English for the Teacher” by Spratt (194: 134) which is the prescribed textbook for the subjects under the module: Developing Communicative Skills (I + II), is used as a model or standard. Then the sounds of students are recorded while they are reading aloud. That the same tape-script was read by all subjects means that the whole database contains individual differences of the same sentences, which are expected to vary from subject to subject, according to their proficiency and idiosyncrasy. The native speaker’s model, already audio-taped for the purpose of EFL teaching, was used as a model of Standard Southern British (SSB) or Received Pronunciation (RP) so that a comparison between the native speaker’s pronunciation and the students’ pronunciation can be made for all sentences in it. According to the theory by Calhoun (2002), sentences of more than 20 words must be excluded to form the statistical model of the data. Thus, fifteen out of nineteen sentences are selected for comparison.

Moreover, a questionnaire is used to get information about the background knowledge of students’ pronunciation. It involves such contents as personal and academic information and how they learn English pronunciation.

To record students’ sounds, the MP3 recorder is used. For analysis, sentences read by the native English teacher and students were cut and divided from length signals of Cool Edit 2000 (http://www.syntrillium.com), a 30-day trial version. It is the software based audio system which is the most powerful and easy to use digital audio recorder, editor, and mixer.

Another software, Praat (Version 5.0.18), retrieved March 31, 2008, which is mainly used in this research, is a computer programme with which we can analyze, synthesize, and manipulate speech, and create high-quality pictures for the articles and theses. The Praat programme was created by Paul Boersma and David Weenink of the Institute of Phonetics Sciences of the University of Amsterdam. (http://www.praat.org or http://www.fon.hum.uva.nl/praat/) Using this software, one can record a sound and do spectral, pitch, formant and intensity analyses. All the measurements used in this research were made interactively using Praat (Version 5.0.18) software, based on simultaneous visual displays of the waveforms and F0 or pitch contours.
Data Analysis

This research has focused on prosodic features which have been found to have easily quantifiable acoustic correlates using automatically derived prosodic features from the speech signal. Depending on the methods experimented in the research of Calhoun (2002), the researcher attempts to use the following measures that can automatically be extracted and derived from the acoustic signal.

The researcher used the acoustic measures such as fundamental frequency (F0) and duration features which primarily indicate prosodic properties or discourse structure at the sentence level. Using Praat software, all F0 features and their corresponding energy values are taken out. Two types of duration features such as the speaking rate and the total duration of each sentence are also calculated.

Calculating Fundamental Frequency (F0) Range

The first set of features extracted by the programme is the F0 features, attempting to capture the F0 level of the sentence. These are the maximum F0 and the minimum F0. Fundamental frequency (F0) range is calculated by using the following formula.

\[ \text{F0 range} = \text{Maximum F0} - \text{Minimum F0} \]

Calculating Speaking Rate

Secondly, the speaking rate was calculated in words per second. The Word file was used to find the length in words of each sentence. This was then divided by the duration of the sentence, taken as the length in seconds between the end of the first word in the sentence and the end of the last.

\[ \text{Speaking rate} = \frac{\text{No of words}}{\text{Length in seconds between the end of the first word in the sentence and the end of the last}} \]

Calculating Total Duration

Then the total duration of the sentence is the length in seconds of each sentence. In the software, selecting the area by referring to the wave form and using the display section of the sentence in the waveform can show the time range in second or millisecond between the start time and the end time of that selected area.

Calculating Total Energy

Another measure that can automatically be taken from the software is total energy over the sentence in Pa^2.s.

Calculating Energy Ratio

The final set of features tries to capture the nature of the boundary of the sentence. Energy values in Pa^2.s of the final 200 ms of the sentence and the penultimate 200 ms are taken and then the energy ratio at the end of the sentence is calculated by using the formula:

\[ \text{Energy ratio} = \frac{\text{Energy over the penultimate 200 ms}}{\text{Energy over the final 200 ms}} \]

Findings and Discussion

The researcher used three indicators to mark the prosodic events of the sentences read by the students: F0, duration and energy or amplitude.

According to the F0 measures or pitch contours taken out in this research, the students failed to signal rising and falling in intonation of English sentences. They indiscriminately used the low level pitch contours which are produced due to the
breathy voice quality as obviously seen in most of the tone languages. Thus, mother tongue interference is one of the factors why students’ failure in signaling intonation or pitch of the target language, English.

![Figure 1: Same F0 range in percent of the students as the Native Speaker](image)

According to the research findings, the students fail to display the wider pitch range utilized in creating English intonation patterns, relying heavily on their use of the narrower pitch range of Myanmar intonation patterns as can be observed in Figure (a).

Secondly, it is found that students’ speaking rate and total duration are slower at the sentence level than those of the Native Speaker. Similarities with the Native Speaker in percentage of students’ speaking rate and total duration can be seen in Figure (b) and Figure (c).

![Figure 2: Same speaking rate in percent of the students as the Native Speaker](image)

This is because the amount of time to say a sentence in Myanmar depends on how many syllables the sentence contains, not how many stressed syllables it contains as in the English sentences. Thus, mother tongue interference is one factor for slower speaking rates for the students.

Moreover, while the students are reading aloud, they try to make such disfluencies as false start, repetition, making correction, coughing, etc. These disfluencies are one of the causes for slower speaking rates of the students rather than
the influence of students’ mother tongue. These may be caused due to students’ hesitation while trying to pronounce words in a foreign language or due to their unfavourable characteristics in reading habit.

One more problem in reading sentences aloud is students’ tendency to make longer and unnecessary pauses while trying to make tone unit boundaries.

Figure 3: *Same total duration in percent of the students as the Native Speaker*

Another acoustic indicator used in the research is total energy in Pa²’s over sentences read aloud.

Figure 4: *Same total energy in percent of the students as the Native Speaker*

In the case of the students, all their total energy measures are greater than the native speaker’s for the same sentences. Just a few sentences of the students are within the same total energy range as the native speaker despite having greater energy values. They even have the tendency to produce more energy in reading the sentences as found in Figure (d).

Why this occurs depends on voice quality the native speaker and the students try to produce. The students are speakers of a tone language as L1 and familiar with breathy voice quality and so, in reading sentences in English (FL/SL), they encounter such problems because of their mother tongue influence. Thus, they are found hard to read or speak English words or sentences in native-like manner due to the voice quality they have in their nature.
The final acoustic measure taken in the comparison is the energy in the penultimate 200 ms and the final 200 ms. Energy in \( Pa^2/s \) or amplitude in \( Pa \) relates directly to the loudness when speaking or reading the sentences. The energy ratio of the final 200 ms to the penultimate 200 ms of all sentences when read by the students can be seen in Figure (e) in comparison with the Native speaker.

The reason behind this may be because of students’ mother tongue, Myanmar. Since it is syllable-timed, the students cannot tackle that problem in sentence final or ending. Students are likely to end reading of the sentences assigning each syllable an equal amount of weight regardless of whether the syllable is stressed or unstressed. According to the energy ratio of the sentences between the native speaker and the students, it can be found that the students fail to lower the amplitude or energy far enough at the end of the sentences and thus these sentence finals might be perceived as not finishing or as a continuation.

In Myanmar, these students’ level of studying English is at the postgraduate level. Their background knowledge of English pronunciation will be discussed depending on the information from the questions used in the questionnaire. It includes 16 questions which provide information related to their learning of English pronunciation, their personal and academic information, when the students learnt the Phonetics course, how they practised pronunciation, with which teaching aids they have learnt it and how they tried to improve their pronunciation.

According to academic information, 44% of the students specialized in English in their first degree and the other 56% were non-English specialization students in their undergraduate courses. 32% of students held Diploma in English from the University of Foreign Languages.

According to the questionnaire, 76% of the students have learned pronunciation in English as an undergraduate or postgraduate course. 68% has practiced their pronunciation in reading aloud and 56% in their speaking.

88% of the students attempted to learn English pronunciation outside class. 58% studied it using such technological aids as tape or CD. They studied it privately and the course last 1, 2, 3, 4, 5 or 8 month(s) in duration. It reveals that the students have been familiar with English phonetics or pronunciation.

While they were learning English pronunciation in their own way as self-study, 72% referred to the phonetic symbols in the dictionary, 68% used English pronunciation practice books, and 76% of them applied tape or CD as a reference tool.
76% of the students had experiences in speaking with native English speakers or other foreigners and 72% admitted that they tried to correct their pronunciation while speaking with those by imitating their accent.

The final question in the questionnaire states other ways of learning or practicing their pronunciation. In our Myanmar context, these students attempted to improve their pronunciation in one or more of the following ways:

(i) watching video films in English,
(ii) listening to radio programmes in English such as BBC or VOA,
(iii) listening to news and songs in English,
(iv) watching some English TV programs by native English speakers,
(v) checking phonetic symbols in the dictionary if the pronunciation of the words are not sure,
(vi) imitating the teacher’s pronunciation,
(vii) observing other students’ pronunciation,
(viii) practising pronunciation depending on how speech organs work (articulatory phonetics)
(ix) asking teachers when facing with pronunciation difficulties and
(x) checking pronunciation with computer using pronunciation software.

Students’ way of learning or practising English may be good each in its own way. One of the students mentioned the final point, that is, to check pronunciation with computer using the pronunciation software. It gives us the idea that the use of pronunciation software is not so remote in our study of a foreign language. Although the student does not point out which computer software he/she is using, it is noticed that it should be used in the study of English pronunciation because we are studying English as a foreign language.

Conclusion

Every language teacher must know something about the sounds of the language they teach. When English is spoken or read, there are several different accents: British, American and others. Knowing something about the sounds of the students’ mother tongue is found to be useful for language teachers. This will help them to identify any problems their students might have with English sounds.

Moreover, the teaching of pronunciation should not terminate in its segmental aspects of the sound system of the target language. The study of segmental features leads to an inadequate degree of phonological control in the new language.

In the pronunciation of English sentences, it is found that the students fail to produce rising-falling intonation in reading sentences, to control the flexibility in rate, volume and tone, to phrase adequately and to use pauses effectively.

In addition, students also try to pronounce or read the sentences in their own ways that reflect prosodic characteristics or features in reading sentences that are likely to be found in their mother tongue. This is because they are accustomed to the Myanmar sound system even though they are introduced with the English sounds in the kindergarten or in the primary level. Consequently, however hard they try to practise English pronunciation in their undergraduate or postgraduate level, weaknesses in this area of language learning can still be found either in reading or speaking in English.
In this research, acoustic phonetics and computers are used for analyzing speech sounds. Using acoustic analysis may enhance the valuable ability to monitor students’ pronunciation while learning a language as a foreign language.

Recommendations for the teaching of English pronunciation for Myanmar students would be:

- to concentrate on the matters that most impede intelligibility while encouraging fluency and confidence;
- not to neglect the need to interact with the native speaker;
- to exploit the findings of contrastive analysis to help pinpoint likely areas of difficulty.

On account of error analysis in applied linguistics, it has been pointed out that contrastive analysis does not provide all the answers for students’ learning problems in applied linguistics. Nevertheless, it goes a good way towards pointing us in the right direction.

The researcher would like to suggest that students’ deviation in pronunciation while reading aloud could be attributed to unconscious interference from L1 phonological representations, so a contrastive analysis of the sound system of L1 and L2 may help give learners pertinent articulatory hints and help avoid anticipated errors.

Furthermore, the researcher thinks that it is also a useful skill for students to be able to read aloud because there are occasions in social life that require oral reading. For example, it is not uncommon for people to share what they have read in a newspaper or magazine with others who are interested in the content by reading orally excerpts to them. It also often happens in social life that one needs to deliver a written speech to an audience or to read aloud a circular or some instructions.

And even when someone wants to make or prove a point, he may find written evidence to support his views and will choose to read it orally. Moreover, while engaging in radio and television programmes, reading aloud can be used increasingly by parents and teachers and other professional people. The requirement in all these situations is the ability to read well enough so that the interest of the listener is maintained. Thus, reading aloud is a worth and interesting activity to have the audience listen to good readers.

Therefore, in all levels of learning English as a foreign language, it is preferable to conduct the reading aloud exercises and it is essential that students copy the teacher’s or the model’s correct pronunciation stress and intonation.

This research only explains those events at sentence level but other supra-segmental features such as stress and rhythm cannot be dealt with in this research. Another limitation is the quality of recording. Recording of students’ sound was done neither in the sound-proof room nor in an unechoic studio. Using the same type of MP3 recorders, the researcher collected the data in their classroom. Thus, there may be some background noise effect in analyzing the data. The researcher takes only 25 students whose first language is Myanmar. Considering the small size of the sample, the results of this research may not constitute a conclusive evaluation of all Myanmar postgraduate learners of English intonation patterns in reading aloud.

The sentences used in this research are long or short affirmative sentences of a tape-script. Future research should focus on intonation of selected sentences and sentence-types should be: statements, yes-no questions, statement questions and wh-
questions so that the intonation patterns of Myanmar students can be studied in all aspects of sentences. Moreover, in the future research on Myanmar students’ intonation of English sentences, the focus should also be on communicative and pragmatic aspects. Hopefully, research in the future will investigate other features at both the segmental and suprasegmental emphasizing on stress, rhythm and other prosodic elements that are found in real-life conversation, for example, dictation read out by the teacher.

References


Law and Politics
A Model of Interdisciplinary Integration for Strengthening the Sustainable Community of Ban Nong Ta Kai Community, Nong Kong Sub-district, Nang Rong Sistrict, Buriram Province

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Abstract

The objectives of this qualitative research were 1) to analyze the strength of the Ban Nong Ta Kai Community, Nong Kong Sub-district, Nang Rong Sistrict, Buriram Province, 2) to find ways to integrate interdisciplinary to strengthen the sustainable community, and 3) to create a model of interdisciplinary integration to strengthen the sustainable community. Data were collected by small group discussion, brainstorming forum, and form criticism by a panel of experts. The participants were collected from 100 community enterprise representatives, 20 community leader representatives, 10 government agencies representatives, and 15 experts. Population was purposively selected. The tools used were an interview form, a knowledge synthesis form via small group activities, a knowledge synthesis form via brainstorming forum, and a form for assessing the interdisciplinary integration model by the experts. The research results revealed that 1) Ban Nong Takai Community possessed a strength from many factors, including (1) diverse cultural capital including language, religion, beliefs, customs, food, clothing, (2) community leaders consisting of monks, who are developers, folk sages, and volunteer community members, (3) long and proud community history, (4) good natural environment, (5) occupational resources for generating incomes in the community, (6) local wisdom, and (7) network and development alliance. 2) The guidelines for integrating interdisciplinary to strengthen the community were as follows: (1) driving the strong community through the use of information technology to promote community activities, (2) creating a coalition of development partners, (3) development and design of community products, (4) community-based learning, (5) prevention, suppression and awareness raising of community members, (6) creating local curriculums for the local community, (7) development of academic affairs and internationalization, (8) development of community identity and local knowledge, and (9) development using the principals of ethics. And 3) the model of interdisciplinary integration for strengthening the sustainable community covered the following sciences: (1) Thai and English, (2) information technology, (3) political science and public administration, (4) history, (5) religion and philosophy, (6) digital art, (7) music, (8) social development, (9) design, (10) science, (11) human resource management and the model of integrated interdisciplinary, evaluated by the experts with the highest level (μ=4.59), to strengthen the sustainability of community.

Keywords: model of interdisciplinary integration, strength of sustainable community, Ban Nong Ta Kai community
Law and Child Protection Problems from Sexual Exploitation

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Abstract

This qualitative research aimed at 1) studying legal measurement problems of child protection from sexual exploitation in Thailand, and 2) investigating a solution and improvement of internal law to meet the demand and to support a solution of legal measurement in child protection from sexual exploitation at present and in the future. The data were collected from websites and academic documents such as journals, books, textbooks, dissertations, seminar reports and related national and international research works. Content analysis was employed to analyze the collected data. The results revealed as follows:

1. There were three aspects of legal measurement problems of child protection from sexual exploitation in Thailand: child trafficking problem, child prostitute problem, and child pornography problem. Moreover, it was found that private and public organizations were deficient in data management system, budget, and qualified personnel.

2. For the solution and improvement of law, legal measurement in protecting a child from sexual exploitation should be carried out, and internal law should also be improved effectively.

Keywords: law and child protection problem, sexual exploitation
Educational Cooperation between Thailand and Lao PDR in the Post-ASEAN Time: A Case Study of Twin Schools under Mekong River Sub-Region’s Cultural Context

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Abstract

The research aimed to study the context of the relations and educational cooperation between Thailand and Lao PDR. A qualitative survey method was conducted in the present research through documentary study and field work. Key informants were school administrators, teachers and students. Data were gathered by means of interview, and observation. Data were analyzed by an inductive method. The research findings were as follows.

1. Thai-Lao relation context in the cultural dimension of both sides of the Mekong River: the context showed close relations and ethnic ties. If ‘being Laos’ was viewed beyond being different in the nation-state, one could find that the residents of both sides of the Mekong River shared common beliefs and traditions. To put it another way, a majority of the residents were Buddhists and they still practiced long-held traditions or what was locally known as “Heet Sip Song, Kong Sip Si”.

2. The Thai-Lao relations could be categorized as the kinship or “blood relations” which have been passed on since the times of Lanxang and Ayuttaya Empires. During the colonial period, the diplomatic relations were established between the two neighboring countries. At the present time, the two sides of the Mekong River had exchanged the mutual official visits. Relations were developed through the centers and development projects.

3. The educational cooperation between Thailand and Laos under research began from personal relations both official and unofficial. The guidelines to strengthen the twin schools were as follows: MOU should be established, relations activities should be held, language and cultural learning should be organized to promote mutual understanding, the development of teachers and students should be made and the network of the relations should be expanded.

Keywords: educational cooperation, Thailand and Laos, twin schools, Mekong River sub-region
Objectivity of Political News Presentation in Conflict Situation: A Case Study of News on PDRC Rally and the Government of Matichon and Thai Post

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Abstract

This study was a qualitative research using content analysis approach to find out the answer to the objective concerning news sources. A journalistic tool called “dummy sheet” was applied to measure the volume of news space. The samples of this study were Matichon and Thai Post. The case study was conducted on the news on PDRC rally and the government, comprising 29 news from Matichon and 29 news from Thai Post, or total samples of 58 news from both newspapers. In addition, in-depth interviews with 12 news reporters were performed to obtain opinions on objectivity of the news presentation. The study revealed the following results.

Firstly, Matichon and Thai Post were found using similar political news sources when reporting conflict situation, a case of PDRC rally and the government. For example, they used primary sources through direct observation of field reporters or open sources whose identification were revealed. Usually, those were regular news sources who were close to the incidents. The reporters would rather interviewed the sources than used secondary sources such as documents. Also, Internet and international news sources was slightly used. Secondly, on the volume of political news space in conflict situation of this case, it was found that both newspapers allocated more space to report news of the government than those of PDRC. Lastly, on the objectivity of the news presentation in a case study of the news on PDRC rally and the government, it was not possible to consider whether there was a balanced number of news sources as both the government and PDRC gave information under different conditions for their own benefits. However, taking into account the objectivity of the case study based on the volume of news space, it was found that both newspapers had a tendency to side with the government which was powerful at that time by providing more space to present news of the government. When asking about their opinions on objectivity of the news presentation, all reporters who were informants of this research had the same opinion. For example, objectivity was necessary in the news presentation. Good reporters should be objective as much as possible by presenting information of all related parties, providing all parties with opportunities to explain, not judging what is right or wrong and not clinging to their own opinion.

Keywords: news presentation, objectivity, conflict situation, government
Music and Performance Arts
American Music from Blues to Jazz Blues

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Abstract

American music has many forms and influences throughout the world. One of them is that the music has developed a long has been very popular to date. Since the first 20 African slaves were brought to The America for labor in tobacco and cotton fields. Later, it merged Western music with African folk music until it became a new genre of music called "Blues" which was later regarded are American Culture. Musical structure of "Traditional Blues" include: 1) Rhymed lyric with a three-dimensional poem, 2) Harmony in the chord progression with basic structure of major chords I – IV – V, and 3) Blues Melodic Shape mostly played on the blues note which are b3rd, b5th and b7th. Later, blues music had been developed into jazz blues. The complexity of the harmonics was enhanced, but still involves the traditional blues music structure. Two development were found as follows: 1) blues music with a higher and more difficulty in complexity of harmony and rhythm, and 2) jazz music with a lower level in complexity of harmony and rhythm.

Keywords: blues and jazz music, blues chords progressions, blues melodic shape, blues notes

Introduction

When the first 20 African slaves were taken to Jamestown, Virginia, U.S.A. in 1691 on a Dutch ship named The White Lion, it was later the beginning of million slaves in the southern part for labor in cotton and tobacco fields (Corbet. 2011). These colored slaves created a new kind of widely popular music which has had influence throughout the world until now: blues music. Blues has musical uniqueness to make its audiences feel the sorrow from being forced to work heavily and tortured in different forms. The musical melody and lyric were played with grim atmosphere to release sadness and pressure after the hard work. The music was performed with any old musical instruments found and sung with lyric and melody influenced by western music where the notes and mixed with original African music background the slaves have with them.

At first, blues music did not a clear pattern in any western music theory. Its characteristic was “learning though the back door” with a combination of correctness and mistakes and field holler to communicate and release the feelings while working (Geringer. 2013). Each musician relied on their own interpretation. Musical stanzas did not have appropriate proportion in the western music theory. Around 1920, there were more western musical development in blues music and commercial music record. Therefore, blues music pattern was arranged to fit with western music pattern in order to reach the audiences well. W.C. Handy was considered the one who gave blues music a clear pattern published to gain popularity. He was blues music composer who was recognized “Father of the Blues” (Hobson. 2008). He composed
many masterpieces of blues music which are still popular today such as Beale Street Blues, Yellow Dog Blues, or ST. Louis Blues.

W.C. Handy the “Father of the Blues” (Xiang Li., 2012)

**Blues Music Patterns in Western Music**

Blues has music pattern of 12 bars with important music components:

1. Rhymed lyric is three lines as one stanza. When the stanza ends, it will be repeated at the beginning and played again to the end (Corbet. 2011). The lyric might be short and repetitive or have many long verses. The lyric is mostly about love, freedom, sex, or life’s hardship (Lomax. 2002).

   _Boyzy Mumbling Blues_
   
   _Lyrics by Ittikorn Camacho_

   "‘I’ve tried to write these words
   I’ve tried to write these words
   I finally end up with these
   ‘Cause I have to do
   ‘Cause I have to do
   just to make you Blues"

2. Harmony is the chord progression with basic structure of major chords I – IV – V or tonic - sub dominant – dominant or degree of diatonic major scale.
2.1 Scale Degree

(C Major Scale Degree)

2.2 Blues Chord Progressions

Sometimes, the IV chord might be used in bar 2 to make it more colorful. While in bar 12, the last bar of the song, the popular chord is V chord to turn around to the beginning of the song repeatedly until finishing the song with chord I.

2.3 Blues Melodic Shape

*Boyzy Mumbling Blues*  
Composed by Ittikorn Camacho
Blues melody is mostly played on notes, b3\textsuperscript{rd}, b5\textsuperscript{th} and b7\textsuperscript{th} of the major scale. When the audiences listen to the notes, they can hear “bitter-sweetness” in the notes (Geringer. 2013).

Actually, the musician can bend the blues note on any notes especially with string or woodwind instruments to increase the atmosphere and feeling of the blues notes. This is not limited with the 3 notes, b3\textsuperscript{rd}, b5\textsuperscript{th}, b7\textsuperscript{th} only.

When performing blues, the singers will lead the performance while the musicians will solo with improvisation responding to the end of each line. This is categorized as “call and response” (Stienfeld. 2016) on the chord progression as the players like. There might be an agreement of the number of the chorus solo or end the solo with immediate body language communication.

Boyzy Mumbling Blues

Composed by Ittikorn Camacho
From Blues to Jazz Blues

Since the 20th century, jazz was born and became popular in New Orleans. It was a combination of ragtime, march, and blues music. This new kind of music was called “New Orleans Jazz”. The famous artists at that time were Jimmie Noone, Zutty Singleton, and Ed Garland (Mckay. 2000). However, regardless of how blues developed to jazz or other kinds of music, the jazz atmosphere is still in those kinds of music at different extents. The atmosphere can always still be felt. It could be said that jazz blues was music developed as the following stages:

1. Blues with more complicated harmonic voice and rhythms
2. Blues with less developed complicated harmonic voice and rhythms

Jazz Blues is blues developed from old 12 bar blues by adding complications of harmonic voice. This makes a variety of the harmonic voice to create challenges on choices and expand the use of notes for the improvisation to have more rhythm with ii – V chord progression in bar 4; chord ii has 2 rhythms followed by chord V with another 2 rhythms (in 4/4-time signature).

The mentioned ii chord is ii – V chord of the Bb7 chord in bar 5 which is IV chord in the song. However, in this case, the IV chord is to be temporarily seen as the I chord making movement of the ii – V – I chord progression. For example, in the F key the IV chord in bar 5 is Bb7 chord if it is temporarily seen. That will be ii chord in bar 4 the Dm7 chord and V chord in the F7 chord.
That makes the notes movement with resolve from Eb note which is minor 3rd interval of the Cm7 chord toward Eb note which is minor 7th interval of the F7 chord. It can be noticed that Eb note is the same note remaining the same position but functioning differently on both chords then resolving toward D note which is major 3rd interval on Bb7 chord in bar 6.

Moreover, a progression of ii – V chord can be added in bar 8 with Am7 and D7 chord moving toward Gm7 chord in bar 9 in order to increase the movement of the sound making the performance livelier.

The jazz blues chord progression can be added to make it complicated for enjoyment in the performance because various chord progressions will provide the musicians choices to create different solo lines. This is because the numbers of notes with resolve in ii – V – I progression increases.
In bar 7, the IV diminished 7 chord is added to turn around to the I chord in bar 7. In bar 8, the Am7 and D7 chords are added with ii – V progression of Gm7 chord (seen as I chord temporarily). Meanwhile, in bar 9, Gm7 chord still functions as ii chord of F7 chord (as I chord of this song in bar 11) followed by C7 chord functioning as V chord of F7 chord in bar 11. At this stage we can end the chord progression of this song with F7 chord. However, the chord I – vi – ii – V progression is added in the example. This pattern of chord progression is called “turn around” which means to go back at the beginning of the song again, starting from the 1st bar to 12th bar. This pattern needed to be repeated several times until the musicians are satisfied before ending the song with the I chord.

Advance Jazz Blues

The development of jazz blues harmony notion with more complicated progression of chord had continued throughout the changing eras. This results in a challenge for musicians to have been equipped with high musical theories and skills to be able to perform the music skillfully and enjoyably. One highly recognized and famous artist is Charlie Parker. He is considered a person who changed jazz blues with substitution chords to replace the original chord progression at several positions by creating a new kind of jazz blues: Bird Blues. It has been still popular to be performed and studied till today.

Bird Blues

(Aebersold J., How to Play Jazz and Blues, p37)
When considering Bird Blues chord progression, it can be clearly seen that the chord progression changes almost the entire song, starting from the 1st bar on a dominant 7th chord to be major 7th. This enables the musicians to use major scale at the same time with blues scale. In addition, the ii7b5 chord is used and followed by V7 altered chord, Dm7 and G7 in bar 3, and Cm7 and F7 in bar 4 in order to move to the IV chord (Bbmaj7) in bar V. It can be seen that from the 2nd bar to bar 5 there are movements on ii – V chord progression for 3 times in the type of Circle of 4th. In bar 6, the Bbmin7 chord is used. It is a chord in parallel key (or borrow key) which is borrowing chord from another key to use temporarily. In bar 7, it is Am7 chord, followed Abm7 in bar 8 moving toward Gm7 chord in bar 9. It can be seen that the 6th bar to 9th bar has chord progression with chromatic. Meanwhile, Gm7 chord in bar 9 functions as ii chord of Fmaj7 chord, followed by C7 chord. A set of chord turnaround is used with iii – VI – ii – V with Am7b5 and D7b9 chord in bar 11, followed Gm7 and C7 chord again in the 12th bar to go back to the beginning of the song.

Conclusion

Today, there are more intensive studies on harmonic voice via new creative concepts for jazz blues in order to have several more complicated chord progressions. This increases challenges to perform the music, so jazz blues must be seriously studied and practiced both theatrically and practically to master the performed skill as desire. Blues still expands itself to different genre such as rhythm and blues, rock and roll, jazz, pop, etc. Meanwhile, blues also differs into several styles such as traditional blues, country blues, jazz blues, blues rock etc. It also has been popular to be mixed with other kinds of music to some extents until today. Its significance makes it considered “the perfect culture” of America.

References

Social Development and Social Studies
The Community Development according to the Principle of the Sufficiency Economy Philosophy: A Case Study of the Community of Ban Dongbang in Tambon Nongbo in Ubon Ratchathani’s Mueang District

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Abstract

The work used a mixed method research. It aimed 1) to study the way of life according to the principle of the sufficiency economy philosophy and 2) to explore the community development according to the philosophy in question at Ban Dongbang in Tambon Nongbo. In a quantitative part, the samples were 103 households. In this part, the informants represented 103 households. The sample size was determined by Krejcie and Morgan’s table, and the samples were derived by a simple random sampling. Statistics used in data analysis were means and standard deviation. In a qualitative part, thirty subjects were specifically selected. They were divided into three groups: key informants, practitioners, and general public. Data were gathered by means of observation, in-depth interviews, and focus group. Data in this part were analyzed by means of a content analysis.

The research found that the community of Ban Dongbang is the group of people who originally migrated from Vientiane. They came along with the leader, Phra Wor Phra Ta, the founder of the city of Ubon Ratchathani. A majority of the village residents are engaged in agriculture. As for their way of life, they still practice and retain traditions and culture as practiced by their own ancestors. The community has scholars who specialized in the sufficiency economy philosophy, and it has practiced this philosophy so well that the community was awarded the prize of the outstanding village in 2012. The sufficiency economy philosophy has been used at all levels to a great extent. The community development at the community in question consists of 1) a study of contexts/ circumstances of the community, 2) creation of the network for learning the philosophy, 3) a forum for the community to plan, 4) implementing the plans/ projects, 5) follow-up and evaluation.

Considering the results of implementing the principle of sufficiency economy, it was found that the implementation was at a high level. The accomplishment factors in the community development according to the sufficiency economy philosophy are a leader’s good vision, a community’s strength and participation, wise use of natural resources and indigenous wisdom, self-reliance, and supportive networks. The main problems and obstacles are lack of knowledge and understanding on individuals’ part concerning the spending and receiving accounting, debt-related issues, and insufficient state support.
Keywords: community development, sufficiency economy philosophy
Community’s Participation in Elderly Development of Pon-ngarm Village, Tambon Nongbo, Muang Ubon Ratchathani District, Ubon Ratchathani Province

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Abstract

The objectives of this research, title: Community’s Participation to Develop the Elderly of Pon-ngarm Village, Tambon Nongbo, Muang Ubon Ratchathani District, Ubon Ratchathani Province, were to (1) study the state and general situation about the elderly (2) study of community participation in elderly development and (3) study approaches for elderly development by using quantitative research methods.

The findings in this research were as follows:

1. The elderly would like to carry out various activities to improve the quality of life of the elderly in order to cover all 4 areas as (1) social, community and family (2) environment and facilities (3) health and sanitation and (4) economic, income, savings and welfare.

2. The elderly participate in various activities in order to improve their quality of life starting from (1) finding the priority of the problems (2) analysis of causes and sources of problems (3) selection of methods and plans for solving problems and (4) implementation of the plan and evaluation, analysis of various problems and obstacles to get guidelines for improving the quality of life of the elderly.

3. Approaches for elderly development caused by community involvement processes in carrying out various activities

Keywords: community’s participation, elderly development
Process of Driving Local Food Restoration to Strengthen Community at Sanuannok Village, Sanuan Sub-district, Huayrat District, Buriram Province

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Abstract

The research objectives were to study the process of driving local food restoration, and to study the support of various sectors towards the local food restoration of Ban Sanuan Nok Community, Sanuan Sub-district, Huai Rat District, Buriram Province. The qualitative research employed by which the data were collected using an in-depth interview. The key informants were composed of 15 people, who were able to answer the research topics completely, including village headman, natural leader, and housewives. The obtained data were checked for seeking the data reliability by using a triangular technique; and the data analysis was based on logical comparison with the concepts, theories and research relevant to the context. The research results revealed that: 1) The process of driving the local food restoration of Ban Sanuan Nok community, Sanuan Sub-district, Huai Rat District, Buri Ram Province consisted of four steps as follows: Step 1: Know the problem and have awareness; it was problems awareness and encouraging people in the community to be aware of the problems together. Step 2: Local food restoration practice; it was the process of local food restoration in the community. Step 3: Review the problems and create participation; it was to follow up the community restoration process and create participation for the villagers and related organizations to acknowledge the problems and solve the problems together. And step 4: Expand and build a network; it was an expansion of the operating results by increasing the role of community members to participate in the restoration of local food, and creating networks by cooperating with other relevant agencies. And 2) support from various sectors towards the restoration of local food consisted of material (tangible support) i.e. budgets, and another support i.e. emotion support, such as being popular and well-known.

Keywords: process of driving, restoration, local food, strength of community
Education, Technology and Learning Innovation
Factors Influencing to Creativity Thinking according to Thailand 4.0 Policy of Students in Central Campus Institute of Physical Education

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Abstract

The study investigates the effect of factors influencing to creativity thinking according to Thailand 4.0 policy of students in Central Campus Institute of Physical Education. Six dimensions of creativity thinking include parent’s involvement, study attitude, achievement motivation in learning, teaching behavior of instructors, self-confidence of learners and learning atmosphere. The data were collected from mail survey questionnaires of 525 students in Central Campus Institute of Physical Education in Thailand. The results indicate that five dimensions of creativity thinking have a significant positive association with creativity thinking according to Thailand 4.0 policy (study attitude, achievement motivation in learning, teaching behavior of instructors, self-confidence of learners and learning atmosphere). Surprisingly, initiate parents involvement is not related to creativity thinking according to Thailand 4.0 policy. Consequently, contribution and suggestions for future research are also provided.

Keywords: Creativity Thinking, Parents Involvement, Study Attitude, Achievement Motivation in Learning, Teaching Behavior of Instructors, Self-confidence of Learners and Learning Atmosphere
Motivation toward English Language Learning of First Year Bilingual (Pattani Malay-Thai) Undergraduate Students at Nakhon Si Thammarat Rajabhat University

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Abstract

This study investigated the level and type of English learning motivation, instrumental or integrative, of 30 bilingual students first year students at Nakhon Si Thammarat Rajabhat University, who were first year students and studying in the first semester, academic year 2018. They were selected based on the purposive sampling technique. All bilingual students started to use their ethnic language or Pattani Malay (L1) from birth in informal domains, such as home and their communities, and local mass media. In addition, these students used Standard Thai (L2=the national language) in formal contexts, such as government and education. Moreover, they learned English as a foreign language in the Thai educational system. The data collection instruments used in this study was a questionnaire adapted from Gardner’s Attitude/ Motivation Test Battery (AMTB) (2004). The questionnaire consisted of 2 parts. Part 1 asked for personal information of the students. Part 2 consisted of 14 items, representing the students’ motivation to study English in two main parts: Instrumental motivation and integrative motivation. The overall result showed that the bilingual (Pattani Malay –Thai) students were moderately motivated to learn English. In addition, in the comparison and assessment, it was found that the students were clearly more strongly and instrumentally motivated to learn English.

Keywords: motivation, instrumental motivation, integrative motivation, Nakhon Si Thammarat Rajabhat University

Introduction

In 1913, English became part of the Thai educational curriculum (Kachru& Nelson, 2006). It became the first foreign language subject in the Thai educational system. English has been of value to the country as key for widening knowledge and for international communication (Kachru& Nelson, 2006). The English Language was initially used for international trade and diplomacy (Rappa& Wee, 2006), but it is also widespread among other classes because of the requirement to learn English, so English has become the most popular and “the main foreign language in Thailand.” For this study, there was focus on the bilingual students (Pattani Malay-Thai) who were the Thai Muslims in the south of Thailand, specifically in Pattaini, Yala, Narathiwat, and Satun province that are close to northern Malaysia. All of them could speak Pattani Malay vernacular as their mother tongue (Rappa& Wee, 2006; Premsrirat&Uniansasmita, 2012). Their motivation toward English language learning which as their foreign language was interesting. This study showed that people used their ethnic vernacular (Pattani Malay) at their home and their communities, because in Thailand, there were some studies focusing on language use alone in the south, but
there were not many studies focusing on their motivation toward English language learning.

Nakhon Si Thammarat Rajabhat University was selected to be the venue of this study because the number of bilingual (Pattani Malay–Thai) students was increasing at this university every year. So, the researcher of this study as a language teacher of this university should also bring awareness about their motivations toward English learning.

**Review of Literature**

**Definition of motivation**

There are many different definitions of motivation, especially in language learning.

Gardner (1985), in his socio-educational model, notes that motivation is perceived to be composed of three elements. These are effort, desire and affect. Effort refers to the time spent studying the language and the drive of the learner. Desire indicates how much the learner wants to become proficient in the language, and affect means the learner’s emotional reactions related to language study.

Littlewood (1995) noted that in language learning as in every other field of human learning, motivation is the crucial force which determines whether a learner embarks on task at all, how much energy he devotes to it, and how long he perseveres. It is a complex phenomenon which includes many components: the individual’s drive, need for achievement and success, curiosity, desire for stimulation and new experience, and so on.

**Types of motivation**

Gardner and Lambert (1972) reiterated about the significance of integrative as well as instrumental motivation toward language learning. A learner with integrative motivation has a genuine interest to learn language in order to communicate more satisfactorily and to gain closer contact with the language speaking community. On the other hand, a learner with instrumental motivation is more interested in how a second language can be useful instrument toward furthering other goals, as gaining a necessary qualification or improving employment prospects. The latter desire is of an integrative motivation, which is a better support for language learning, while an instrumental motivation is associated with a desire to learn second language for pragmatic gains such as getting a better job or higher salary.

Krashen (1988) mentioned the following factors which are rather related to motivation that will attempt to relate the second language ability to these two functions. The first, integrative motivation, defined as the desire to be a part of recognized or important members of the community or that society that speak the second language. It is based on interest in learning the second language because of their need to learn about, associate or socialize with the people who use it or because of purpose or intention to participate or integrate in the second language using the same language in that community; but sometimes it involves emotion or affective factors a great deal (Saville-Troike, 2006). Another one was instrumental motivation involves the concepts of purely practical value in learning the second language in order to increase learners’ careers or business opportunities, giving them more prestige and power, accessing scientific and technical information, or just passing a course of their study in school (Saville-Troike, 2006).
Base on the definitions of Gardner and Lambert (1972) and the aforementioned researchers, this study is divided into two main parts with the following given details. This is to determine if the investigated Thai students are mainly integratively or instrumentally motivated to learn English.

**Integrative Motivation** focuses on how much the students learn English with a genuine interest to imitate or assimilate with the target English language, native English speakers’ culture, community, their mentality, way of life etc. This would demonstrate their integrativeness towards English language learning.

**Instrumental Motivation**, on the other hands, focuses on how much the students learn English with an instrumental reason targeting convenient or immediate success like degree, future jobs, further studies, achievements etc.

As the integrative and instrumental motivations are two main types confirmed by these previously mentioned prominent researchers, they will be applied as major variables for this study in order to decide the level and dominant learning motivation among the bilingual (Pattani Malay-Thai) Thai students.

**Motivation toward English language learning**

Motivation has an important role in success and failure in learning a second language. Spolsky (1990) stated that motivated students are likely to learn more and learn more quickly than students who are less motivated. In a particular learning situation, students who are less motivated are likely to lose their attention, misbehave and cause discipline problems. On the contrary, students who are more highly motivated will participate actively and pay more attention to a certain learning task or activity. Moreover, Dornyei (1998) mentioned that motivation is a key factor in determining the success of second and foreign language (L2) learning. It offers and initiates driving forces to sustain the goal of acquiring L2. Individual students with high language competency without sufficient motivation are unable to accomplish the long term goals and achievement. On the contrary, high language learning motivation can boost up deficiencies such as language aptitudes and learning conditions. Low abilities students can become successful in L2 if they are highly motivated. As a matter of fact, motivation factors are important in L2 learning.

**Research Objectives**

The main objective of this study was to determine the level of motivation and to compare integrative motivation or instrumental motivation, and which one is predominant of bilingual (Pattani Malay-Thai) undergraduate students toward English language learning.

**Research Methodology**

**Participants**

The participants of this study were 30 bilingual (Pattani Malay-Thai) first year undergraduate students and studying in the first semester, academic year 2018, from Faculty of Humanities and Social Science, Nakhon Si Thammarat Rajabhat University. Participants were 686 students that enrolled in fundamental English. The researcher of this study asked them about their mother tongue and selected those who used Pattani Malay as mother tongue. There were 96 students based on those who were willing to participate and consent, and then 30 students volunteered. Selecting them was based on purposive sampling technique. All of these bilingual (Pattani
Malay-Thai) students started to use their ethnic language or Pattani Malay (L1) from birth in informal domains, such as at home and in their communities (Nookua, 2012), and local mass media (Uniansasmita, 2010). In addition, these students used Standard Thai (L2) (the national language) in formal contexts, such as government and education. Moreover, they learned English as a foreign language in the Thai educational system.

**Research instrument**

The data collection instruments used in this study was a questionnaire adapted from Gardner’s Attitude/ Motivation Test Battery (AMTB) (2004). The questionnaire consists of 2 parts. Part 1 asked for personal information of the students such as age, gender, and years of study English. It is to be noted that students’ demographic data only served as their personal information. The participants’ other personal information was not taken or further analyzed for this study. Part 2 consisted of 14 items, representing the students’ motivation to study English in two main parts: Instrumental motivation (items 1-7) and integrative motivation (items 8-14). Under each item was a 5 point Likert Scale ranged from ‘5 = Strongly Agree’ to 1 = ‘Strongly Disagree.’ In addition, to assure that the respondents had no difficulty understanding and responding to the questions, the questionnaire was written in Thai.

Prior to the actual administration of the questionnaire, they were piloted with 10 bilingual (Pattani Malay-Thai) undergraduate students of another year level, for content reliability. As a result, certain unclear terms or vocabulary were replaced with simpler ones. In addition, to ensure the research instrument measured what it is intended to measure, its face and content validity were constructed through three teachers of English who has conducted research on motivation. It was affirmed that the questions listed measured the constructs sensibly. The questionnaire format consisted of the following parts. Part 1: General demographic information of students: age, gender, and years of study English. Part 2: Students’ motivation related to various variables of English language learning.

**Data collection procedures**

After piloting the data, the motivation questionnaires were distributed to 30 bilingual first year students in the first semester of Academic Year 2018. The students were approached with the assistance of a lecturer from Nakhon Si Thammarat Rajabhat Unversity, who asked for cooperation with answering the questionnaires from undergraduates, selecting them based on the purposive sampling technique. Thirty undergraduates were chosen from those whom were willing to participate and consent forms filling were prepared for all of them. After they completed the consent forms, the questionnaires were distributed to the students during their normal class session during which time they were given clear instructions and explanations for filling out the questionnaire. The questionnaires were then collected upon completion.

**Data analysis**

The data obtained from the questionnaires were analyzed using the SPSS program. The data concerning subjects’ general background as well as their comments were calculated and presented in percentage and mean score respectively. A five-point Likert scale was used to measure the level and type of subjects’ learning motivation.
Results

The results of this study are focused on students’ motivation.

Table 1

<table>
<thead>
<tr>
<th>Items on motivation</th>
<th>Mean</th>
<th>Rating of Motivation Level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1-7 = Instrumental motivation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Studying English is important because I will need it for my future career.</td>
<td>4.57</td>
<td>High</td>
</tr>
<tr>
<td>2. Studying English is important because it will make me more knowledgeable and educated.</td>
<td>4.23</td>
<td>High</td>
</tr>
<tr>
<td>3. Studying English is important because it will be useful in getting a good job with a good salary.</td>
<td>4.60</td>
<td>High</td>
</tr>
<tr>
<td>4. Studying English is important because I will need to use it on my overseas trip.</td>
<td>4.35</td>
<td>High</td>
</tr>
<tr>
<td>5. Studying English is important because I need it for technology uses and the Internet.</td>
<td>4.47</td>
<td>High</td>
</tr>
<tr>
<td>6. Studying English is important because other people will respect me more if I know English.</td>
<td>4.27</td>
<td>High</td>
</tr>
<tr>
<td>7. Studying English is important because I will be able to read newspapers, magazines, and books published in English.</td>
<td>4.23</td>
<td>High</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>4.41</td>
<td>High</td>
</tr>
</tbody>
</table>

Table 1 reveals that the respondents possessed a high level of instrumental motivation. This is shown clearly by the average mean score of 4.41 in the table. Statement number 3 (Studying English is important because it will be useful in getting a good job with a good salary) had the highest mean (4.60). 4.5 of average mean score showed their high degree of motivation on item number 1 (Studying English is important because I will need it for my future career). Item number 5 (Studying English is important because I need it for technology uses and the Internet) has average mean score of 4.47. The average mean score was 4.35 on item number 4 (Studying English is important because I will need to use it on my overseas trip). The statement of number 6 (Studying English in important because other people will respect me more if I know English) had average mean score of 4.27. There were 2 items on the same lowest mean score of 4.23, those were item number 2 (Studying English is important because it will make me more) and item number 7 (Studying English is important because I will be able to read). However, the overall mean score of instrumental motivation shows a high level of motivation.
<table>
<thead>
<tr>
<th>Items on motivation</th>
<th>Mean</th>
<th>Rating of Motivation Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Studying English is important because it will allow me to be more at ease with people who speak English.</td>
<td>3.26</td>
<td>Moderate</td>
</tr>
<tr>
<td>9. Studying English is important because it will allow me to meet and converse with more varied people.</td>
<td>2.27</td>
<td>Low</td>
</tr>
<tr>
<td>10. Studying is important because it will enable me to better understand and appreciate English art and literature.</td>
<td>1.89</td>
<td>Low</td>
</tr>
<tr>
<td>11. Studying is important because I will be able to participate more freely in the activities of other cultural groups.</td>
<td>2.29</td>
<td>Low</td>
</tr>
<tr>
<td>12. Studying is important because it will help me make many friends from many parts of the world.</td>
<td>2.43</td>
<td>Moderate</td>
</tr>
<tr>
<td>13. Studying English is important because it will allow me to learn about culture and social life of English-speaking people.</td>
<td>2.23</td>
<td>Low</td>
</tr>
<tr>
<td>14. I study English because it is enjoyable.</td>
<td>1.96</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2.33</strong></td>
<td><strong>Low</strong></td>
</tr>
</tbody>
</table>

As can be seen in table 2, it is the absolute opposite to the result of instrumental motivation on table 4. The result of this table shows an overall low degree of integrative motivation among the respondents with a low average mean score of only 2.33. There were only 2 degrees of motivation level on this table. 1) The moderate degree of motivation on the item number 8 (Studying English is important because it will allow me to be more at ease with people who speak English) and item number 12 (Studying is important because it will help me make many friends from many parts of the world) had the average score of 2.36 and 2.43 respectively. 2) the low degree of motivation, item number 9 (Studying English is important because it will allow me to meet and converse with more varied people), item number 11 (Studying is important because I will be able to participate more freely in the activities of other cultural groups), item number 13 (Studying English is important because it will allow me to learn about culture and social life of English-speaking people), and item number 14 (I study English because it is enjoyable) had average scores of 2.27, 2.29, 2.23, and 1.96, respectively. Item number 10 (Studying is important because it will enable me to better understand and appreciate English art and literature) was the lowest mean score, which was only 1.89.
As shown on table 3, the overall mean score was 3.37; it can be interpreted as a moderate degree of motivation. In comparing the two types of language learning motivation: instrumental and integrative motivation, it has been found that the mean score of instrumental motivation (4.41) was higher than the mean score of integrative motivation (2.33).

The overall findings of this study showed that the students had high levels of instrumental motivation. The instrumental motivation was more predominant than the integrative motivation. Interestingly, it was found that most of the bilingual (Pattani Malay – Thai) students in this study saw English as a means in getting a good job with high salary. The teaching implication for this was that the university should offer more English for occupational courses for the students to fulfill their needs and English language learning motivation. The findings of this study also revealed that integrative motivation seemed to reduce its role in the globalized era as the students saw studying was not important because it will not enable them to better understand and appreciate English art and literature.

Discussion

The overall result was that the bilingual (Pattani Malay – Thai) students were moderately motivated to learn English. This finding answered the research question of what the level of the subjects’ motivation was. In addition, based on the comparison and assessment, it was found that the students were clearly more strongly instrumentally motivated to learn English which can answer the research question of whether the motivation found was more instrumental or integrative. Significant differences found included English was important to them because it was necessary for a future career, made them more knowledgeable and educated, useful in getting good job with good salary, helpful for technology uses and internet, and the ability to read newspapers and magazines published in English. Moreover, from the findings of this study showed that the with students more instrumentally motivated, it may be sensible to say that integrative motivation reduces its role in English language learning in this globalized era. According to Warschauer (2000), currently, globalization has brought about a new society. English is a tool of both global networks and local identities. Most people use and speak English not because English it is their native language but because English is the language they could share. In a globalized world, integrative motivation may not play much of a role in learning English because English is shared among many groups of non-native speakers and it is no longer associated with just Anglophone countries. Instead, English is identified with the powerful forces of globalization, the desire to ‘integrate loses its explanatory power in many EFL contexts.’
In addition, these students used Standard Thai (L2) (the national language) in formal contexts, such as government and education. Moreover, they learned English as a foreign language in the Thai educational system. So, the bilingual (Pattani-Malay-Thai) students’ inclination toward instrumental motivation could be great value for this university toward an even further enhancement through new focuses on the university’s English language enhancing programs. Moreover, the university should also take into account the potentials and strategies for these students’ integrative motivations to learn English and improve their proficiency.

**Recommendations**

This research collected data from 30 students within a strict time limit. It is recommended to have a larger sample size with a longer time frame to make findings more valid and reliable.

It might be better if in a future study, the researcher add open-ended questions on subjects’ relevant on areas of problems of English skills which affect their learning motivation.

The result from table 5 in this study, rating of motivation level is very interesting, since it shows “low” in most items. These may point out that motivation in English language learning of the students can be a great source of knowledge and understanding to implement relevant programs or activities to stimulate the more motivating learning atmosphere. Students with adequate motivation will become efficient language learners with an ultimate language proficiency.

At present, the numbers of this students group are increasing around the university that is located in southern Thailand. So, we as their English teacher should be aware of their motivations toward English learning. It is recommended that there might be comparison between Thai students that use Thai as mother tongue and the bilingual students like this group about the motivation toward English learning. It might be making us understand them better as English teachers and can improve them in the correct way. Moreover, it might be beneficial for the university to implement the extra language course or activities involving both Thai and foreign faculty members and students. This is to encourage interaction and close contacts between Thai and native English speakers for the enhancement, constant exposure and the language usage.

**References**


Designing and Developing Digital Advertising Media through Participatory Research for Conserving South Esan Weaving Wisdom

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²Faculty of Sciences, Buriram Rajabhat University, Thailand

Abstract

The objectives of this research were: 1) to study and collect information of South Esan weaving wisdom together with people in a community 2) to design and to develop advertising media for conserving the South Esan weaving wisdom and disseminate it in bilingual digital media, 3) to assess the quality and to investigate the satisfaction towards the design and development of the media. This research is a qualitative research. The target group used in this research was the community conserving the wisdom of the South Esan weaving wisdom. The concepts, theories, principles and processes of digital advertising media design were studied. Moreover, the group discussion process was conducted for gaining the comments from the target group. The 12 experts, namely 3 South Esan cultural experts, 3 linguistic experts, 3 communication arts experts and 3 folk music experts, examined and confirmed the quality of the developed media starting from the narrative writing process, designing a storyboard, until composing music. The overall quality assessment of the advertising media showed that the advertising media content was clear; the sequence and the continuity of storytelling were not confusing; the images were beautiful conveying the atmosphere of the community well; voice of the narrator was easy to listen and follow; the English translation was accurate and the sizes and colors of the English subtitles were appropriate and easy to read; and the music was very consistent with the content.

In addition, in terms of the satisfaction of 30 participants from the target group evaluated and analyzed by using mean and standard deviation showed that participants satisfied with the content of storytelling at the highest level (4.74), followed by they satisfied with the beauty of the images at the highest level (4.71), and they satisfied with acting at the highest level (4.68), respectively.

Keywords: digital advertising media, silk weaving wisdom, the South of Northeastern (South-Esan) of Thailand
Strategy for Using Public Relations Media to Promote Agro Tourism in Buriram Province in Thailand 4.0

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Abstract

The current project, strategy for using public relations media to promote Agro Tourism in Buriram province in Thailand 4.0, has 2 purposes: 1) to study guidelines for promoting Buriram Green Market Club’s products sale, and 2) to investigate ways of communication by public relations the products and activities of Green Market Club. The population of this study was Buriram farmers who plant non-toxic vegetable and fruit. The purposive samples were 23 farmer families who were members of the Green Market Club in Muang district, Buriram province. They were recruited because they always participate the club’s activities, such as always sell their products at the market, participate meetings, or seminars. This study was a mixed method that used the questionnaire to collect the data. The collected data was analyzed by percentage, means, and standard deviation while the quantitative data was collected through in-depth interview and small group-interview. Then the information was analyzed through content analysis method. The study found the following results. 1) The guidelines for sale promoting were categorized in different categories such as the quality of the products, the hygiene, price, the variety of products, the sellers’ friendliness, the environment, safety, keeping the regular customers, organizing activities of government working units in Buriram, the government’s policy, and mass media. 2) The ways of communication by public relations were the members who sell the products must wear green t-shirt, green full apron, and green hat to emphasize the identity of the Green Market and Hygiene. Each shop must show the distinguished identity by the green dome displaying the name of the shop and pictures of the products, attractively put the products in order, and present the clear symbol of the products. The shop owners were like the public media, public relations, and the guides to take the customers into their farms. They have to tell the visitors about special quality of their products, what make them plant those products, do the oral presentation confidently, demonstrate how to consume those products, and they should be ready and be able to advertise their products all times. The suitable media for the Green Market Agro Tourism was people and facebook. The people (owners of the shops) inform the public to know the Green Market and provide all information through the facebook.

Keywords: public relations media, sale promotions, green market, Agro tourism
The Effects of Meaning and Utilization of Sufficiency Economy Approach on the Self-Reliance Community: Case Study Long Mark Yai Village Karanta District, Meuang Buriram, Buriram Province

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¹, ², ³ Faculty of Management Sciences, Buriram Rajabhat University, Thailand
⁴Faculty of Arts, Thailand Nation Sport University Suphanburi Campus, Thailand

Abstract

This study aimed to find out the effects of meaning and utilization of sufficiency economy approach on the self-reliance community in the case study Long Mark Yai Village, Karanta district, Meuang Buriram, Buriram Province. Data were collected through 222 inhabitant using the questionnaires and independent interview 10 the leadership and committee village. The quantitative data was analyzed with the use of a descriptive statistical tool. Regression analysis is used as data analysis tool. The results showed that the meaning of the members of the community consists of valuable resources in the community and positive effecting on the self-reliance community. Local wisdom were affecting to the village self-reliance community. Applying the concept of sufficiency economy to the lives of community members affects the self-reliance village. This research has led to being a model of living in the community that will be good for community development to use resources in the community. To generate income building immunity for the community cause wealth sustainable for the community.

Keywords: meaning, utilization of sufficiency economy approach, self-reliance community
Extraction of Natural Food Colourant from Flowers of Butterfly Pea 
(*Clitoria ternatea* L.)

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Abstract

The butterfly pea flowers were selected for the qualitative and quantitative determination of anthocyanins as a natural food colorant. Firstly, preliminary phytochemical tests of dried butterfly pea flowers were carried out. Then, the elemental contents of samples were detected by using Energy Dispersive X-ray Fluorescence spectroscopy. Natural Dye, anthocyanins were extracted from butterfly pea flowers using distilled water. Total anthocyanin pigment in extract was determined at 520 nm by UV-visible spectrophotometer using with the pH-differential method. The anthocyanins content (23.6 mg/100g) expressed as cyanidin-3-glycoside was found to be present in the extract. Some qualitative tests for anthocyanins were also carried out. By encapsulation of anthocyanins extract using as maltodextrin and gum arabic as wall material and emulsifier tween-80, encapsulated anthocyanins dye powder 37.025 g from dye solution (40g/100ml) was obtained. The resulting dye was utilized in coloring of agar jelly, rice, sago jelly and juice.

Keywords: butterfly pea flowers, food colorant, anthocyanins, pH-differential method, anthocyanin powder

Introduction

Colour is one of the most important quality attributes affecting the consumer's acceptance of food since it gives the first impression of food quality. Food colorants are either natural or synthetic depending on source. Natural colorants are extracted from renewable sources such as plant materials, insects, algae etc, while the synthetic colorants are manufactured chemically and are the most commonly used dye in the food pharmaceutical and cosmetic industries. The chemicals may have harmful side effect and could cause health problems in adults on children. In recent year, there has been a revival of the use of dye and colors of natural origin for colouring food, pharmaceutical, cosmetic and textile products. The demand for the material of natural origin is increased because of the toxic nature of many of the synthetic dyes. Myanmar has an abundance of dye yielding plant species in different parts of the country. Traditionally, the rural folks of different region dyed their materials from...
leaves, flowers, roots and barks of the plants, mostly by boiling to get the desired colour (Zollinger, H. 2003).

Among the natural dyes which are becoming widely recognized throughout the world, flower of butterfly pea (scientific name - *Clitoria ternatea* L., local name - Aung mai nyo) is one of the known natural food dye for colouring confectionary and soft drink in Malaysia, Thailand, Philippines and India (Burkill, I.H, 2002). Although butterfly pea can be found growing in the wild in our region, Myanmar people didn’t know how to use it as the food dye.

Butterfly pea flower contains higher levels of anthocyanins than many other foods. They belong to a group of natural compounds called flavonoids found in the skins of many plants that have high antioxidant capacity and other bioactivity. It can protect the body from free radicals and pollutants with natural anti-oxidants, flavonoids, Anthocyanins, vitamins and minerals. Butterfly pea flower powders are manufactured in Thailand for instant tropical fruity flower power drinks. Colour stability of anthocyanins, natural food colorants, depends on a combination of various factors including structure of anthocyanins, pH, temperature, oxygen, light and water activity (Mazza and Brouillard, 1987).

Encapsulation is a technique that is used for protection, stabilization and slow release of core materials. There are several techniques and wall materials that are available for encapsulation of natural food colorants to overcome their instability, solubility and handling problem (Krishnan, S., Bhosale, R., & R.S. Singhal , 2005).

This plant is grown in Monywa University Campus and easily available. Therefore, in this study, butterfly pea was selected to extract the eco-friendly natural food dyes. The aim of this research was to extract extraction of anthocyanin as a natural food dye from flowers of butterfly pea and preparation of dye powder (encapsulation) were carried out. Then dyeing properties of food using an aqueous extract of flowers of butterfly pea was determined by applying in coloring of agar, rice, sago and juice.

1.1 Botanical description of Butterfly Pea

- **Scientific name**: *Clitoria ternatea* L.
- **Family name**: Fabaceae
- **Local name**: Aung mai nyo
- **English name**: Butterfly Pea, blue Pea, bluebellvine

*Figure 1: Plant and flowers of Butterfly Pea*

**Objectives of the Study**

1. To collect the flowers of butterfly pea  
2. To carry out the phytochemical screening of sample  
3. To analyze the elemental contents of sample by EDXRF  
4. To extract the natural dye from the sample by using water  
5. To determine pH of extracted dye solution  
6. To prepare the dye powder extracted from flowers of butterfly pea to be applied in coloring of agar, rice, sago and juice
Research Methodology

The flowers of butterfly pea were collected from Monywa University Campus, Sagaing Region. Sample was dried in air about 1 weeks and ground into powder, and stored in plastic container before use.

Figure 2: Flowers of Butterfly Pea

3.1 Phytochemical Investigation on Butterfly Pea Flowers

Phytochemical investigation on butterfly pea flowers was carried out according to the reported methods (Harbone, 1984).

3.2 Determination of Mineral Contents of Butterfly Pea Flowers

Elemental analysis of butterfly pea flowers was performed by Energy of Dispersive x-ray Fluorescence (EDXRF) spectrophotometer at URC, Department of Chemistry, Monywa University.

3.3 Preparation of Anthocyanin Extract from Butterfly Pea Flowers

Anthocyanin pigment was extracted from butterfly pea flowers by using distilled water. Extraction of anthocyanin pigments was carried out according to the procedure described by Spanga et al., 2003. Butterfly pea flowers (30 g dry weight) were ground into fine particle using blender into which 600 mL of solvent was added. Continuous stirring was given for 7 hours. It was incubated overnight in a refrigerator at 4°C. The soluble extract was filtered using filter paper to obtain butterfly pea flowers pigment extract. The same procedure was followed to extract until become colorless and then the final volume (1000 mL) was obtained.

3.4 General Qualitative Tests for Detection of Anthocyanins (Buzarbarua, 2000)

3.4.1 Test for Anthocyanins

3.4.1.1 Dilute Sulphuric Tests

A little dilute cold sulphuric acid was added to extract dye and gently warmed. Then, it was cooled and shaken with amyl alcohol. Red color of anthocyanin was appeared in alcohol layer which indicates the presence of anthocyanins in extract.

3.4.1.2 Ferric Chloride Test

The dye was extracted with amyl alcohol. Then, the solution was filtered. A little sodium acetate and a small quantity of ferric chloride solution (5 %) were added to the extract. Grayish green colour was appeared in the layer. It indicates the presence of cyanidin and malvidin in the water extract.

3.4.1.3 Dilute Hydrochloric Acid Test

The dilute hydrochloric acid (2 %) was added to a few ml of the extract solution. Red colour was produced due to oxonium salt of anthocyanin which
indicates the presence of delphinidin. The dilute sodium hydroxide (5%) was added to the above solution. The color was changed to green which indicates the presence of cyanin.

3.4.1.4 Determination of Total Monomeric Anthocyanins

Before the determination of anthocyanin content, maximum absorption of anthocyanin extract was detected by UV-VIS spectrophotometer. Total anthocyanin content was determined using the spectrophotometric pH differential method described by Wang and Xu (2007) using two buffer systems potassium chloride buffer pH 1.0 (0.025 mol/L) (125 mL of 0.2 mol/L KCl and 375 mL of 0.2 mol/L HCl) and sodium acetate buffer pH 4.5 (0.4 mol/L) (400 mL of 1 mol/L sodium acetate, 240 mL of 1 mol/L HCl and 360 mL of water). The absorbance was measured at 520 and 700 nm with distilled water as blank using a UV-VIS spectrophotometer (spectrophotometer UV-2550). The absorbance(A) difference between the pH 1.0 and pH 4.5 of sample was calculated.

\[
A = \frac{A_{520 \text{nm}, \text{pH} 1.0} - A_{700 \text{nm}, \text{pH} 1.0}}{A_{520 \text{nm}, \text{pH} 4.5} - A_{700 \text{nm}, \text{pH} 4.5}}
\]

The total anthocyanins content was calculated as cyaniding-3-glucoside according to the following equation.

\[
\text{Total anthocyanin content} = \frac{A \times \text{MW} \times \text{DF} \times 10^2}{\varepsilon l}
\]

where, \(A\) = Absorbance;  \(\text{DF}\) = the dilution factor;  \(l\) = path length;
\(\text{MW}\) (molecular weight) = 449.2 g/mol for cyaniding-3-glucoside; \(\varepsilon\) (Molar absorbility of cyanidin-3-glucoside) = 26900 M\(^{-1}\)cm\(^{-1}\)

3.5 Preparation of Foods with Extracted Blue Dye

3.5.1 Materials and Method

The blue flowers Butterfly pea were dried in air about 1 weeks and ground into powder. The encapsulating agents were Maltodextrin and Gum arabic powder, and emulsifier, Tween 80. Agar (Telephone) made in Thailand was purchased from local market in Monywa.

3.5.2 Preparation of Maltodextrin and Gum arabic Solution

Maltodextrin (DE = 10, 20 g) and gum Arabic (20 g) were dissolved slowly in 40 mL of distilled water at 60° C by continuously stirring it and after complete dispersion. The final volume was made up to 50 mL by adding distilled water (Sheikh, et al, 2006). The prepared 40 % maltodextrin and gum arabic solution was filtered using muslin cloth to remove the foreign materials if any used for the experiments.

![Figure 3: Maltodextrin; gum Arabic; tween 80; agar](image)
3.5.3 Preparation of Blue Dye Powder

Dye extract from butterfly pea flowers (50 mL) was added to maltodextrin and gum arabic solution (50 mL) obtaining total volume of 100 mL. This immiscible mixture was emulsified at 250 rpm for 10 min by using magnetic stirrer until the blue color dispersed completely. Two drops of Tween 80 was added to aid the emulsification process. The resultant emulsion was concentrated by evaporation at 70°C. The concentrated solution was evaporated to dry on water-bath. It was cooled and ground into powder. The resulting blue dye powder was immediately placed in brown bottle and stored in refrigerator.

3.5.4 Application of Blue Dye Powder in Coloring of Agar

About 5 g of agar powder was added to 200 mL of boiling water and heated at 100°C and stirred for about 10 min. Then 1 g of blue dye powder was added into it and stirred well. After that it was transferred into steel bowl and allowed to cool at room temperature until the surface agar was become hard. The resultant agar is shown in Figure 10.

Results

4.1 Preliminary Phytochemical Test on Butterfly Pea Flowers

In order to know types of chemical constituents present in butterfly pea flowers, phytochemical tests were carried out.

Table 1

<table>
<thead>
<tr>
<th>No</th>
<th>Constituents</th>
<th>Reagent used</th>
<th>Observation</th>
<th>Inference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Alkaloids</td>
<td>Dragendorff's reagent</td>
<td>reddish colour</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mayer's reagent</td>
<td>red-brown</td>
<td>+</td>
</tr>
<tr>
<td>2</td>
<td>Glycosides</td>
<td>10% lead acetate</td>
<td>White ppt</td>
<td>+</td>
</tr>
<tr>
<td>3</td>
<td>Saponins</td>
<td>Distilled water</td>
<td>blue colour</td>
<td>+</td>
</tr>
<tr>
<td>4</td>
<td>Tannins</td>
<td>Ethanic FeCl₃</td>
<td>deep blue</td>
<td>+</td>
</tr>
<tr>
<td>5</td>
<td>Phenolic</td>
<td>10% FeCl₃</td>
<td>greenish blue</td>
<td>+</td>
</tr>
<tr>
<td>6</td>
<td>Flavonoids</td>
<td>Mg, conc: HCl (CH₃CO)₂O, S/A, CHCl₃</td>
<td>pink colour</td>
<td>+</td>
</tr>
<tr>
<td>7</td>
<td>Steroids</td>
<td>CHCl₃, H₂SO₄</td>
<td>yellow colour</td>
<td>+</td>
</tr>
<tr>
<td>8</td>
<td>Carbohydrates</td>
<td>10% α-naphthol</td>
<td>red ring</td>
<td>+</td>
</tr>
<tr>
<td>9</td>
<td>Terpenes</td>
<td>CHCl₃, H₂SO₄</td>
<td>pink colour</td>
<td>+</td>
</tr>
<tr>
<td>10</td>
<td>α-amino acids</td>
<td>spray ninhydrin</td>
<td>violet colour</td>
<td>+</td>
</tr>
</tbody>
</table>

(+)= presence  (-)= absence
4.2 Determination of Mineral Contents from the Flowers of Butterfly Pea

The resulting data and EDXRF spectrum of butterfly pea sample were shown in Table 2 and Figure 5. It was found that the amount of potassium of the sample is higher than others. The amount iron, copper, manganese, zinc, nickel, strontium and rubidium are found to be 0.007% - 0.000 % respectively.

![Figure 5: EDXRF spectrum of flowers of butterfly pea](image)

<table>
<thead>
<tr>
<th>No.</th>
<th>Element</th>
<th>Result (%)</th>
<th>No.</th>
<th>Element</th>
<th>Result (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Potassium</td>
<td>1.468</td>
<td>7.</td>
<td>Copper</td>
<td>0.002</td>
</tr>
<tr>
<td>2.</td>
<td>Phosphorus</td>
<td>0.248</td>
<td>8.</td>
<td>Manganese</td>
<td>0.002</td>
</tr>
<tr>
<td>3.</td>
<td>Sulfur</td>
<td>0.223</td>
<td>9.</td>
<td>Zinc</td>
<td>0.002</td>
</tr>
<tr>
<td>4.</td>
<td>Silicon</td>
<td>0.184</td>
<td>10.</td>
<td>Nickel</td>
<td>0.000</td>
</tr>
<tr>
<td>5.</td>
<td>Calcium</td>
<td>0.125</td>
<td>11.</td>
<td>Strontium</td>
<td>0.000</td>
</tr>
<tr>
<td>6.</td>
<td>Iron</td>
<td>0.00</td>
<td>12.</td>
<td>Rubidium</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

4.3 Extraction of Anthocyanin Pigments from Butterfly Pea Flowers

Distilled water was used as solvent for the extraction of anthocyanins. The pH value of extracted anthocyanins dye solution (deep blue) was found to be 6.8.

![Figure 6: Deep blue color of anthocyanins extract (pH 6.8)](image)
4.4 Qualitative Tests for Anthocyanins

The presence of anthocyanins in butterfly pea flowers were tested by using three common reagents: (i) dilute H$_2$SO$_4$ solution, (ii) FeCl$_3$ solution and (iii) dilute HCl solution.

Dilute H$_2$SO$_4$ Test          FeCl$_3$ Test          Dilute HCl

Anthocyanin cyanidin & malvidin cyanidin & delphinidin

Figure 7: Qualitative tests for anthocyanins

4.5 Determination of Total Anthocyanin Pigment in Extract

Total anthocyanin pigment in extract was determined at 520 nm by UV-visible spectrophotometer using with the pH-differential method. The anthocyanins content (23.6 mg/100g) expressed as cyanidin -3- glycoside was found to be present in the extract.

4.6 Blue Dye Powder Extracted Butterfly Pea Flowers

To increase the stability of anthocyanins and protect from light, high temperature, pH and oxidation, preparation anthocyanins dye powder was carried out. In this research, for core material was used anthocyanin pigment extract, for wall material was used maltodextrin and gum arabic, and Tween 80 emulsifier was used. The resulting dye powder shown in Figure 9, was immediately placed in brown bottle and stored in refrigerator.

Figure 9: Anthocyanins dye powder
4.7 Application of Anthocyanin Dye Powders on Foods

The anthocyanin dye powder was used in coloring of agar, rice, sago and juice.

Figure 10: Coloring of foods and juices; a to d = colouring of agar jelly; e, f = colouring of sago; g, h, i = colouring of flatted rice; j - m = colouring of rice; n to q = colouring of juice; r to u = colouring of milk
Discussion

According to the phytochemical examinations (Table 1, Figure 4) alkaloids, alkaloids, glycosides, saponins, tannins, phenolic compounds, flavonoids, steroids, carbohydrates and terpenes and α-amino acids were found to be present in the sample. Among these phytochemicals, flavonoids play an important role in food colorant.

The resulting data and EDXRF spectrum of butterfly pea sample were shown in Table 2 and Figure 5. It was found that the amount of potassium of the sample is higher than others. The amount iron, copper, manganese, zinc, nickel, strontium and rubidium are found to be 0.007% - 0.000% respectively.

Since the pH value of extracted anthocyanins pigment (deep blue) using distilled water as solvent was found to be 6.8, the dye solution is nearly neutral. According to the qualitative tests for anthocyanins (Figure 7), delphindin, cyanidin and malvidin were found to be present in extract.

According to the determination of maximum absorption anthocyanin by UV-VIS spectrophotometer was found to be 520 nm for the extracts (Figure 7). By using the equations described in experimental section 3.4.1.4, total monomeric anthocyanin content was found to be 236 mg / 100 g expressed as cyaniding-3-glycoside.

The resulting dye powder (37.025 g) from dye solution (40g / 100ml) was obtained by using the method described in experimental section 3.5.3, and shown in Figure 9.

Colors of foods and juices by applying anthocyanin powder (Figure 10) were found to be very attractive and colourful.

Conclusions

In this research natural dyes were extracted from flowers of butterfly pea (Clitoria ternatea L.) (Aung mai nyo). According to the phytochemical tests, flavonoids, alkaloids, phenolic compounds, glycosides, terpenes, saponins, α-amino acids, steroids, and carbohydrates were present in this selected sample. According to the EDXRF analysis, the sample contains very low natural contaminants such as Cu, Mn, Fe and Zn. It has no side effect on skin and no harmful effect on environmental also.

In this research, an attempt has been made the extraction of anthocyanins as natural food colorant from flowers Butterfly pea. using distilled water. The anthocyanins content (23.6 mg / 100g) expressed as cyanidin -3- glycoside was found to be present in the extract. By encapsulation of anthocyanins extract using as maltodextrin and gum arabic as wall material and emulsifier tween-80, encapsulated anthocyanins powder 37.025 g was obtained. The prepared encapsulated pigment could be used in coloring of agar. Moreover, it can be used in a variety of food product and food colorant, such as confectionery products, gelatin, desserts, pudding, ice cream and beverages. The process is economically viable as the raw materials are available. So, the cost of production is also very low. This study revealed that Aung mai nyo flower could be also used as a food dye. Therefore this dye is subjected to least environmental problems.
Recommendations

Myanmar is a tropical country and is rich with coloured plants, which are available year-round. It is believed that the simple and effective technology of this research work may initiate to produce the commercial availability of natural food dye in Myanmar. It is recommended that antibacterial property and antioxidant properties of butterfly pea (Clitoria ternatea L.) (Aung mai nyo) flowers should be studied. Moreover, production of dried flowers and dries flower powder of Aung mai nyo should be conducted for the food dye and medicinal purposes. Moreover, dried flower powder of Aung mai nyo should be conducted to get FDA’s permission for the food safety and quality.

References

Freshwater Palaemonid Prawn Fauna in Central Dry Zone, Myanmar

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Abstract

Myanmar is the last frontier of biodiversity in the mainland Southeast Asia, so that the Myanma fauna need to be recorded. As little work has been conducted on the freshwater prawn, there is a need to conduct faunistic study and assess their status in view of conservation and sustainable management. The present study was conducted to record the freshwater prawn species distributed in the freshwater bodies in the Central Dry Zone: Mandalay, Magway and Sagaing Regions, Upper Myanmar during 2014-2018. A total of 27 species of the freshwater palaemonid prawn under genus Macrobrachium Bate, 1868 were recorded, of which 20, 14 and 15 species are recorded from Mandalay, Magway and Sagaing Regions respectively. With respect to the three species, there are no previous record and information concerning these species. It can be tentatively taken these species are new record from the studied areas. Important morphological characters along with certain variations used to identify the species level were presented in detail. Further taxonomic studies of Myanmar’s shrimp and prawn should be investigated in order to add the list of palaemonid species. So our results may contribute relevant information as well as substantially to the regional biodiversity richness in Myanmar.

Keywords: Macrobrachium, palaemonid, conservation, biodiversity, Myanmar

Introduction

Prawns and shrimps play an important role in the aquatic ecosystems and currently offers a good potential for large scale commercial aquaculture. Freshwater prawns are of considerable importance in inland aquaculture production and also in providing man nutritious and delicious food items because of have high quality protein after fish (Arumugam, 2012).

Family Palaemonidae consist of about 981 species, of which genus Macrobrachium Bate, 1868 is one of the most relevant members regarding species richness (Pileggi and Mantelatto, 2012). Macrobrachium is the most speciose genus and is well known because of the number of species, highly diverse group, wide geographic distribution, and commercial importance. This genus includes approximately 270 species that are distributed in tropical and subtropical waters (Hernández et al., 2007; Adite et al., 2013).

Although literature on the freshwater crustaceans including shrimps and prawns of Myanmar has been intermittent, while much information is already available on those of adjacent countries (Thailand, Vietnam, India, China, Malaysia,
the Philippines, Singapore and Indonesia). The first record of Myanmar shrimps and prawns was that of De Man, 1888. He reported *Palaemon acutirostris* Dana, 1858 from Mergui, Southern Myanmar and Kemp (1918) subsequently described *Palaemon naso* from Inle Lake (Cai and Ng, 2002).

A major work with detailed illustrations and diagnoses of Myanmar palaemonid prawns was conducted by Cai and Ng (2002) and they reviewed the taxonomy of 17 species of *Macrobrachium*. Hla Phone and Suziki (2004) reconfirmed ten species of *Macrobrachium* and also erected a new species of *M. patheinense* from Myanmar. Morphological and molecular features of five species under *Macrobrachium* were carried out by Win Mar et al., (2018).

In Myanmar, the Central Dry Zone (CDZ) including parts of Mandalay, Magway and Sagaing Regions is characterized by a wide diversity of agro-ecological systems ranging from upland areas with limited/irregular access to water to the better irrigated lowlands where most of the aquaculture production takes place. Myanmar though has a wealth of freshwater streams, lakes, ponds and rivers; investigations on the fauna of shrimps and prawns have been intermittent. There is even so scarcity information on the taxonomy of shrimps and prawns fauna of Myanmar.

**Objectives**

Although identification of the genus *Macrobrachium* is quite difficult due to great morphological variations, but further Myanmar’s shrimp and prawn need to study in order to add the list of palaemonid species and biodiversity richness of Myanmar. In view of this, the present study was conducted with the following objectives:

1. to record and identify the freshwater palaemonids prawn species
2. to compare the some morphological characters between *Macrobrachium* species from some places of Central Dry Zone (Mandalay, Magway and Sagaing Regions).

**Methodology**

**Collection of specimens**

Prawn samples were collected from some places of Mandalay Region (latitudes 21° 0'- 21 N, longitudes 95° 45', 95.75° E), Magway Region (latitudes 20° 15'-20.25° N, longitudes 94° 45'-94.75° E) and Sagaing Region (latitudes 21° 30'-21.5° N, longitudes 95° 37'-95.61° E). (Plate 1)

**Identification of prawn specimens**

Collected specimens of prawn were photographed, preserved in 70% alcohol and identified in accordance with Holthuis (1950) and Cai and Ng (2002) mainly based on the important taxonomic characters of male.

**Result**

**Classification of species studied under Genus Macrobrachium Bate, 1868**

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Animalia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phylum</td>
<td>Arthropoda</td>
</tr>
<tr>
<td>Class</td>
<td>Crustacea Brünnich, 1772</td>
</tr>
<tr>
<td>Subclass</td>
<td>Malacostraca Latreille, 1802</td>
</tr>
<tr>
<td>Order</td>
<td>Decapoda Latreille, 1802</td>
</tr>
</tbody>
</table>
Infraorder Caridea Dana, 1852
Family Palaemonidae Rafinesque, 1815
Subfamily Palaemoninae Rafinesque, 1815
Genus Macrobrachium Bate, 1868

A total of 27 species of the genus *Macrobrachium*, of which 20, 14 and 15 species are recorded from Mandalay, Magway and Sagaing Regions, Central Dry Zone, Myanmar respectively (Table 1). *M. lammarei*, *M. lancesteri*, *M. palaemonoides*, *M. malcolmsonii* and *M. rosenbergii* are recorded to be most widely distributed. *M. birmanicum* was regarded as the rediscovery species. With respect to *M. formonense*, *M. johnsonii* and *M. josephi*, these species are new recorded species from studied areas (Plate 2 A-D). Some important morphological characters along with certain variations of these four species are described in detail.

**Macrobrachium birmanicum (Schenkel, 1902)**

- **Total length**: 18.0-19.0 cm
- **Rostrum**: 10-11 dorsal teeth, 5-6 ventral teeth, slightly long
- **Second pereiopod**: distinctly tubercles; carpus 1.5 times merus length, as long as palm length, distinctly shorter than chela; finger shorter than palm, fingers of second leg with four large teeth
- **Appendix masculina**: 2 times length of appendix interna of second pleopod
- **Telson**: stout

**Macrobrachium formosense Bate, 1868**

- **Total length**: 5.5 - 8.0 cm
- **Rostrum**: 10-12 dorsal teeth; 2-3 ventral teeth; straight, with elevated basal crest
- **Second pereiopod**: smooth, carpus 1.3 times merus length; 1.4 times palm length, longer than chela, finger shorter than palm length; finger with gaping, cutting margin with two teeth.
- **Appendix masculina**: 2 times length of appendix interna of second pleopod
- **Telson**: sharp, slender

**Macrobrachium johnsonii Ravindranath, 1979**

- **Total length**: 4.5 - 6.2 cm
- **Rostrum**: 9-13 dorsal teeth; 2-3 ventral teeth; straight, short
- **Second pereiopod**: with distinct tubercles and scattered hairs; carpus slightly shorter than merus, distinctly shorter than palm and chela; finger shorter than palm length, fingers with two teeth
- **Appendix masculina**: 2 times length of appendix interna of second pleopod
- **Telson**: blunt

**Macrobrachium josephi Jayachandran, 2001**

- **Total length**: 17.5 - 20.0 cm
- **Rostrum**: 9-10 dorsal teeth; 5-7 ventral teeth; long and elongate
- **Second pereiopod**: with spinules; carpus 1.1 times merus length, as long as palm length, distinctly shorter than chela; palm 1.3 times finger length, fingers with two teeth
- **Appendix masculina**: 2 times length of appendix interna of second pleopod
- **Telson**: stout
**Table 1**  
**Freshwater Prawn of Genus Macrobrachium Bate, 1868 in Central Dry Zone, Myanmar**

<table>
<thead>
<tr>
<th>No.</th>
<th>Species name</th>
<th>Mandalay</th>
<th>Magway</th>
<th>Sagaing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><em>M. aemulum</em> (Nobili, 1906)</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><em>M. bendersoni</em> (De Man, 1902)</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td><em>M. birmanicum</em> (Schnekel, 1902)</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>4</td>
<td><em>M. cavernicola</em> (Kemp, 1924)</td>
<td>*</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>5</td>
<td><em>M. clymene</em> (De Man, 1902)</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td><em>M. dolicodactylus</em> (Hilgendrof, 1979)</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td><em>M. formonense</em> Bate, 1868</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td><em>M. hendersoni</em> (De Man, 1906)</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td><em>M. idea</em> (Heller, 1862)</td>
<td>*</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>10</td>
<td><em>M. javanicum</em> (Heller, 1862)</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td><em>M. johnsonii</em> Ravindranath, 1979</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>12</td>
<td><em>M. josephi</em> Jayachandran, 2001</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td><em>M. lammarei</em> (H. Milne Edwards, 1837)</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>14</td>
<td><em>M. lanceifrons</em> (Dana, 1852)</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>15</td>
<td><em>M. lancesteri</em> (De Man, 1911)</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>16</td>
<td><em>M. latidactylus</em> (Thallwitz, 1891)</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td><em>M. latimanus</em> (Vol Martens, 1869)</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td><em>M. malcolmsonii</em> (H. M. Edwards, 1844)</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>19</td>
<td><em>M. nipponense</em> (De Haan, 1849)</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>20</td>
<td><em>M. nobilii</em> (Henderson and Matthai, 1910)</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td><em>M. oenone</em> (De Man, 1902)</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td><em>M. palaemonoides</em> Holthuis, 1950</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>23</td>
<td><em>M. rosenbergii</em> (De Man, 1911)</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>24</td>
<td><em>M. scabriculum</em> (Heller, 1862)</td>
<td>*</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>25</td>
<td><em>M. superbum</em> (Heller, 1862)</td>
<td>*</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>26</td>
<td><em>M. villosimanus</em> (Tiwari, 1949)</td>
<td>*</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>27</td>
<td><em>M. weberi</em> (De Man, 1902)</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total 27</td>
<td>20</td>
<td>14</td>
<td>15</td>
</tr>
</tbody>
</table>
Figure 1: Map of Studied Area, Central Dry Zone, Myanmar
(A) *Macrobrachium birmanicum*

(B) *Macrobrachium formosense*

(C) *Macrobrachium johnsoni*

(D) *Macrobrachium josephi*

*Figure 2: Four Macrobrachium species from Central Dry Zone, Myanmar*
Discussion

This research focuses the occurrence of freshwater palaemonid prawns from Mandalay, Magway and Sagaing Region, Myanmar. Twenty seven species of genus *Macrobrachium* Bate, 1868 were distributed in the freshwater bodies of these three regions and representing the highest number of 20 species in Mandalay Region.

From a taxonomic point of view, *Macrobrachium* genus is one of the more challenging decapod crustacean groups and especially important among palaemonid prawns (Makombu et al., 2015). Adite et al. (2013) explained that information on morphological character variations is needed to ascertain genetic diversity and to contribute to implement management plan including habitat protection and species conservation of *Macrobrachium* species. Moreover, Kumar et al. (2014) also affirmed that morphological study of animal is important to identify the animal and also helpful in solving taxonomical ambiguities.

The work on shrimp and prawn exists scanty pertaining to taxonomy and diversity of shrimp and prawn of Myanmar. At upper Myanmar, systematic studies of freshwater prawn species have been conducted by previous workers. Khin Khin Lay (2001), Win Mar (2007), Mie Mie Sein et al., (2009), Win Mar and Pyone Pyone Myint (2014), Pann Myinzu Tun (2013), Win Mar and Mya Mya Thinn (2015), Zin Mar Phyo (2016) and Win Mar et al., (2018) also reported the 10, 5, 10, 8, 12, 10, 12 and 5 species under genus *Macrobrachium* respectively from some places of Upper Myanmar (Nway Yu Aung, 2018).

The most important characters to identify the freshwater prawn species of *Macrobrachium* are structure of rostrum, number of dorsal and ventral rostral teeth, proportion of rostrum and scaphocerite, shape of the outer margin of scaphocerite, size and proportion of the carpus, merus and dactylus of second pereiopod, presence or absence of setae on the second chelate legs, number of teeth on the cutting edge of fingers, shape of telson, number of plumose setae between the two inner spines of telson, proportion of the length of telson and inner spine of telson (Win Mar, 2017).

Naiyanetr and Ng (2004) mentioned that structure of rostrum and its teeth has been viewed as a useful and diagnostic taxonomic character in the prawn. In the present study, there are differences in the shape of the rostrum was recorded. Number of teeth were also varied in all the studied species in this work.

In this study concerning with *M. birmanicum*, the first record was done by Schnekel (1902) as a new species from Mandalay, Central Myanmar. After 1902 there are no further record and information concerning with this species. But Cai and Ng (2002) reported this species as leptotype that deposited from Basel Natural History Museum, Basal, Switzerland (MBA). De Grave (2013) stated that *M. birmanicum* was only known with certainty from Myanmar, Bangladesh and Orissa (India) inhibiting rivers. Assessment information of this species by IUCN is considered to be of least Concern. Therefore, this species was regarded as rediscovery species in the present work.

Currently, a total of 14 species of *Macrobrachium* from Monywa and its environs was conducted by Nway Yu Aung (2018). In her work, with respect to *M. sp. 3* resemble closely to *M. josephi* both species have velvety coat on the fingers of second pereiopod. Although *M. sp.3* could not down to the species level but in the present study *M. sp.3* was confirmed as *M. birmanicum*. Win Mar et al. (2018) identified the five freshwater prawn species under the genus *Macrobrachium*. Among
them, since *Macrobrachium* sp. was unidentified and be referred to as *Macrobrachium* sp.WMY-2017. However *Macrobrachium* sp. WMY-2017 could be identified as *M. birmanicum* in this work.

With respect to *M. formonense*, *M. johnsonii* and *M. josephi*, there are no previous record and information concerning with these species. Therefore it can be tentatively taken these species are new record from the studied areas. Six species were distributed in all three regions and another six species were recorded only from Mandalay Region.

Most members of the genus *Microbrachium* are easily recognizable by the well-developed often elongated second pereiopods, which in the male of many species may exceed the body length. Length of the second pereiopods are exceeded length of the body in *M. birmanicum* and *M. josephi*. Fingers of the second legs of adult male with numerous long hairs which form a velvety coat were also found in *M. birmanicum*.

Systematic studies of freshwater prawn species have been conducted by previous workers at Upper Myanmar. In their works, differences in the shape of rostrum, number of dorsal and ventral rostral teeth; proportions of the carpus, merus, chela, finger and palm of the second pereiopod, length of the appendix masculine and propotion of length of the inner spines and telson and also shape of the telson were recorded.

**Recommendations**

It must be said that, information available on the fauna of shrimps and prawns of adjacent countries in general while work on prawn in Myanmar is still rather scarce. Myanmar is the last frontier of biodiversity in the mainland Southeast Asia, so that the Myanma fauna need to be recorded in view of conservation and sustainable management before some will be lost in the near future due to a number of factors including anthropogenic misendeavours. There is thus a need to extend the study on the prawns of Myanmar since many a species might still await being discovered to add to the biodiversity prosperity in Myanmar.

**References**


Chemical Analysis of Soil Samples of Paddy Growing Area from Ho-pin Township in Kachin State, Myanmar

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E-mail: myintmyintk591@gmail.com

Abstract

In this research work, physical and chemical analysis have been made on soil samples collected from Ho-pin Township during raining season. Soil samples were collected at the depth of 12 inches from three paddy field. In physical properties such as soil pH, moisture, texture, electrical conductivity and bulk density were determined. The major chemical components determined in the paddy soil are chloride, sulphate, exchangeable calcium and magnesium, organic matter respectively. Nitrogen, phosphorus and potassium contents of soil samples were determined at Department of agricultural research, Yezin. Mineral content of soil sample were measured at the Department of Geology, MURC, by using WDXRF.

Keywords: sample collection from three villages, determination of physical properties and chemical properties

Figure 1: Map of Hopin Township
Introduction

Paddy soils are characterized by preservation of organic matter predominantly derived from the rice plant itself, from manure or straw combustion residues, and from associated microbial consortia under at least periodically anaerobic conditions due to submergence. (soil-science.com)

Rice is Burma’s most important crop. It dominates the agricultural sector, which is the largest and most productive part of the economy; changes in rice production have a direct and profound influence on the entire population. Burma’s rice output must continually increase to feed the growing populations and boost the country’s economy. (U khin Win, 1991)

1.1 Soil texture

Soil texture is the relative proportions of sand, silt or clay in a soil.

![Texture triangle. The textural triangle describes the relative proportions of sand, silt and clay in various types of soils](image)

1.2 Physical and Chemical properties of soil

A soil's physical and chemical properties affect plant growth and soil management. (Physical and Chemical Properties of Soil - UCANR.org)
1.3 Fertility and Fertilizer

**Macronutrients** are those nutrients needed in large amounts and the presence or absence of any one macronutrient can have a detrimental effect on plant growth. Three macronutrients nitrogen (N), phosphorous (P) and potassium (K) – are essential for all plant growth. All fertilizer labels show the ratio of these three primary macronutrients.

**Micronutrients** are iron (Fe), zinc (Zn), manganese (Mn), boron (B), molybdenum (Mo), and copper (Cu).

**Objectives of the Study**
1. To collect soil samples
2. To determine the pH, moisture, electrical conductivity and bulk density of soil samples.
3. To determine the contents of chloride, sulphate, calcium, magnesium and organic matter
4. To measure the amount of nutrients (N, P, K)
5. To measure the amount of mineral

**Methodology**

3.1 Preparation of Samples

The soil samples which were collected from Mya-Thi-Dar, Thae-Gong and Mye-Nu villages situated in Ho-pin township for analyse. These random samples which were dug from the depth of 12 inches of the study areas were put in thick plastic bags, labeled suitably both outside and inside the bags and brought to laboratory.

The soil samples were allowed to dry in air. Stones and pieces of macro organic matter were picked out and the remainders were crushed and sieved. Large
lumps were broken up by hand and then the soils were ground. After grinding, the soils were screened through a 2 mm sieve. The soil sample were stored in screwed capped glass jars and labeled them properly.

**Figure 4:** The Paddy field form Mya-Thi-Dar village, Thae-Gong village and Mye-Nu village, Hopin Township

**Table 1**

<table>
<thead>
<tr>
<th>No</th>
<th>Parameter</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Moisture Content</td>
<td>Oven Method</td>
</tr>
<tr>
<td>2</td>
<td>Texture</td>
<td>Pipette Method</td>
</tr>
<tr>
<td>3</td>
<td>pH</td>
<td>pH Meter</td>
</tr>
<tr>
<td>4</td>
<td>Electrical Conductivity</td>
<td>Conductivity Method</td>
</tr>
<tr>
<td>5</td>
<td>Bulk Density</td>
<td>Density bottle Method</td>
</tr>
<tr>
<td>6</td>
<td>Water Soluble salt (Chloride and Sulphate)</td>
<td>Mohr Titration Method</td>
</tr>
<tr>
<td>7</td>
<td>Organic Matter</td>
<td>Mohr Titration Method</td>
</tr>
<tr>
<td>8</td>
<td>Available Nitrogen, Phosphorus and Potassium</td>
<td>Flame Photometer</td>
</tr>
<tr>
<td>9</td>
<td>Exchangeable Calcium and Magnesium</td>
<td>Mohr Titration Method</td>
</tr>
</tbody>
</table>

**Results**

The present investigation have been made on the soil obtained from the paddy field of Mya-Thi-Dar, Thae-Gong and Mye-Nu villages, Ho-pin Township. The soil samples for the present study are collected from Ho-Pin Township during the raining season.
The results of physical properties of the soil samples are shown in table (4.1).

Table 2
The physical properties of soil sample from Mya-Thi-Dar village, Thae-Gong village and Mye-Nu village, Hopin Township

<table>
<thead>
<tr>
<th>No</th>
<th>Characteristics</th>
<th>Sample 1</th>
<th>Sample 2</th>
<th>Sample 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>pH</td>
<td>6.8</td>
<td>6.5</td>
<td>6.7</td>
</tr>
<tr>
<td>2</td>
<td>Electrical conductivity (dS/m)</td>
<td>0.1232</td>
<td>0.1833</td>
<td>0.1999</td>
</tr>
<tr>
<td>3</td>
<td>moisture (%)</td>
<td>8</td>
<td>10</td>
<td>11.7</td>
</tr>
<tr>
<td>4</td>
<td>Texture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>sand (%)</td>
<td>19.05</td>
<td>14.04</td>
<td>16.62</td>
</tr>
<tr>
<td></td>
<td>silt (%)</td>
<td>59.70</td>
<td>64.37</td>
<td>58.92</td>
</tr>
<tr>
<td></td>
<td>clay (%)</td>
<td>21.25</td>
<td>21.59</td>
<td>24.46</td>
</tr>
<tr>
<td>5</td>
<td>Bulk density (g/cm³)</td>
<td>2.333</td>
<td>1.85</td>
<td>1.209</td>
</tr>
</tbody>
</table>

Sample 1 = Mya-thi-dar village  Sample 2 = Thae-Gong village  Sample 3 = Mye-nu village

Table 3
The chemical properties of soil samples from Mya-Thi-Dar village, Thae-Gong village and Mye-Nu village, Hopin Township

<table>
<thead>
<tr>
<th>No</th>
<th>Characteristics</th>
<th>Sample 1</th>
<th>Sample 2</th>
<th>Sample 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chloride (%)</td>
<td>0.5219</td>
<td>0.1896</td>
<td>0.6125</td>
</tr>
<tr>
<td>2</td>
<td>Sulphate (%)</td>
<td>0.788</td>
<td>0.644</td>
<td>0.8419</td>
</tr>
<tr>
<td>3</td>
<td>Organic matter (%)</td>
<td>2.626</td>
<td>2.796</td>
<td>3.494</td>
</tr>
<tr>
<td>4</td>
<td>Calcium(meq/100g)</td>
<td>2.7557</td>
<td>1.8542</td>
<td>1.5202</td>
</tr>
<tr>
<td>5</td>
<td>Magnesium(meq/100g)</td>
<td>1.649</td>
<td>1.039</td>
<td>1.0239</td>
</tr>
</tbody>
</table>

Sample1 = Mya-thi-dar village  Sample 2= Thae-Gong village  Sample 3= Mye-nu village
Figure 5: Result of Chemical Properties of Soil Samples in Three Villages

Table 4
Micronutrient of Nitrogen, Phosphorus and Potassium of samples

<table>
<thead>
<tr>
<th>No</th>
<th>Parameter</th>
<th>Sample 1</th>
<th>Sample 2</th>
<th>Sample 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Available Nitrogen (mg/kg)</td>
<td>70</td>
<td>64</td>
<td>59</td>
</tr>
<tr>
<td>2</td>
<td>Available Phosphorus (mg/kg)</td>
<td>19</td>
<td>4</td>
<td>19</td>
</tr>
<tr>
<td>3</td>
<td>Available Potassium (mg/kg)</td>
<td>74</td>
<td>168</td>
<td>81</td>
</tr>
</tbody>
</table>

Sample 1 = Mya-thi-dar village  Sample 2 = Thae-Gong village  Sample 3 = Mye-nu village
Figure 6: The Result of Micronutrients of Soil Samples in Three Villages

Table 5
Mineral content of the soil samples from Mya-Thi-Dar-village, Thae-Gong village and Mye-Nu village, Hopin Township

<table>
<thead>
<tr>
<th>No</th>
<th>Mineral</th>
<th>Sample 1</th>
<th>Sample 2</th>
<th>Sample 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Silicon (mass%)</td>
<td>29.5</td>
<td>27.3</td>
<td>29.6</td>
</tr>
<tr>
<td>2</td>
<td>Aluminium (mass%)</td>
<td>10.0</td>
<td>11.5</td>
<td>10.0</td>
</tr>
<tr>
<td>3</td>
<td>Iron</td>
<td>6.80</td>
<td>8.75</td>
<td>6.29</td>
</tr>
<tr>
<td>4</td>
<td>Potassium</td>
<td>2.80</td>
<td>2.49</td>
<td>2.59</td>
</tr>
<tr>
<td>5</td>
<td>calcium</td>
<td>1.38</td>
<td>0.869</td>
<td>1.11</td>
</tr>
<tr>
<td>6</td>
<td>Magnesium (mass%)</td>
<td>0.737</td>
<td>0.794</td>
<td>0.654</td>
</tr>
<tr>
<td>7</td>
<td>Titanium</td>
<td>0.639</td>
<td>0.641</td>
<td>0.598</td>
</tr>
<tr>
<td>8</td>
<td>Strontium</td>
<td>0.420</td>
<td>0.0271</td>
<td>0.0313</td>
</tr>
<tr>
<td>9</td>
<td>Manganese</td>
<td>0.135</td>
<td>0.149</td>
<td>0.102</td>
</tr>
<tr>
<td>10</td>
<td>Phosphorus (mass%)</td>
<td>0.0994</td>
<td>0.0844</td>
<td>0.100</td>
</tr>
<tr>
<td>11</td>
<td>Rubiduium</td>
<td>0.0420</td>
<td>0.0349</td>
<td>0.0263</td>
</tr>
<tr>
<td>12</td>
<td>Nickel</td>
<td>0.0319</td>
<td>0.0357</td>
<td>0.0304</td>
</tr>
<tr>
<td>13</td>
<td>Zinc</td>
<td>0.0287</td>
<td>0.0158</td>
<td>0.0236</td>
</tr>
<tr>
<td>14</td>
<td>Zirconium</td>
<td>0.0287</td>
<td>0.0154</td>
<td>0.0276</td>
</tr>
<tr>
<td>Element</td>
<td>Sample 1</td>
<td>Sample 2</td>
<td>Sample 3</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>Copper</td>
<td>0.0155</td>
<td>0.0128</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Sulfur</td>
<td>0.0150</td>
<td>0.0148</td>
<td>0.0292</td>
<td></td>
</tr>
<tr>
<td>Chlorine</td>
<td>0.0016</td>
<td>0.0084</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Chromium</td>
<td>-</td>
<td>0.0340</td>
<td>0.0475</td>
<td></td>
</tr>
<tr>
<td>Yttrium</td>
<td>-</td>
<td>0.0003</td>
<td>0.0000</td>
<td></td>
</tr>
</tbody>
</table>

**Discussion**

From this result of texture, sample (1) is classified as silt loam having higher percentage of silt 59.70%. Sample (2) is classified as silt loam having higher percentage of silt 64.37% sample (3) is classified as silt loam having higher percentage of silt 58.92%. Sample (1), (2), (3) have high percentage of silt. It is favourable for paddy growing.

According to the result of pH, the soil samples have nearly neutral. Electrical conductivity is a measure of salt in the soil. Electrical conductivity values of soil samples are 0.1232, 0.1833 and 0.1999. According to this result all soil samples life perfect level. The highest amount of moisture content are 8, 10 and 11.7.

The results of chemical properties of the soil samples are shown in table (4.2). The percentage of chloride and sulphate content are low in all three samples. Calcium and magnesium content in three samples are low.

Application of Ca and Mg alone or together had a non-significant effect on yield, elemental composition of plant tissue at tillering, and the uptake of macro- and micronutrients at harvest.

The results of micronutrient of the soil samples are shown in table (4.3). Available nitrogen content in samples (1) and (2) are higher than sample (3). Thus, nitrogen encourages the vegetative development of plants by imparting a healthy green color to the leaves. Available phosphorus content in sample (1) and (2) are medium. Phosphorus is very important in the early growth stages of rice plants. It contributes to the development of strong roots. The content of available potassium of sample (2) is medium and samples (1) and (3) are low. Potassium enhances the ability of the plants to resist diseases, insect attacks, cold and other adverse conditions.

The results of mineral content of the soil samples are shown in table (4.4). WDXRF data of soil samples. Aluminium, silicon and iron are significant amount. Thus, sample (1), (2) and (3) are most suitable for paddy to give a good yield by increasing the strength and rigidity of cell.

**Conclusion**

In this research work, soil samples were collected from Mya-thi-da, Thae-gong and Mye-nu village, Ho-pin township and analyzed by different parameters.

The values of pH show that soil samples are nearly neutral. This fact indicates that nutrient are more readily available to plant and microbale population in the soil increase.
From the study of result, the percentage of silt is found to be high. Soil with high silt content, have medium water holding capacity and retain nutrient and moisture well.

From quantitative analysis, the content of available nutrient as nitrogen and phosphorus are medium and potassium are low. EDXRF data of samples show Fe, Si and Al are significant amount. This result indicates that sample (2) are achieved for good rice yield.

According to the result of analysis data, soil samples are rich in minerals and it is most suitable for paddy growing.

**Recommendation**

According to experimental result, sample (2) are achieved for good rice yield. Further studies focused on the rice production and soil ecology.

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Antimicrobial Activity of Isolated Porphyrin Derivative Compound and Study on the Cytotoxicity, Antioxidant Activity of Crude Extracts of the Whole Plant of Corallodiscus lanuginosus (Wall. ex R.Br.) Burtt

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Abstract

In this research paper, Corallodiscus lanuginosus (Wall. ex R.Br.) Burtt which is one of the Myanmar indigenous medicinal plants known as Pan ma o’ was selected for the study on the cytotoxicity and antioxidant activity. The cytotoxicity of the ethanol extract of the selected sample was more toxic to brine shrimp than the water extract. The LD$_{50}$ values of ethanol and water extracts were 380 μg/mL and 423 μg/mL, respectively. On the other hand, the EtOH and water extracts were cytotoxic to brine shrimp up to maximum dose of 1000 μg/mL. The LD$_{50}$ values of standard K$_2$Cr$_2$O$_7$ and caffeine are 265 μg/mL and >1000 μg/mL, respectively. In addition, the larger radical scavenging activity to scavenge DPPH radical was observed in ethanol extract, which inhibited 50 % of free radicals at the concentration (IC$_{50}$) of 7.10 μg/mL than the water extract which inhibited 50 % of free radicals at the concentration (IC$_{50}$) of 11.13 μg/mL. Moreover, antimicrobial activities of the isolated porphyrin derivative compound were examined by using agar well diffusion method. The ethyl acetate extract of this porphyrin derivative compound responds high activities on Bacillus subtilis, Pseudomonas aeruginosa, Bacillus pumilus, Candida albicans and E coli.

Keywords: Pan ma o’, porphyrin, cytotoxicity, antioxidant activity, antimicrobial activity

Introduction

Traditional medicine is “the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures, used in the maintenance of health and in the prevention, diagnosis, improvement or treatment of physical and mental illness” (World Health Organization, http://www.who.int/topics/traditional_medicine/en/). There are many different systems of traditional medicine, and the philosophy and practices of each are influenced by the prevailing conditions, environment, and geographic area within which it first evolved (WHO 2005), however, a common philosophy is a holistic approach to life, equilibrium of the mind, body, and the environment, and an emphasis on health rather than on disease. Generally, the focus is on the overall condition of the individual, rather than on the particular ailment or disease from which the patient is suffering, and the use of herbs is a core part of all systems of traditional medicine (Engebretson 2002; Conboy et al. 2007; Rishton 2008; Schmidt et al. 2008).
Over the past 100 years, the development and mass production of chemically synthesized drugs have revolutionized health care in most parts of the world. However, large sections of the population in developing countries still rely on traditional practitioners and herbal medicines for their primary care. In Africa up to 90% and in India 70% of the population depend on traditional medicine to help meet their health care needs. In China, traditional medicine accounts for around 40% of all health care delivered and more than 90% of general hospitals in China have units for traditional medicine (WHO 2005).

Research Objectives

The aim of the present research work is the study on the cytotoxicity and antioxidant activity of crude extract of the whole plant of Pan- ma- o`.

Research Methodology

3.1 Determination of Cytotoxicity of Crude Extracts by Brine Shrimp Lethality Bioassay

Cytotoxicity of crude extracts of selected sample was investigated by brine shrimp lethality bioassay according to the procedure described by Dockery and Tomkins (2000).

Preparation of solutions

a) Preparation of sample solutions

Each crude extract (5 mg) was dissolved in 5 mL of distilled water to obtain stock solution (1000 μg/mL). Desired concentrations (1000, 500, 250, 125, 62.5, 31.25 and 15.125 μg/mL) of each crude extract were prepared from this stock solution by two fold serial dilution with distilled water.

b) Preparation of standard solutions (Potassium dichromate and caffeine)

Each of potassium dichromate (5 mg) and caffeine (5 mg) was dissolved in 5 mL of distilled water. These stock solutions were two fold serially diluted with distilled water to get the standard solutions with the concentrations of 1000, 500, 250, 125, 62.5, 31.25 and 15.125 μg/mL.

c) Preparation of artificial sea water

Artificial sea water [3.8 % (w/v) NaCl] was prepared by dissolving (38 g) of sodium chloride in 1 L of distilled water.

Hatching of brine shrimp

The brine shrimp (Artemia salina) was used in this study for cytotoxicity bioassay (Ali et al., 2013). Brine shrimp cysts were purchased from pet shop, Baho Road, Hlaing Township, Yangon Region.

Brine shrimp cysts (0.5 g) were added to the 1.5 L of artificial sea water bottle. The suspension was aerated by bubbling air into the funnel and kept for 24 h at room temperature.
Procedure

After aeration had been removed, the suspension was kept for 1 h undisturbed, whereby the remaining unhatched eggs dropped. In order to get a higher density of larvae, one side of the separating funnel was covered with aluminium foil and the other illuminated with a lamp, whereby the phototropic larvae were gathering at the illuminated side and could be collected by pipette. The shrimp larvae were transferred to an agar well filled with 9 mL of salt water and the dead larvae counted (number N). A solution of crude extract (31.25 - 1000 ppm) (1 mL reach) was added and the plate kept at room temperature in the dark. After 24 h, the dead larvae were counted in each well under the microscope (number A). The still living larvae were killed by addition of ca. 0.5 mL methanol so that subsequently the total number of the animals could be determined (number G). The mortality rate M was calculated in percent. Each test row was accompanied by a brine solution (number B). The mortality rate M was calculated by using the following formula:

\[
M = \left( \frac{(A - B - N)}{(G - N)} \right) \times 100
\]

M = percent of the dead larvae after 24 h
A = number of the dead larvae after 24 h
B = average number of the dead larvae in the brine solution after 24 h
N = number of the dead larvae before starting of the test
G = total number of brine shrimps

The control solution was prepared as the above procedure by using distilled water instead of sample solution. The results are summarized in Table 3.1.

3.2 Determination of Antioxidant Activity of Crude Extracts by DPPH

Free Radical Scavenging Assay

The free radical scavenging activity of crude extracts (ethanol and water extracts) of Pan ma o’ was measured by using DPPH free radical scavenging assay (Marinova and Batchvarov, 2011).

Preparation of solutions

a) Preparation of 0.002 % (w/v) DPPH solution

0.002 % DPPH solution was prepared in the brown coloured bottle by dissolving 2 mg of DPPH powder in 100 mL of ethanol. It must be stored in the refrigerator for no longer than 24 h.

b) Preparation of standard solutions (Gallic acid)

The stock solution (200 μg/mL) of standard gallic acid was prepared by dissolving (2 mg) of each compound in 10 mL of ethanol. The stock solutions were two fold serially diluted with ethanol to get the standard solutions with the concentrations of 200, 100, 50, 25, 12.5, 6.25 and 3.125 μg/mL.

c) Preparation of test sample solutions

The stock solution (200 μg/mL) of the crude extract was prepared by dissolving (2 mg) of respective crude extract in 10 mL of ethanol. The stock solutions were two fold serially diluted with ethanol to get the sample solution with the concentrations of 200, 100, 50, 25, 12.5, 6.25 and 3.125 μg/mL.

d) Preparation of blank solution

Blank solution was prepared by mixing 1.5 mL of sample solution with 1.5 mL of ethanol.
Procedure

DPPH radical scavenging activity was determined by UV-visible spectrophotometer (Marinova and Batchvarov, 2011).

The control solution was prepared by mixing 1.5 mL of 0.002 % DPPH solution and 1.5 mL of ethanol in the brown bottle. The sample solution was also prepared by mixing 1.5 mL of 0.002 % DPPH solution and 1.5 mL of test sample solution. These bottles incubated at room temperature were shaken on shaker for 30 min. After 30 min, the absorbance values of these solutions were measured at 517 nm and the percentage of radical scavenging activity (% RSA) was calculated by the following equation.

\[
\% \text{ RSA} = \left[ \frac{(A_{\text{DPPH}} - A_{\text{Sample}} - A_{\text{Blank}})}{A_{\text{DPPH}}} \right] \times 100
\]

where, % RSA = % radical scavenging activity of test sample
A_{DPPH} = absorbance of DPPH in ethanol solution
A_{Sample} = absorbance of sample + DPPH solution
A_{Blank} = absorbance of sample + EtOH solution

The antioxidant activity (IC_{50}) is expressed as the test substance concentration (μg/mL) that results in a 50 % reduction of initial absorbance of DPPH solution. IC_{50} (50 % inhibition concentration) values were calculated by linear regressive excel program. The standard deviation was also calculated by the following equation.

\[
\text{Standard Deviation (SD)} = \sqrt{\frac{(x_1 - \bar{x})^2 + (x_2 - \bar{x})^2 + \ldots + (x_n - \bar{x})^2}{n-1}}
\]

Research Results and Discussion

Cytotoxicity of Crude Extracts

The cytotoxicity of water and ethanol extracts of selected sample were evaluated by brine shrimp cytotoxicity bioassay. This bioassay is general toxicity screening for bioactive plants and their derivatives. A model animal that has been used for this purpose is the brine shrimp, *Artemia salina* (Tawaha, 2006). The cytotoxicity of crude extracts were expressed in term of mean ± SEM (standard error mean) and LD_{50} (50 % Lethality Dose) and the results are shown in Table 3.1 and Figure 3.1. In this experiment, standard potassium dichromate (K_2Cr_2O_7) and caffeine were chosen because K_2Cr_2O_7 was well-known for its toxicity in this assay (Salinas and Fernandez, 2006) and caffeine is a natural product.

As shown in Table 3.1, the cytotoxicity of the ethanol extract of the selected sample was more toxic to brine shrimp than the water extract. The LD_{50} values of water and ethanol extracts were 423 μg/mL and 380 μg/mL respectively. The water and ethanol extracts were cytotoxic to brine shrimp up to maximum dose of 1000 μg/mL. The LD_{50} values of standard K_2Cr_2O_7 and caffeine are 265 μg/mL and >1000 μg/mL, respectively.
Table 1
Cytotoxicity of Ethanol and Water Crude Extracts

<table>
<thead>
<tr>
<th>Samples</th>
<th>Percent (%) of the dead larvae at different concentrations of the samples after 24 h</th>
<th>LD_{50} (μg/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Extract</td>
<td>15.625 31.25 62.5 125 250 500 1000</td>
<td>423</td>
</tr>
<tr>
<td>EtOH Extract</td>
<td>12.75 17.65 39.29 34.48 35.29 63.89 70.00</td>
<td>380</td>
</tr>
<tr>
<td>*K_{2}Cr_{2}O_{7}</td>
<td>17.50 23.53 35.48 42.31 49.02 69.23 74.47</td>
<td>265</td>
</tr>
<tr>
<td>*Caffeine</td>
<td>3.19 10.81 11.43 23.53 29.03 30.43 37.14 &gt;1000</td>
<td></td>
</tr>
</tbody>
</table>

*standard

These results revealed that the plant extracts possess cytotoxic activity and can be the sources of cytotoxic compounds. The selected plant sample can be used in traditional medicine to treat many kinds of diseases. The reported cytotoxic plants in this study are worth of further pharmacological and phytochemical studies in order to define what kind of bioactivity they have and to isolate the natural active constituent, which are responsible for the activity.

Figure 1: A bar graph representing LD_{50} values of watery and ethanol extracts of the selected sample and standard K_{2}Cr_{2}O_{7}

Antioxidant Activity of Crude Extracts by DPPH Free Radical Scavenging Assay

Most of the medicinal plants possess phytochemicals and antioxidant activity. Flavonoids and tannins are phenolics which are a major group of compound in plants. These compounds act as primary antioxidant or free radical scavengers (Ayoola et al., 2008). The antioxidant activity of water and ethanol extracts of selected sample were studied by DPPH free radical scavenging assay (Marinova and Batchvarov, 2011). Gallic acid was used as standard.

The DPPH (2, 2-diphenyl-1-picrylhydrazyl) assay is widely used to investigate the scavenging activities of several natural compounds such as crude extracts of plants. DPPH radical is scavenged by antioxidant through the donation of electron forming the reduced DPPH. Sample’s colour is changed from purple to pale yellow which can be quantified by its decrease in absorbance at wavelength 517 nm (Maw et al., 2011). The radical scavenging activity of crude extracts was expressed in terms of % RSA (Table 2 and Figure 2) and IC_{50} (50 % inhibition concentration) (Table 3.2 and Figure 3.2).
From these observations, the larger radical scavenging activity to scavenge DPPH radical was observed in ethanol extract, which inhibited 50 % of free radicals at the concentration (IC$_{50}$) of 7.10 μg/mL than the water extract which inhibited 50 % of free radicals at the concentration (IC$_{50}$) of 11.13 μg/mL. These results were found to be slightly higher than standard gallic acid (IC$_{50}$= 3.79 μg/mL). It can be concluded that the antioxidant potency of the ethanol extract was found to be stronger than that of the water extract, but weaker than the standard gallic acid.

Table 2

Percent Radical Scavenging Activity of Crude Extracts

<table>
<thead>
<tr>
<th>Samples</th>
<th>% RSA ± SD at Different Concentrations (µg/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.125</td>
</tr>
<tr>
<td>Ethanol extract</td>
<td>36.58</td>
</tr>
<tr>
<td>Water extract</td>
<td>16.47</td>
</tr>
<tr>
<td>Gallic acid</td>
<td>47.95</td>
</tr>
</tbody>
</table>

Figure 2: % RSA of crude extracts comparison with standard gallic acid

Table 3

IC$_{50}$ of Crude Extracts and Gallic Acid

<table>
<thead>
<tr>
<th>No.</th>
<th>Test Sample</th>
<th>IC$_{50}$ (µg/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ethanol extract</td>
<td>7.10</td>
</tr>
<tr>
<td>2</td>
<td>Water Extract</td>
<td>11.13</td>
</tr>
<tr>
<td>3</td>
<td>Gallic Acid</td>
<td>3.79</td>
</tr>
</tbody>
</table>
Antimicrobial Activities of the Porphyrin Derivative Compound

Porphyrin derivative compound could be isolated from the whole plant of Pan ma o’ in January 2017 at Department of Chemistry, Mandalay University (Thinn Myat Nwe et al., 2017). It had been reported in Myanmar Academy of Arts and Science, 2017 (Thinn Myat Nwe and Myo Myo, 2017). Antimicrobial activities of isolated compound were checked by using agar well diffusion method on six selected organisms. The results are described in Table 3.4 and Figure 3.4.

Table 4
Results of Antimicrobial Activities of Porphyrin Derivative Compound Against Different Microorganisms

<table>
<thead>
<tr>
<th>Sample</th>
<th>Solvent</th>
<th>Inhibition zone diameters (mm)</th>
<th>Organisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pure compound</td>
<td>EtOA</td>
<td>+++</td>
<td>-</td>
</tr>
<tr>
<td>Control</td>
<td>EtOA</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>agar well ~ 10mm</td>
<td></td>
<td>(+)</td>
<td>I</td>
</tr>
<tr>
<td>10 mm ~ 14 mm</td>
<td></td>
<td>(++)</td>
<td>II</td>
</tr>
<tr>
<td>15 mm ~ 19 mm</td>
<td></td>
<td>(+++)</td>
<td>III</td>
</tr>
<tr>
<td>20 mm above</td>
<td></td>
<td>(+++)</td>
<td>IV</td>
</tr>
</tbody>
</table>

Figure 3: \( IC_{50} \) values of crude extracts and gallic acid
According to the results shown in this table, the isolated compound gives rise to high activities on all selected organisms except *Staphylococcus aureus*.

![Figure 4: Antimicrobial activities of porphyrin derivative compound](image)

**Conclusion**

The antimicrobial activities of isolated porphyrin derivative compound give rise to high activities on all selected organisms except *Staphylococcus aureus*. The cytotoxicity of the ethanol extract of the sample was more toxic to brine shrimp than the water extract. The LD$_{50}$ values of ethanol and water extracts were 380 μg/mL and 423 μg/mL, respectively. In cytotoxicity, both extracts were lower than K$_2$Cr$_2$O$_7$ (LD$_{50}$ = 265 μg/mL), higher than caffeine (LD$_{50}$ >1000 μg/mL). In addition, the larger radical scavenging activity to scavenge DPPH radical was observed in ethanol extract, which inhibited 50 % of free radicals at the concentration (IC$_{50}$) of 7.10 μg/mL than the water extract which inhibited 50 % of free radicals at the concentration (IC$_{50}$) of 11.13 μg/mL.

**References**


Medicinal Uses and Antimicrobial Activities of Isolated Isoflavonoid Compound from One of Myanmar Indigenous Medicinal Plants

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E-mail: thinmyatnwe67@gmail.com

Abstract

In this research, Mucuna macrocarpa Wall, Pauk net was selected for chemical analysis. Moreover, pure compound was isolated as pale yellow crystal (37 mg) by thin layer and column chromatography separation methods. The yield percent was found to be (0.82%) based upon the EtOAc crude extract. In addition, antimicrobial activities of this isolated compound responded medium activities on all selected organisms. Furthermore, the acute toxicity test was done by the method of Litchfield and Wilcoxon. The 90% EtOH extract of bark of Mucuna macrocarpa Wall was tested for acute toxicity on albino mice. This extract showed no lethal effect when tested for acute toxicity (LD₅₀) up to maximum dosage of 8 g/kg and so it was practically non-toxic.

Keywords: Mucuna macrocarpa Wall, acute toxicity, antimicrobial activity, albino mice, isoflavonoid.

Introduction

The knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures are used by traditional medicine in the maintenance of health and in the prevention, diagnosis, improvement or treatment of physical and mental illness” (WHO, 2010). Generally, the focus is on the overall condition of the individual, rather than on the particular ailment or disease from which the patient is suffering, and the use of herbs is a core part of all systems of traditional medicine (Engebretson, 2002; Conboy et al., 2007; Rishton 2008; Schmidt et al., 2008). In Myanmar, Pauk net grows in the valley area. This plant was distributing in Bago, Chin, Kachin, Mandalay and Shan area of Myanmar. The juice of bark of Mucuna macrocarpa Wall is used for ulcer. Decoction or alcohol extract of the bark of Pauk net is used for injuries, rheumatism, alleviates muscle pain and back pain.

Research Objectives

The aim of the present research work is the structure elucidation of bioactive pure isoflavonoid compound isolated from the bark of Mucuna macrocarpa Wall.

The scope of the present research work are;

1. To evaluate scientifically acute toxicity of crude extracts of the bark of Pauk net
2. To isolate the pure bioactive organic compound
3. To elucidate the structure of isolated compound
Research Methodology

3.1 Apparatus and Materials

The sophisticated instruments which are used in the isolation and structure elucidation of isoflavonoid compound are presented as follows.

1. UV-lamp (Lambda-40, Perkin-Elmer Co., England)
2. FT-IR Spectrophotometer (Shimadzu, Japan)
3. $^1$H NMR Spectrophotometer (500 MHz)
4. $^{13}$C Spectrophotometer (125 MHz)
5. EI-Mass Spectrophotometer
6. Electric balance (Shimadzu, Japan)
7. Melting point machine

3.2 Materials

Commercial grade reagents solvents were used after distillation. Analytical preparative thin layer chromatography was performed by using percoated silica gel (Merk Co. Inc, Kiesel gel 60 F$_{254}$). Silica gel Merk Co.Inc, Kiesel gel 70-230 Mesh ASTM was used for column chromatography. Iodine vapor and UV detector were used for visualizing the compound situated on TLC plates.

3.3 Sample Collection

The bark of *Mucuna macrocarpa* Wall. was collected from Kyaukme township, Shan State, Myanmar. The bark of collected sample was cut into small pieces and allowed to air dry for one month. The dried sample was stored in a well-stoppered bottle and used throughout the experiment.

![Figure 1: Plant of Mucuna macrocarpa Wall](image)

![Figure 2: Bark of Mucuna macrocarpa Wall](image)

3.4 The Acute Toxicity Test (Litchfield & Wilcoxin, 1949)

The acute toxicity test on 90 % EtOH extracts of bark of plant materials were done by the method of Litchfield and Wilcoxon (1949). In this study, a total of 40 adult mice (ddy strain) of male sexes weighting (25-35 g) were used for ethanolic extract of *Mucuna macrocarpa* Wall. They are separated into 4 groups. Each contain on 10 mice.

On the experiment day, all groups of mice will be fasted overnight and only water will be given. Three doses (2 g / kg, 4 g / kg and 8 g / kg) of three test extracts will be administered orally. The ambient temperature was maintained at 26 ± 1°C. The mice were individually marked on the part of the body with picric acid staining for each group in different sites (e.g. head, neck, back, tail, head back and head tail etc.) administered orally with various concentrations of extract.

After administration of the drug, Figure (3), the mice were separately housed in standard aluminium cages in groups of three and allowed access to food and water, Figure (4). The remaining group served as control and will be given distilled
water only. The mice were observed continuously for the first 6 hours for mortality, should it occurs, and then every 24 hours for 14 days. The mice were also closely examined for signs of intoxication, lethargy, behavioral modification and co-morbid states as described in Table (3).

3.5 Materials

The 90% ethanolic extract of bark of *Mucuna macrocarpa* Wall., Balance(OHAUS, Corporation-CD 11, 2EO, 11-S.A), distilled water, beaker, disposable syringe (1 ml), dosing cannula, 2” straight (18 Guage intragastic dosing cannula), aluminium mice cages with water bottle.

3.6 Extraction and Isolation of Isoflavonoid Compound (Mc Murry, 1999 and Stable, 1965)

Air dried sample 800 g was percolated with 95% ethanol (2.8 L) for about two months. Percolated solution was filtered and concentrated to yield residue. It was extracted with ethyl acetate (400 mL) and evaporated. The ethyl acetate crude sample (4.5 g) was obtained. It was fractionated by column chromatography over silica gel (70-230 mesh) eluted by various solvent ratio of n-hexane and ethyl acetate from non-polar to polar. Totally (115) fractions were obtained. These fractions were combined according to same Rf values under UV lamp and iodine detector. Ten combined fractions (A – J) were obtained. The combined fraction H gave one spot on TLC in (Rf = 0.47) with n-hexane: EtOAc (1 : 1 v/v) and UV active. The pure compound pale yellow needle shaped crystal (37 mg) was obtained. The yield percent was found to be (0.82%) based upon the EtOAc crude extract.
Research Results and Discussion

4.1 Preliminary Phytochemical Screening of the Bark of *Mucuna macrocarpa* Wall (Harborne, 1984)

Table 1

Result of preliminary phytochemical tests

<table>
<thead>
<tr>
<th>No</th>
<th>Constituents</th>
<th>Reagents used</th>
<th>Observation</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Alkaloid</td>
<td>Wagner’s reagent</td>
<td>Reddish brown</td>
<td>+</td>
</tr>
<tr>
<td>2</td>
<td>Flavonoid</td>
<td>EtOH, Mg, conc. HCl</td>
<td>pink color solution</td>
<td>+</td>
</tr>
<tr>
<td>3</td>
<td>Steroid</td>
<td>Pet ether, conc. H₂SO₄, acetic anhydride</td>
<td>No Green color solution</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>Terpene</td>
<td>CHCl₃, (CH₃CO)₂O, Conc: H₂SO₄,</td>
<td>Red color solution</td>
<td>+</td>
</tr>
<tr>
<td>5</td>
<td>Glycoside</td>
<td>10% Lead acetate</td>
<td>White ppt</td>
<td>+</td>
</tr>
<tr>
<td>6</td>
<td>Reducing sugar</td>
<td>Benedict’s solution</td>
<td>orange ppt</td>
<td>+</td>
</tr>
<tr>
<td>7</td>
<td>Phenol</td>
<td>1% FeCl₃ solution</td>
<td>Dark green solution</td>
<td>+</td>
</tr>
<tr>
<td>8</td>
<td>Polyphenol</td>
<td>1% FeCl₃, K₃Fe(CN)₆</td>
<td>Deep blue solution</td>
<td>+</td>
</tr>
</tbody>
</table>

(+) = Present constituents  (-) = Absent constituents

According to this table, the sample consists of alkaloid, flavonoid, terpene, glycoside, phenol, polyphenol and reducing sugar, respectively.

4.2 Antimicrobial Activity of the Bark of *Mucuna macrocarpa* Wall.

Table 2

Results of Antimicrobial Activities of the Bark of Mucuna macrocarpa Wall

<table>
<thead>
<tr>
<th>Sample</th>
<th>Solvent</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pauknet</td>
<td>hexane</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pauknet</td>
<td>EtOH</td>
<td>17mm(++)</td>
<td>20mm(++)</td>
<td>29mm(++)</td>
<td>32mm(++)</td>
<td>22mm(++)</td>
<td>34mm(++)</td>
</tr>
<tr>
<td>Pauknet</td>
<td>EtOAc</td>
<td>12mm(+)</td>
<td>12mm(+)</td>
<td>11mm(+)</td>
<td>13mm(+)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

aggar well ~ 10mm  | Organisms           | 10 mm ~ 14 mm (+) | I. *Bacillus subtilis* | IV *Bacillus pumilus* |
| 15 mm ~ 19 mm(++) | II *Staphylococcus aureus* | V *Candida albicans* |
| 20 mm above (+++) | III *Pseudomonous aeruginosa* | VI *E. Coli* |

According to this table, the ethanol extract of crude sample gives rise to high activities on all selected organisms except *Bacillus subtilis*.
4.3 Antimicrobial Activities of the isolated Compound

Antimicrobial activities of isolated compound were tested by using agar well diffusion method on six selected organisms with ethanol solvent.

Table 3
Results of Antimicrobial Activities of Isolated Compound

<table>
<thead>
<tr>
<th>Sample</th>
<th>Solvent</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>compound</td>
<td>EtOH</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Control</td>
<td>EtOH</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

Agar well ~ 10mm

10 mm ~ 14 mm (+)  I. *Bacillus subtilis*  IV *Bacillus pumilus*
15 mm ~ 19 mm(++) II *Staphylococcus aureus*  V *Candida albicans*
20 mm above (+++) III *Pseudomonas aeruginosa*  VI *E. coli*

According to this table, the ethanol extract of isolated compound gives rise to medium activities on all selected organisms.
4.4 The Acute Toxicity Tests of *Mucuna macrocarpa* Wall.

The acute toxicity test was done according to the method described by Litchfield and Wilcoxon (1949). The acute toxicity test of *Mucuna macrocarpa* Wall extract on albino mice was observed that even with the estimated maximal permissible dose (8g/kg b.w) of 90% EtOH and the mice were found to be alive and healthy during the observation period of two weeks. All the animals remained alive and did not show any visible symptoms of toxicity like respiratory disorders, convulsions and death etc. at the dosage tested in Table 1. Therefore it was observed that 90% EtOH extract of *Mucuna macrocarpa* Wall was free from acute toxic harmful effect. The median lethal dose (LD$_{50}$) of plant extract may be more than 8g/kg body weight.

**Table 4**

*Acute Toxicity Study of 90% EtOH Extract of Bark of Mucuna macrocarpa Wall. on Albino Mice*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Response</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CNS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor activity</td>
<td>NAD</td>
<td>Normal</td>
</tr>
<tr>
<td>Sedation</td>
<td>NAD</td>
<td>Normal</td>
</tr>
<tr>
<td>Screen grip</td>
<td>NAD</td>
<td>Normal</td>
</tr>
<tr>
<td>Respiration rate</td>
<td>NAD</td>
<td>Normal</td>
</tr>
<tr>
<td>Muscle spasm</td>
<td>NAD</td>
<td>Normal</td>
</tr>
<tr>
<td>Tremor</td>
<td>NAD</td>
<td>Normal</td>
</tr>
<tr>
<td>Convulsion</td>
<td>NAD</td>
<td>Normal</td>
</tr>
<tr>
<td><strong>Eyes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lacrimation</td>
<td>NAD</td>
<td>Normal</td>
</tr>
<tr>
<td>Exophthalmos</td>
<td>NAD</td>
<td>Normal</td>
</tr>
<tr>
<td>Ptosis</td>
<td>NAD</td>
<td>Normal</td>
</tr>
<tr>
<td>Salivation</td>
<td>NAD</td>
<td>Normal</td>
</tr>
</tbody>
</table>
### Table 5
Results of Acute Toxicity Test of 90% EtOH Extract of Bark of Mucuna macrocarpa Wall on Albino Mice

<table>
<thead>
<tr>
<th>Group No.</th>
<th>No. of animals tested</th>
<th>Diet</th>
<th>Dose g/kg</th>
<th>Final volume given ml/kg</th>
<th>Observed period</th>
<th>Ratio of death to tested animals</th>
<th>Death (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I (control)</td>
<td>10</td>
<td>stock diet and distilled water</td>
<td>Distilled water</td>
<td>10ml</td>
<td>Two weeks</td>
<td>0/10</td>
<td>0</td>
</tr>
<tr>
<td>II</td>
<td>10</td>
<td>stock diet and distilled water</td>
<td>2g/kg*</td>
<td>10ml</td>
<td>Two weeks</td>
<td>0/10</td>
<td>0</td>
</tr>
<tr>
<td>III</td>
<td>10</td>
<td>stock diet and distilled water</td>
<td>4g/kg*</td>
<td>10ml</td>
<td>Two weeks</td>
<td>0/10</td>
<td>0</td>
</tr>
<tr>
<td>IV</td>
<td>10</td>
<td>stock diet and distilled water</td>
<td>8g/kg*</td>
<td>10ml</td>
<td>Two weeks</td>
<td>0/10</td>
<td>0</td>
</tr>
</tbody>
</table>

Group I: Control  
Group III: 90% EtOH extract  
Group II: 90% EtOH extract  
Group IV: 90% EtOH extract

*weight of the extract (g) per body weight of albino mice (kg)

According to these results, this extract showed no lethal effect even with the maximum permissible doses of 8g/kg.
Table 6  
Commonly Used Terms for Toxicities  

<table>
<thead>
<tr>
<th>Commonly used terms</th>
<th>LD_{50} Single oral dose per kg in rats/mice</th>
<th>Probable lethal dose for man</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely toxic</td>
<td>0.0015 g or less</td>
<td>0.065 g</td>
</tr>
<tr>
<td>Highly toxic</td>
<td>0.0015-0.075 g</td>
<td>4 g</td>
</tr>
<tr>
<td>Moderately toxic</td>
<td>0.07-0.7 g</td>
<td>30 g</td>
</tr>
<tr>
<td>Slightly toxic</td>
<td>0.75-7 g</td>
<td>250 g</td>
</tr>
<tr>
<td>Practically nontoxic</td>
<td>7-21 g</td>
<td>1 kg</td>
</tr>
<tr>
<td>Relatively harmless</td>
<td>21 g or more</td>
<td>&gt;1 kg</td>
</tr>
</tbody>
</table>

Table (3) presents commonly used terms for toxicities along with the dose equivalents both in rats and humans. In accordance with the experimental results of Table (1), (2) and (3), plant extract of *Mucuna macrocarpa* Wall. was practically nontoxic.

**Conclusion**

In this research, the preliminary phytochemical screening of the bark of Pauknet gave rise to the alkaloid, flavonoid, terpene, glycoside, phenolic compound, polyphenol and reducing sugar respectively. Antimicrobial activities of the ethanol extract of crude sample give rise to high activities on all selected organisms except *Bacillus subtilis*. Furthermore, antimicrobial activities of ethanol extract of isolated compound respond medium activities on all selected organisms. In addition, the acute toxicity test was done by the method of Litchfield and Wilcoxon (1949). The 90% EtOH extract of bark of *Mucuna macrocarpa* Wall showed no lethal effect when tested for acute toxicity (LD_{50}) up to maximum dosage of 8 g/kg and so it was practically non-toxic. The complete structure of isolated isoflavonoid compound could be elucidated by applying some spectroscopic methods such as FT-IR, ^1^H NMR (500 MHz), ^13^C NMR (125 MHz), DEPT, DQF-COSY, HMQC, HMBC and EI-Mass spectral data respectively. The IUPAC name of this compound is 7-hydroxy-3-(4-methoxyphenyl)-4H-chromen-4-one.
DEPT Spectrum of Isolated Compound

$^1$H NMR Spectrum of Isolated Compound

$^1$C NMR Spectrum of Isolated Compound

HMOC Spectrum of Isolated Compound

DEPT Spectrum of Isolated Compound

EI-Mass Spectrum of Isolated Compound

DQF-COSY Spectrum of Isolated Compound

HMBC Spectrum of Isolated Compound
Recommendations

The 90% EtOH extract of bark of Mucuna macrocarpa Wall showed no lethal effect when tested for acute toxicity (LD$_{50}$) up to maximum dosage of 8 g/kg. It is also recommended that 12 g/kg and 14 g/kg dose of ethanolic extract of bark of Pauk net should be studied for acute toxicity. Moreover, acute toxicity of isolated isoflavonoid compound should be conducted for the treatment of many diseases.

References

Agronomy of Capsicum Frutescens L. (NGAYOKE) and Its Uses in Myanmar

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Abstract

Chilli is considered as one of the most important commercial spice crops and is widely used universal spice, named as wonder spice. Different varieties are cultivated for varied uses like vegetable, pickles, spice and condiments. Chilli (botanically known as Capsicum annuum L.; Capsicum frutescens L.), also called red pepper belongs to the genus Capsicum, under the Solanaceae family. Chillies are referred to as chillies, chile, hot peppers, bell peppers, red peppers, pod peppers, cayenne peppers, paprika, pimento, and capsicum in different parts of the world. Chillies are integral and the most important ingredient in many different cuisines around the world as it adds pungency, taste, flavour and color to the dishes. Myanmar possesses a great diversity of crops, owing to its diverse agro-climatic conditions, ranging from tropical in the south to temperate in the north, from lowland to high snow-covered mountains, and humid to dry zones. The country includes seven states, seven regions, one union territory, five self administered zones, and one self-administered division, and shares borders with Bangladesh, India, China, Laos, and Thailand. The topography of Myanmar varies, with mountains in the north and west, a high plateau in the east, and flat land, near sea level, in the delta and river basin in the south. It is located in the most western part of Southeast Asia. The agro-climatic diversity in Myanmar is favorable for growing a variety of crops, and the country possesses a great diversity of crop genetic resources that remain to be explored. Myanmar chilli is cultivated as annual vegetables while the edible parts are fruit. Capsicums are easy to grow and that add colour and flavour to salads, stews and casseroles. They're rich in Vitamin C and other nutrients and come in all shapes and sizes with a wide range of colours. Flavours range from sweet and mild to hot and spicy. The present research deals with the Capsicum sp. (Chilli), its cultivation methods and uses of fertilizers in Myanmar. Data were collected from Singaing Township, Mandalay Region of Upper Myanmar. In this research, the taxonomic description, cultivation techniques and the use of fertilizers, were recorded. Due to its pungent component capsaicin, chilli fruits are used worldwide as an important vegetable, spice, natural medicine in Myanmar and are considered to be a good source of various nutritional compounds. In addition, the control of plant growth, development, and productivity has been overviewed in this research.

Keywords: Agricultural Production, Capsicum sp. (Chilli), Myanmar
Introduction

Chilli is a major agricultural crop in Myanmar. The ministry gave its nod to the re-export of chillies, but chilli powder producers are unable to supply to foreign markets despite importing raw materials from India. Myanmar has some 400,000 acres of chilli plantations, which produce at least 1 million tonnes of chillies. Domestic consumption is so high that only small volumes are exported to China and Thailand. Chillies distributed in the domestic market are locally produced. However, businessmen said the locally produced crops contain alpha toxin, which is found in chilli powder. As a result, a few chilli powder enterprises are importing the raw materials from India. Regarding the re-export of chillies, the associations concerned are negotiating with trading partners from China and Thailand. They will also conduct awareness campaigns concerning the raw materials for chilli powders among the chilli growers, in cooperation with the agricultural department. In 2014, dried chillies fetched more than Ks15,000 per viss. Nevertheless, the prevailing prices of dried chillies range from Ks5,000 to Ks7,000, depending on the chilli varieties. Chillies are usually consumed in combination with starchy staple foods, sometimes used in small quantities to contrast with other foods in taste or to add flavour to a meal. Spices are important products of the flavour and fragrance industry; they are indispensable in the food and beverage manufacturing industry and the pharmaceutical industry. Vegetables are consumed because they are tasty and healthy. It was generally low in energy and dry matter content, but mostly important as sources of protective nutrients, especially vitamins and minerals. This vegetable (together with fruits) are the most important source of vitamin A. Vegetables also provide fibre in the form of cellulose which aids the digestion of other foods and stimulates and cleans the intestinal canal. The nutritive value of vegetables varies but is usually greater in those eaten raw. Spices give taste, smell and sometimes colour to our dishes (Guzman, 1999).

As the product of an intensive form of agriculture, chillies are becoming increasingly important as cash crops for urban and export markets, with a great potential to improve nutrition and health of the rural and the poor in urban, as well as to increase their incomes and provide better employment opportunities. Chilli is a fruit of plants belonging to the family Solanaceae and genus Capsicum. Chilli is also being termed as chilli pepper in many parts of world (Siemonsma1994). The crop is grown largely for its fruits all over the world. Chilli is one of the most valuable crops of Myanmar. It is also used for vegetables, spices, condiments, sauces and pickles. Dry chillies are used for curry powder. Production of chilli is very high in Asian countries due to high consumption. Commercial cultivation of chilli is very much successful and one can expect decent profits in chilli farming due to its market value in local areas and international markets (export market). The genus Capsicum consists of many species and varieties; the fruits can vary greatly in color, size and shape. Chilli plant is a small, annual or perennial shrub with woody stem, growing up to a meter in height. The plant has straight, woody stems and can grow to approximately 2 meter tall in tropical conditions, star-shaped, white flowers are borne in the axils of the leaves, which later become the varied-colored peppers. These fruits contain many flat, white seeds that are the primary sources of the chilli spices. Capsicum is used for coloring foods, flavoring and in sauces. Fresh chilli peppers, red and green, are the rich source of vitamin C, which is potent water – soluble antioxidant. Chilli peppers can be available year around in the markets either in the fresh, dried or powdered form.
Completely dried red chillies are also available in the markets. Dry chillies can be stored at room temperature in a cool, dark place, inside airtight containers for many months and can be milled to powder using mixer or grinder as when required. This research has four objectives:

1. To explore the productivity and production of chilli
2. To investigate the chilli as a particular plant for Myanmar society
3. To find out the cultivation method of chilli
4. To discover the chilli cultivation and uses to newer areas and people.

**Research Methodology**

*Capsicum* sp. (Chilli) of family Solanaceae grown in Patta, Thintaung gyi and Taungwe Village, Singaing Township was studied in this research work. These samples were collected from cultivated fields and studied the morphology. Identification of the collected specimens was carried out by referring to the book which was written by Dassanayake (1995) and Hooker (1964). Agronomic data such as cultivation methods, climate, soil preparation, manure, seed and sowing, transplantation, propagation and planting, irrigation (water management), fertilizing, weed control, diseases, insects and pests, harvesting, yields, drying and storage, uses and economics of production and marketing field were obtained by interviewing with Chilli growers among the studied Villages.

**Results**

In this study, the plants of *Capsicum frutescens* L. were systematically studied.

1.1. **Outstanding features of Chilli**

Annual erect, subshrubs. Stems and branches irregularly angular to subterete. Leaves simple, alternate; petioles long; blades broadly ovate to ovate lanceolate, cuneate or oblique at the base. Inflorescence terminal or axillary cymes with 2 – 5 flowers. Flowers bisexual, actinomorphic; pedicels long. Sepals 5 – 6, synsepalous, persistent; petals 5 – 6, apopetalous, star-shaped; stamens 5 – 6, free, adnate to the base of the corolla tube; filament filiform; anther pale purple; dehiscing by apical pores; ovary superior, unilocular, many ovules in the locule on the axile placentae; style filiform; stigma simple. Baccate upright or curved, 10 – 40 seeded, green when young, orange to red when ripe, mild to extremely pungent. Seeds flat, discoid.

**Cultivation Method**

Chilli, also known as chilli pepper is a spicy fruit used in cuisine preparations. It is commonly added as an ingredient in foods to make the preparation spicy. It’s origins are traced to Mexico and it is used worldwide both as an ingredient in food preparations and medicines. Chilli is a tropical and sub-tropical plant requiring a combination of warm, humid dry weather. During the growth stage it needs a warm and humid weather. However, a dry weather is suitable for fruit maturity. Temperature range of 20-25º C is ideal for chilli growth. At 37º C or higher the fruit development is affected. Similarly in case of heavy rain the plant defoliates and starts rotting. However, in case of low moisture conditions during fruiting period the bud does not develop properly. Hence, the flower and fruit may drop off. In other words, a high temperature and relatively low humidity level would lead to deflowering and
fruits if developed would be very small. Chillies need moisture for growth. It has been found that black soil which retains moisture is ideal in case they are grown as rainfed crops. Under irrigated conditions, the crop needs well-drained sandy loam with rich organic content. They can also be grown in deltaic soil under irrigated conditions. In hilly areas, soil is mixed with gravel and coarse sand before undertaking chilli cultivation. To grow it, firstly, chilli seeds are put into the water which is in the bag made by cotton cloth for about one hour and cover them for 5 days inside cowdung. After developing sprouts, put them in the bag or put in the earthenware jar pot and put them storage under the hot sun. Water them a lot for 7 days once in the morning and once in the evening during sowing. Put a seed in the nursery bag by making a small hole with a hand and cover with burned rice husk. About 15 days (coming out from two leaves to four leaves) pour on the sprouting chilli by mixing fertilizer and Shwe Site Par pesticides to grow sprouting chilli. Firstly prepare with plow by putting about five cowdung carts every acre. And then, plough two times with four plows from east to west and from south to north (Figure 1).

**Figure 1:** Chilli Cultivation in Singaing Township, Mandalay Region of Upper Myanmar

Before growing, trim is made the whole bed of chilli by putting T super and Arno fertilizer. Firstly split 4 feet and make a big hole after drawing 6 inches high. Plough 2 inches holes after splitting/ breaking 1 foot. Move and grow not to damage the roots. Put a lot of water to 20 to 30 days aged sprouting chilli is growing in the 2 inches holes. If sprouting chilli is 1 month aged, put water in the big hole. It likes being wet. Start brooming after growing for 45 days. Next put water again after putting Pearl fertilizer if it grows about 60 days. If the root of chilli is covered with fine dry soil after cleaning weeds, it cannot fall down. After doing so, it is better to grow fruit. Don't use hoe after covering fine dry soil under the *Capsicum frutescens*. If we use hoe, the roots and the flowers can fall down.

Although *Capsicum* peppers like being wet, virus can cause after the plants die if there are a lot of water under the *Capsicum* peppers. It can get the fruit in 120 days (about 4 months). It takes five months to grow the fruits. *Capsicum* has to grow about 3000 sprouting chillies at 1 acre. Start growing from January and the fruits are picked up every once a week until October. Drying fruits / chillies can be collected from 600 to 1000 kg at 1 acre. The fine soil chose for cultivation. Firstly make the soil with plow and then plough with plow. After doing, mix fertilizer and cowdung. Make a wide 3 feet hole after 1 month. Grow *Capsicum* peppers after breaking 1 foot each other. Start sprouting chilli from January. Began growing about 20 days after sprouting chilli. It is not good to start growing after passing for 40 days. If so, it fails
to get fruits. In April, *Capsicum* peppers start growing fruits. Fruits can be picked up until it does not snow. It likes rain, but shouldn't it get rain, put the water from Zawgyi stream for an hour in an acre at least every day. Pick up (Demon) once on ten days. Drying fruits getting are 700 – 900 kg in an acre. (Figure 2)

![Figure 2: Preparing for sprouting chilli for 45 days](image)

Generally, seeds are sown in nursery beds and 40 – 45 days old seedlings are transplanted in the main field. Add well decomposed organic matter to the seed beds. Once seeds are sown on nursery beds, green leaves can be used as mulch material. Irrigate the seed beds every morning. The soil temperature of the chilli seeds must be between 28° C and 32° C for quick and better germination. Remove the mulch immediately after the seeds start germinating. Usually chilli seedlings will be ready in 5 – 6 weeks after sowing. Irrigation should be restricted on the seed bed 1 week before actual transplantation and irrigate heavily on the previous day of transplanting in the field. After germination and when the cotyledons will be clearly visible, these can be transplanted in nursery beds, being careful not to damage the radicle (Figure 3).

![Figure 3: Growing by making a big hole for three weeks](image)

Chilli crop responds very well to manures and fertilizers. Organic fertilizers include farmyard manures and composts prepared from agricultural and domestic waste materials. Mineral or inorganic fertilizers are available as single – nutrient or compound (mainly N, P and K) products. Many chemical substances contain plant nutrients. Certain compounds are however commercially manufactured in bulk for use as fertilizers. Typical fertilizer recommendations were N 10 kg, P 10 kg and K 5 kg per hectare for vegetative and N 15 kg, P 7 kg and K 8 kg per hectare for reproductive in the seed bed. General nutrient requirements were 10 kg per hectare of N, 10 kg per hectare of P and 5 kg per hectare of K in ARMO and 15 kg per hectare of N, 7 kg per
hectare of P and 8 kg per hectare of K in TETO and TERAFIX uses to 3 – 4 weeks intervals, beginning at first flowering. Atonik hormone and TERAFIX are used as plant growth regulator (Figure 4A and 4B).

All organic matters, dead or excreted as wastes, when decomposed can supply plant nutrients. Therefore organic matters must undergo decomposition before it can be used as manure. Leaves, barks, twigs, fruit peels, seeds, straws and grasses become manure on decomposition. Dung from many other animals is also used as cow manure on decomposition. The top dressing with 36 kg of urea is applied per acre after one month. Chilli thrives best if supplied with mixture quantities of organic matter and a balance of mineral fertilizers. A reasonable recommendation is to supply 10 to 20 tons per hectare of organic amendments.

In chilli cultivation of Myanmar, the most serious problem was caused of diseases by virus, fungus and bacteria. The survival of chilli plants depends on using insect and pest control. Therefore, insecticides and pesticides are used as frequent as necessary throughout entire growing period. To prevent the chilli disease the following suitable chemicals can be used; Azphate, Pelartop-M and Shwehimet (fungicides) etc. The seedlings in the nursery should be sprayed with any fungicides at a regular interval (Figure 4C, 4D and 4E).

Properly dried chilli seeds are germinated within 8 – 10 days in moist soil. Under favourable growing conditions, about 50 – 70 % of the flowers would set fruit with viable seeds. Fruits mature within 35 – 40 days after anthesis. Since seeds are small, the seed beds should be well prepared and free of weeds. Recommended planting depth is 2.0 – 2.5 cm, depending on soil type and cultivar (Figure 5 A to 5F).
Figure 5: Marketing chillies

A. Seed bed of Demon F1
B. Drying fruits
C. Seed bed of Capsicum frutescens L. cv. group Abbreviatum
D. Drying fruits

Uses of Chillies

Cultivated in own garden or in the farm for edible fruits, available in market. Green fruits are used as spices. Dry fruits are used for salad and chilli sauce. The ripe fruits are eaten as whole, or chilli powdered. It is also dried and ground for use. The most important use of chilli is in the kitchen. Owing to the presence of capsaicin, chillies have a pungent yet pleasant flavor - the main reason why it has a place of importance in the kitchen. It is also a good source of oleoresin which is a major flavoring agent in the food processing industry. Oleoresin is extracted from chillies and exported to the European countries. It is also used in skin ointments and prickly heat powders. The green leaves are used for skin diseases. The fruit is given internally in atomic dyspepsia and flatulent. Capsicum has been used internally as a gargle for throat irritation or infection, for stomach ailments, and to protect against hardening of the arteries and heart disease. Capsicum is used for various problems with digestion including upset stomach, intestinal gas, stomach pain, diarrhea, and cramps. It is also used for conditions of the heart and blood vessels including poor circulation, excessive blood clotting. A particular form of Capsicum causes intense eye pain and other unpleasant effects when it comes in contact with the face. This form is used in
self defense pepper sprays. Chilli peppers contain chemical compound, capsaicin. Capsaicin and its co-compounds being employed in the preparation of ointments, rubs and tinctures for their astringent, counter-irritant and analgesic properties. It is also used for reducing LDL cholesterol levels in obese persons.

Raw, fresh chillies should be washed in clean water before they are used in cooking in order to remove any residual fungicides and sand. Chillies, either fresh or ground, can cause severe burning sensation to hands and severe irritation to nasal passages, eyes and throat. Therefore, it may be advised in some sensitive individuals to use thin hand gloves and face marks while handling chillies. Dried chilli powder is an important ingredient in the spice mix known as curry powder in many Asian countries. Hot chillies are used as a condiment in the preparation of soups, chilli sauce, spicy water, vinegar-spice mix, etc. Chilli pepper pods, which are berries, are used fresh or dried. Chillies are dried to preserve them for long periods of time, which may also be done by pickling. Chillies are sometimes used whole or in large slices or roasting. The fruits are extremely pungent and used as spices and condiment. Chillies are used as ingredients to add flavor and colour to most dishes. They are high in vitamin A and C, calcium and iron and can be used as a medicine to treat asthma, coughs and sore throats.

Discussion

Chilli is an important crop in Myanmar and is grown for its pungent fruits. Both green and red chillies are used to impart pungency to the food. Red chilli powder is used as condiment in every Myanmar household. Green chillies of some varieties are used as vegetable. It is also used for preparation of curry, masala, sauces and pickles. It is rich source of vitamin C. There is demand for export of raw chillies and chilli powder. Local markets sell chillies in different colors and sizes, in fresh and dried form. Vegetables are consumed because they are tasty and healthy. Therefore, vegetable consumption may be considered as an important economic factor in a society because it improves health and working capacity.

As the product of an intensive form of agriculture, vegetables are becoming increasingly important as cash crops for urban and export markets, with a great potential to improve nutrition and health of the rural and urban poor, as well as to increase their incomes and provide better employment opportunities. In modern times, it is cultivated worldwide, and has become a key element in many regional cuisines. In addition to use as spices and food vegetables, Capsicum species have also been used in medicines. The fruit of most species of Capsicum contains capsaicin that can produce a strong burning sensation (pungency or spiciness) in the mouth of the unaccustomed eater. Most mammals find this unpleasant, whereas birds are unaffected. The secretion of capsaicin protects the fruit from consumption by insects and mammals, while the bright colours attract birds that will disperse the seeds. Capsicum is the active component of chilli peppers, which plants are belonging to the genus Capsicum. It is an irritant for mammals, including humans, and produces a sensation of burning in any tissue with which it comes into contact. Capsaicin and several related compounds are called capsaicinoids and are produced as a secondary metabolite by chilli peppers. When eating chillies it is usually best to remove the seeds, as some people find these tastes bitter.
Conclusion

Known as the “Queen of Spice”, nobody can imagine life without chillies. They are an important spice which is used in almost every dish. We cannot imagine our favourite snacks without chilli sauce, or our food would taste so bland without chilli pickle. Chilli is the most cultivated spice worldwide. It is fairly easy to cultivate them. We can grow chillies in our farm, in the greenhouse or in a pot. If we adopt good farm management practices we can expect a huge profit from chilli farming. Chilli has a huge market demand, so we can expect a good market for our harvest. We need to use well-drained, good quality soil to grow chilli. To get a good harvest, we need to make sure that we are giving proper nutrition to the crop and protect it from various disease and pests.

Chilli is widely used as a spice. It is used to prepare many appetisers and other items such as sauce, pickles and chutneys. There are many varieties of chilli cultivated throughout the world. No matter which variety you cultivate, if you follow proper farm management practice, you can reap huge benefits.

The fruit of Capsicum plants has a variety of names depending on place and type. Chilli is also an important ingredient in almost all curries and food recipes in the country. Chillies have a high nutritional and economic value and are adapted to an array of production and marketing systems. Chillies are usually consumed in combination with starchy staple foods, sometimes used in small quantities to contrast with other foods in taste or to add flavour to a meal. These characters are to be likely accepted in described book of Kapoor (2001). These plants love nitrogen and a well-drained soil. Capsicum should ideally be planted in mid-spring only when there is no more danger of overnight frost or freezing. When planting, choose a location that receives the direct rays of the sun for at least 6 hours a day. Finally, it is hoped that, the present study will distribute baseline data on plant varieties, agronomy method and uses of chilli in the future.

Recommendations

The use of capsicum in cultural and traditional settings may differ from concepts accepted by current Western medicine. When considering the use of herbal supplements, consultation with a primary health care professional is advisable. If you choose to take capsicum, use it as directed on the package or as directed by your doctor, pharmacist, or other health care provider. Standardized extracts, tinctures, and solid formulations of herbal/health supplements may provide a more reliable dose of the product.

References

Impact of Climate Change in Myanmar

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Abstract

Although ‘climate change’ is one of the popular terms globally, there was less mindfulness to some of Myanmar people. Myanmar society should need to widely cautious this environmental impact to human. In vice versa, people should know that environment can be affected by human activities. Environmental subjects are included a part or the whole subject at University’s curriculum, but most of people has kept it is not related to their daily routine. After experiencing of Cyclone Nargis, it is more familiar to society of Myanmar and broadly interested. Even though this article is not a research paper, the author want to share the knowledge of climate change and efforts of Myanmar people.

Keywords: climate change, Myanmar

Introduction

Climate change is a problem that all can band together to fix. The major causes of climate change are anthropogenic effects which mean that are man-made effects. There was a relationship between some factors: gradually less forests, more GHG emission and increasing the global temperature. In the past, both solar variation and volcanic activity have play role in global warming, that is, it was caused by the changing of global mean surface temperature (GMST). Sun is the ultimate source of energy for the Earth's climate which far from earth about 149.6 million km (astronomical unit). A planet such as the Earth will have a stable temperature as long as there is a balance between the rate at which energy comes in from the Sun and the rate at which it is returned to space by the planet (Climate Change, 2016).

Electromagnetic radiation is the only form of energy transfer that travels through the vacuum of space, propagating as a wave. By convention, the full spectrum of electromagnetic radiation is carved up into regions, each characterised by a particular range of wavelengths (Figure 1). The wavelength (symbol λ) is just the distance between successive crests of a wave. The eyes of human can sensitive to visible radiation, which corresponds to the wavelength range from about 0.4 μm (violet light) to 0.7 μm (red light). When all wavelengths in this range are present, as 'white light'.
To either side of the visible band lie the ranges known as ultraviolet (uv) radiation (with wavelengths below that of violet light) and infrared (ir) radiation (with wavelengths above that of red light).

The proportion of incident solar radiation that is reflected by a given surface is called the albedo. The planetary albedo is the combined figure for the Earth as a whole: on average, it has a measured value of 31% (31 units). The remainder (69 units) is absorbed by the atmosphere and materials at the Earth's surface (the oceans, soils, vegetation and so on). The surface warming attributed to the back radiation from the atmosphere is called the greenhouse effect. (Climate Change, 2016)
Table 1
Average albedo rate on the Earth

<table>
<thead>
<tr>
<th>Albedo rate</th>
<th>Area</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>fresh snow and sea-ice</td>
<td>up to 90 %</td>
</tr>
<tr>
<td></td>
<td>grasslands and deserts</td>
<td>35 %</td>
</tr>
<tr>
<td>Moderate</td>
<td>forest</td>
<td>10 – 20 %</td>
</tr>
<tr>
<td>Low</td>
<td>sea and oceans</td>
<td>&gt; 5 %</td>
</tr>
</tbody>
</table>

Table 2
Global and Myanmar green-house gas emissions

<table>
<thead>
<tr>
<th>Source</th>
<th>Percent of the Earth’s total emission (2014)</th>
<th>Percent of the Myanmar’s total emission (2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LUCF</td>
<td>24</td>
<td>51.0</td>
</tr>
<tr>
<td>Agriculture</td>
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<td>32.1</td>
</tr>
<tr>
<td>Waste</td>
<td>39</td>
<td>5.8</td>
</tr>
<tr>
<td>Energy</td>
<td>21</td>
<td>10.9</td>
</tr>
<tr>
<td>Industrial process(IP)</td>
<td>21</td>
<td>0.2</td>
</tr>
</tbody>
</table>

1 Holmbery and Erdemir (2017)
2 - http://www.climatelinks.org

Background Information
In the current days, there are many challenges to the environment accordance with improve industrialization and modern technology. Air pollution is one of crisis all over the world that harmful to human health. Carbon dioxide including GHGs (green house gases) in the atmosphere were increased by explosion of volcanoes, earth-quake, sand storm as well as agriculture and raising of vehicles in major cities of the world. From this, the earth was be affected high temperature, over cold, drought, heavier rainfall and full of smog at sky.

In 2008, Myanmar’s coastal area which name Irrawaddy Delta Region experienced the worst natural disaster, Cyclone Nargis and it caused of strong wind and heavy rain. That Clycone claimed the lives almost 140,000 people and 800,000 people displaced.

2019 Activity for Environmental Conservation in Myanmar
It is important to all Myanmar people as a National duty to carry out the prevention and conservation of the forest, it help to control carbon. Another way for reduce the air pollution is to manage the system of disposing waste materials. It must be implement from household wastes to all sorts of wastes (Figure 3.a and b).

According to United nation’s Food and Agriculture Organization survey, Myanmar has the third-highest rate of deforestation in the world (forestry workshop at Myanmar Timber Enterprise in Yangon). The dramatic change in climate is
concerned with the deforestation, large population of carbon source and green-house gas emission. At the period of 2018, there were some campaign to aware the climate change in the whole Myanmar, for example, Green Marker-Hinthada and Green Image Myanmar-SGU. These groups straightened out how important trees are, systematic dumping the household and industrial waste, demonstration and cooperation at public activities (Khaing Mar, M., 2019).

Figure 3: (a) Reforestation activity (From Facebook page of Ministry of Natural Resources and Environmental Conservation-Forestry - 22 July 2019) (b) Waste control activity (Facebook page of Green Image Myanmar-SGU) (c) Plant conservation activity (From facebook page of Green Image Myanmar-SGU)

Plants normally absorb CO$_2$ and other toxins in the atmosphere such as carbon monoxide, benzene. Through photosynthesis, they break down CO$_2$ and CO molecules to release energy (carbon) and oxygen the other toxins that cannot be converted or absorbed are released through the root of the plants into soil. To control the ‘C’ emission, the forest would be need to maintain as a long-term commitment.

One large tree can support a day’s supply of oxygen for 4 people. A tree can absorb 48 pounds of CO$_2$ per year and a young tree can absorb 13 pounds of CO$_2$ per year. In addition to One acre of new forest can remove about 2.5 tons of CO$_2$ (Coca, 2018). Each acre of most tree species can capture and store 1.1 to 9.5 metric tons of CO$_2$ a year. Planting tree is one of the most cost-effective ways of drawing excess CO$_2$ in the atmosphere. (http://www.urbanforestrynetwork.org)

The best trees that as a CO$_2$ sequester and air purifier in Europe are hourse chestnut, black walnut, white pine, red pine, American sweetgum (http://sustainability.stockexchange.com). In India context, Neem, Ficus, Oak, Walnut, Mahogany, Cassia, herbs like Tulsi and Woody grass Bamboo are most suitable for CO$_2$ (Earth talk, 2019).

The next point that to consider is how to control the waste especially solids waste from municipal area. That can be harmful to not only all human-being but also all living things when long-term accumulation on landfill. One obvious example of
ignorance of rubbish management was Yangon’s rubbish dump fire on 11 May 2018 (MyanmarTimes 5 Aug, 2019).

Figure 4: Yangon’s rubbish dump fire which name Hteinpin dumpsite (10 May 2018) (Facebook page of The Irrawaddy)

Form this occurrence, people should need to get the awareness of the importance of landfill management. As the more evolving of methane gas from long-term accumulation of waste, a high concentration of methane can displace the pure oxygen in the air and then accidentally engender the harmful effect on all society. By leading of the Government, people who lived near dumpsite and other urban will implement the urban sanitation and solid waste management.

Recommendations

From this review, it is need to know all people in Myanmar to save the country as well as the world from the environmental crisis. The students’ learning subject, Environmental Studies from University is not only to pass examination but also useful to their daily life. They should conserve the natural resources and natural habitat in accordance with environmental sustainable policies.

The enforcement of Government is important like all citizens who lived in urban and rural areas will fight against illegal logging, prevention of log trading and provide afforestation and reforestation. Therefore, teachers must educate to students / others how to dispose the waste and how to maintain the healthy environment.
References


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การนำเสนอแบบบรรยาย

ปรับกฎและศาสนา
บทคัดย่อ
การวิจัยนี้เป็นการวิจัยคุณภาพในเชิงศาสนาพุทธ โดยมีวัตถุประสงค์ 1) เพื่อศึกษาสภาพสังคมและการเมืองสมัยพุทธกาล 2) เพื่อศึกษาการกำเนิดสังคมรัฐแนวพุทธ
ผลการศึกษาตามวัตถุประสงค์ข้อที่หนึ่ง พบว่าสภาพสังคมในสมัยนั้นถูกอิทธิพลความเชื่อทางศาสนาพราหมณ์ครอบงำไว้ พระหนึ่งจึงเป็นกลุ่มผู้มีอำนาจทางด้านความคิด การศึกษา การเมือง สังคม การปกครองและเศรษฐกิจ รวมทั้งประเพณีวัฒนธรรม ถ้ากำหนดบทบาทหน้าที่และสิทธิทางสังคมขึ้นเองทั้งหมด ทำให้เกิดความขัดแย้งส่งผลกระทบมาถึงปัจจุบัน
ผลการศึกษาตามวัตถุประสงค์ข้อที่สอง พบว่าความขัดแย้ง การทะเลาะวิวาท และการเอารัดเอาเปรียบกันในหมู่มนุษย์เป็นเหตุสำคัญที่ทำให้เกิดความขัดแย้งเป็นที่จะต้องมีผู้นัด ผู้ปกครองมีสิทธิได้ปกครองแต่ยอมรับอำนาจในที่สุด ซึ่งการกำหนดสิทธิในด้านกฎหมายนี้มีลักษณะเหมือนทุนนิยมสัญญาประชาคม
ผลการศึกษาตามวัตถุประสงค์ข้อที่สาม พบว่าพระพุทธศาสนาจะแบ่งหลักการปกครองข้างต้นออกเป็น 3 ลักษณะ แต่การปกครองทั้งสามลักษณะนี้เป็นหลักการประจำสมัยการปกครองออกแบบที่มาที่สุด คือ การปกครองโดยอัตตาธิปไตยและโลกาธิปไตย หรือการปกครองโดยอกุศลหรือการปกครองโดยผู้มีอิสระในชาติ
คำสำคัญ: การเมืองการปกครอง พระพุทธศาสนา
Abstract

This research is a qualitative research in religion, especially Buddhism, which is a document research aimed to: 1) study the social and political conditions of the Buddhist era, 2) study the origin of Buddhist state society, and 3) study the Buddhist governance principles.

According to the first objective, the results showed that most of the social conditions in those days were influenced by beliefs in Brahmin religious. Brahman is a caste group that holds the power of thought, education, politics, society, government and economy including cultural traditions. They defined all roles and social rights causing a 4 caste system which has influenced to the present. According to the second objective, conflict, controversy and exploitation among men were important reasons in necessarily having a leader, a ruler, and a subordinate to finally form a state. This state forming in Aggañña Sutta is similar to a social contract theory.

The results of the study according to the third objective found that Buddhism will divide the governance principles into 3 characteristics, but both autocratic rule and this sovereignty will hold the principle of dharma as a principle. These characteristics of a governance principle were only divided by a level of aptitude of each user (administration), or by a situation, place, community and related environment which had different characteristics.

Keywords: politics and government, Buddhism
Abstract

Death is the last point of human life that cannot be avoided. Education about beliefs Death in Christianity There is a belief that death is very important among all the doctrines. Because Christianity is a religion that has its origins in faith, especially in the Trinity (Father, Son, Spirit). Death is the ultimate goal. For all Christians to enter into the Kingdom of God or Heavenly Father according to faith The belief in death is an outstanding Christian identity that Christians are considered very common. And it is natural to understand that Death is the reward of life received by God as a result of good deeds. Or even punishment is acceptable if it is the desire of God as a result of doing evil.

Keywords: Philosophical belief, Death in Christianity
บทนํา
ความตายเป็ นจุดจบของชี วิตทางด้านร่ างกายทีมองเห็ นได้ โดยธรรมชาติแล้ว คนและสัตว์
ทังหลายไม่ปรารถนาที จะประสบ แต่ไม่ มีสิงมี ชี วิตใดๆ สามารถหลี กพ้นได้ ดังนัน คําสอนทาง
ศาสนาทังหลายจึ งต้องทําหน้าที อธิ บายให้ผูค้ นได้เข้าใจในปรากฏการณ์ ของความตายที ตนต้อง
เผชิ ญด้วยความสงบ เพราะแม้จะรู ้ ว่าหลี กหนี ไม่พน้ แต่ทุกชี วิตก็อยากจะประวิงให้ได้ประสบช้า
ทีสุ ด ซึ งคําสอนทางศาสนาจะเป็ นตัวให้คาํ ตอบ โดยที ศาสนิ กชนไม่อยากคิดโต้แย้ง แต่ส่วนมาก
แล้วศาสนิ กชนจะรับรู ้คาํ สอนเรื องความตายแบบคร่ าวๆจากพิธีกรรมต่างๆ ที เกี ยวข้อง จึงยังมีคาํ
สอนบางส่ วนที ศาสนิ กชนหลายคนยังไม่ รู้ อย่างเช่ น วัฒนธรรมความเชื อเรื องความตาย คริ ส ต์
ศาสนาซึ งมีพืนฐานอยู่ในกรอบวัฒนธรรมตะวันตก และเป็ นศาสนาทีมีผูค้ นนับถื อมากมายและมี
หลักคําสอนทางศาสนา ทีเป็ นระบบเชิ งปรัชญา และเทวศาสตร์ ดังนันคําสอนเรื องความตายถู ก
ยอมรับว่าเป็ นธรรมลําลึกเรื องหนึ ง ซึ งมีความเกียวพันกับการมีชีวิตด้วย เพราะความตายจะเกิดขึน
ได้ ก็ ต่ อ เมื อต้อ งมี ชี วิ ต เสี ยก่ อ น จึ ง ทํา ให้ ห ลายคนมี ค วามเข้ า ใจหลัก คํา สอนเรื องความตาย
คลาดเคลือนหากไม่ได้ทาํ การศึกษาอย่างถ่องแท้ แม้จะมีพิธีกรรมหรื อคําอธิ บายเกียวกับความตาย
มากพอสมควร แต่ก็ยงั ขาดความชัดเจน เพราะดู เหมือนว่า จะมีปฏิ บทในบริ บทของปรากฏการณ์
แห่ งข้อเท็จจริ ง ตัวอย่างเช่น แม้ว่าพระวาจาของพระเยซู ซึงมีบนั ทึกในคัมภีร์พระธรรมใหม่ กล่าว
ยืนยันถึงความไม่ตายของบรรดาผูท้ ีได้กินเนือ และดืมโลหิ ตของพระองค์อนั หมายถึงในภายหลังคือ
การได้รับ ศี ล มหาสนิ ท ในพิ ธี บู ช ามิ ส ซาขอบพระคุ ณ แต่ บุ ค คลเหล่ า นันก็ ย งั ประสบความตาย
เช่นเดียวกัน หรื อแม้พระเยซู เองจะยืนยันว่า พระองค์เป็ นชี วติ (Gospel of John - ) และพระองค์
เป็ นพระเจ้าผูย้ ่อมมี ชีวิตนิ รันดร หรื อมีอาํ นาจเหนื อความตายพร้ อมกับสามารถให้ชีวิตแก่ผูท้ ีตาย
แล้ว อย่างเช่นทรงทําให้ธิดาของไยรัสซึ งตายไปแล้วมีชีวิตอีก (The Gospel of Mark )หรื อทําให้
ลาซารัสซึ งตายไปแล้วสามวันกลับมีชีวิตอีกครัง แต่สุดท้าย พระองค์ก็ถูกตรึ งตายบนกางเขนอย่าง
นักโทษ ยิงกว่านัน ในบริ บทของประเทศไทย การที บรรดามาร์ ตินยินยอมรับความตายในเดื อน
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ฟอง อ่อนพิทกั ษ์ นางพุดทา ว่องไว นางสาวบุ ดสี ว่องไว นางสาวคําไพ ว่องไว และเด็กหญิ ง พร
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ทังหลายพยายามหนีพน้ ความตาย แม้จากปรากฏการณ์ทวไปที
ั
ผ่านมาแล้วล้วนแสดงให้เห็นว่า การ
กระทําเช่นนันเป็ นการสู ญเสี ยโอกาสทีจะมีชีวติ ยืนยาวอีกต่อไปอันเป็ นสิ งทีทุกคนต้องการ

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ผู้เขียน ประกาศเจตนาสังเคราะห์ความคิดของมนุษย์ ในหลักความเชื่อของคริสต์ตามหลักทวารศาสตร์ทางโลกให้ชัดเจนที่จะทำให้เห็นความสำคัญในสังคมอย่างชัดเจน ทั้งนี้ในคำสอนของคริสต์ตามหลักทวารศาสตร์ตามที่เขียนในบทบาทของเรื่องเพื่อสร้างความเข้าใจให้ชัดเจน ทั้งสองความคิดจะเข้าใจความหมายตามบริบทของเรื่องเพื่อสร้างความเข้าใจในคำสอนทั้งสองย่อมเข้าใจร่วมกันกับความคิดเป็นตัวหนึ่งที่จะทำให้เข้าใจโดยมีข้อคล้อยในสังคมที่จะเข้าใจการเขียนบทบาทของเรื่องเพื่อสร้างความเข้าใจในกรอบของพอล ริโคเออร์ (Paul Ricoeur) ที่มีพื้นฐานในหลักการอยู่ในหลักการที่ว่า "การอธิบายมากขึ้นนั้นสร้างความเข้าใจดีขึ้น" (Paul Ricoeur 1984) เพราะเป็นหลักการที่ประกอบด้วยทวารศาสตร์ทางโลกที่ทำให้เข้าใจร่วมกันขึ้นอย่างมีความเป็นสังคมและจ้งเป็นต้องเข้าใจความหมายของความตายอันเป็นปรากฏการณ์สำคัญความรู้ในหลักการของทวารศาสตร์ทางโลกที่มีปรากฏอยู่ในสังคมจากทวารศาสตร์ผลิตจากทวารศาสตร์ตามหลักการของทวารศาสตร์ทางโลกที่มีปรากฏอยู่ในสังคมจากทวารศาสตร์ตามหลักการของทวารศาสตร์ทางโลกที่มีปรากฏอยู่ในสังคมจากทวار
จุดกำเนิดของความตายในพระคัมภีร์พระธรรมก์

เนื่องจากที่แล้วถึงปัจจุบันของความตาย ในพระคัมภีร์ตามระยะเวลาแห่งประวัติศาสตร์ในบริบทของความชีวิตของชาววิศวค์คตอเที่ยงที่ไหนที่สุด คือความในอดีตของมนุษย์และ
เจ้าถึงขอขาวได้รับบริบทที่นั้นที่บรรยายต้นเหตุของความตายได้โดยตรงว่า “ความตายเกิดขึ้น
เพราะมนุษย์คนหนึ่งคนใด...มนุษย์ทุกคนตายในอดีตคนใด...” ทำให้ผู้เขียนต้องกลับหนึ่งอย่างตามหลักธรรมปริศนา
มีเรื่องที่กล่าวถึงบ่อเกิดของความตาย ในพระคัมภีร์ตามระยะเวลาแห่งประวัติศาสตร์ใน
บริบทของความเชื่อของชาวคริสต์คาทอลิกที่ใหม่ที่สุด คือข้อความในจดหมายของนักบุญเปาโล
เพราะ “โลกที่พระคัมภีร์เสนอในเนื้อหาสำนักนี้เกี่ยวกับโลกความจริงไม่ใช่โลกที่มี
บันทึกในประวัติศาสตร์ แต่เป็นโลกของจินตนาการ” โดยเริ่มต้นจากพระคัมภีร์พระธรรมก์ ใน
หนังสือปฐมกาลที่บรรยายถึงการสร้างโลกและกิจกรรมประพันธ์ข้างต่างๆ บนโลกนี้แบบน้อย
ปริมาณโดยนำเข้าประหนึ่งนี้แต่ก็สาระลักษณ์ได้ทำการพัฒนาของรูปแบบการรวมรวมของชนที่ที่
ใกล้ชิดกัน เพราะการแสดงอาจเรื่องของการมีชนมาจากมนุษย์คนแรกที่พระเจ้าได้สร้างมา มีประโยชน์ใน
หนังสือแห่งนี้เป็นเรื่องแรก พบว่า เมื่อแรกเริ่มนี้ พระเจ้าไม่ได้สร้างมนุษย์เพื่อให้พบกับความ
ตาย แต่ให้มนุษย์มีชีวิตอย่างมีความสุขซึ่งกันและกัน สิ่งต่างๆ อื่นๆ บนโลกชีวิตเปรียบเหมือนอาณาจักร
ของพระเจ้าโดยมนุษย์ที่พาหนะที่เป็นนายของสิ่งต่างๆ เหล่านี้โดยไม่ได้อ้างถึงความตายเลย
หนังสือปฐมกาลสันทัดที่ไว้ว่า

พระเจ้าทรงมอบในฐานะผู้อยู่ในผู้เป็นเจ้าของดิน
จดหมายที่อยู่ในทะเบียนและสู่นาในอากาศ ๑ บรรดาสิ่งที่อยู่ในโลก
แต่ต้น พระเจ้าตรัสว่า “ดูเถิด เราให้พืชที่มีแคตทั้งหมดที่อยู่บนดิน
และต้นไม้ที่มีเมล็ดในต้นไม้แต่เมื่อแล้ว เราให้พืชที่อยู่ใน
ทั้งมวลในอากาศและบรรดาสิ่งที่มีเมล็ดขึ้นในต้นไม้ที่อยู่ใน
ทั้งสองประการนี้ เราให้พืชที่มีผักพืชทั้งปวงเป็นอาหาร ที่เป็นดังนี้ (Gen. 1: 28-
30.)

เมื่อเท่าของพระคัมภีร์ในตอนนี้ ได้บรรยายโดยใช้ชีวิตจิตใจของ
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เมื่อเท่าของพระคัมภีร์ในตอนนี้ ได้บรรยายโดยใช้ชีวิตจิตใจของ
มนุษย์เหล่านี้ที่อยู่ในธรรมชาติที่营利วิศวค์ต่างๆ รวมทั้งทุกสิ่งที่มีชีวิตต่างๆ ต้องการพืชสิ่ง
ขี้วัน แต่ไม่ได้อย่างชีวิตความตาย และในเนื้อหาต่อเนื่องกันนี้กล่าวถึงเรื่อง “ค้น ไม่มีธาตุชีวิตและ
ดันไม่มีเหตุผลว่าชีวิตต่างๆมีความสมบูรณ์ที่ในการพืชพืชมนุษย์ต้องมีชีวิตต่างๆ
ที่ผ่านมาตามวิ่ง เพราะไฟชีวิตชั้นที่ปรากฏเป็นอาหาร ที่เป็นดังนี้ (Gen. 1: 28-
30.)
พระเจ้าจึงให้มนุษย์นั่งอยู่ในสวนเอเดน ให้ทำและรักษาสวน พระเจ้าจึงทรงบัญชาแก่มนุษย์นั้นว่า “บรรดาผลไม้ในสวนนี้เจ้ากินได้ทั้งหมด เว้นแต่ลิ้นไม้แห่งความสัมพันธ์และความช้า ผลของลิ้นไม้นั้นอย่างอัน เพราะในวันใดที่เจ้าเข้ากินลิ้นนั้น เจ้าต้องตายแน่นอน” (Gen. 2: 6.)

เงื่อนไขที่พระเจ้าได้วางไว้กับมนุษย์ดังกล่าวคือ “เมื่อใดมนุษย์กินผลไม้นั้น มนุษย์ดังกล่าว
แผลไปสู่เคราะห์ของมรณะ เจ้าจะต้องตายแน่ ด้วยเหตุที่ไม่ได้ยินคำสั่งของเจ้าจากพระเจ้า” (Gen. 3: 16-19.)

ข้อความตอนนี้ของหนังสือปฐมกาลไม่ได้กล่าวคําว่าตายโดยตรง แต่ใช้คําว่าดิน และผงคลีดิน อันเป็นผลของการตายทางกายภาพ การใช้คํานี้เป็นการกลับถึงถึงที่ศูนย์กลางของมนุษย์อย่างงู แต่ยังมีการเชื่อถือที่ความตายไม่ใช่การตายทางกายภาพ แต่เป็นการตายทางจินตนาการที่เกิดจากการที่มีการกระทําผิดที่เป็นการแยกตนเองออกจากกับพระเจ้า และผลของการที่มีพฤติกรรมที่ไม่ถูกต้อง.

อย่างไรก็ตาม ความหมายของการกลับเป็นดินนั้นก็คือการกลับเป็นมนุษย์นั้นเอง ซึ่งมีความหมายที่เข้าใจได้ว่าความตายของมนุษย์เป็นเรื่องธรรมชาติ.
อย่างไรก็ตามจะพบว่าในช่วงหลังของหนังสือปฐมกาล เนื้อหาที่บรรยายถึงบ่อเกิดของความตายของมนุษย์จากน้ำท่วมโลกเพราะต่างก็มัวเมาในตัณหาและกามารมณ์ เนื่องจากโนอาห์และครอบครัวกลับถูกช่วยให้รอดเพราะเป็นคนดีมีธรรมหรือความตายที่ชาวเมืองโสถและเมืองโกมอราชได้รับจากไฟกามะถันของพระยะวهเนื่องจากปล่อยตัวเหลวไหลในกามารมณ์ แต่พระองค์กล่าวว่า มีสาเหตุอันแท้จริงของอาการที่เกิดขึ้นคือการที่ไม่ปฏิบัติตามคำสั่งของพระเจ้า หลานของอับราฮัมได้รับการช่วยให้รอดเพราะได้รับการปกป้องเทวฑูตของพระเจ้าจากการจะเข้าทำลายเมืองดังกล่าว บ่อเกิดหลักของความตายคือความบาปช้าร้ายและบ่อเกิดรองของความความตาย ก็คือการ*pi**2*านของพระยะวะเนื่องจากมีสาเหตุอันแท้จริงของอาการที่เกิดขึ้นคือการที่ไม่ปฏิบัติตามคำสั่งของพระเจ้า แต่เป็นสาเหตุที่แท้จริง ชะตาการเกิดเหตุของกามารขัดเคลื่อนจากความตายและวิถีชีวิตเดิมไปด้วยพระองค์เพราะไม่ว่าของโนอาห์และครอบครัวหรือโลท การเป็นคนดีมีธรรม ดำเนินชีวิตตามคำสอนของพระองค์จะได้รับการพักผ่อนกับพระองค์ก็ได้รับการนำเสนออยู่ในหนังสือเล่มต่างๆ ของพระคัมภีร์เก่า ภายใต้เงื่อนไขของการเป็นคนดีมีธรรมหรือเป็นผู้บริสุทธิ์ปราศจากความบาปต่างๆ ขณะเดียวกันบอสถูกยกขึ้นมาเป็นองค์ประกอบใหม่ในการมีชีวิตรอดจากความตายและวิถีชีวิตเดิมไปด้วยพระองค์เพราะไม่ว่าของโนอาห์และครอบครัวหรือโลท หรือการเป็นคนดีมีธรรม ดำเนินชีวิตตามคำสอนของพระองค์จะได้รับการพักผ่อนในหนังสือปฐมกาล

แนวความคิดเกี่ยวกับความตายข้อความที่อ้างไว้นั้นได้เปลี่ยนจากแง่ลบไปสู่แง่บวกเพราะเปลี่ยนจากการเป็นโทษไปสู่การให้ผู้เป็นกับพระเจ้า แล้วขึ้นอยู่กับตัวของบุคคลและจะไม่มีการพิจารณาแบบยุติธรรมในข้าวพระสรรพพระกระดาษ พระเกิดจากพระสร้างโดยได้โปรดให้พ้นจากความตายที่ผู้คนเดินบนน้ำไม่เข้าใจไม่ได้คิดว่าผู้อิสระของพระเจ้าจะพ้นจากความตายหรือพระสร้างและผู้มีสิทธิ์ของพระกระดาษเป็นผู้คุมทุกอย่าง (Job 17:23-65.)

แนวความคิดเกี่ยวกับความน่าจะเป็นอยู่ได้เปลี่ยนจากแง่ลบไปสู่แง่บวกเพราะเปลี่ยนจากการเป็นโทษไปสู่การให้ผู้เป็นกับพระเจ้า แล้วขึ้นอยู่กับตัวของบุคคลและจะไม่มีการพิจารณาแบบยุติธรรมในข้าวพระสรรพพระกระดาษ พระเกิดจากพระสร้างโดยได้โปรดให้พ้นจากความตายที่ผู้คนเดินบนน้ำไม่เข้าใจไม่ได้คิดว่าผู้อิสระของพระเจ้าจะพ้นจากความตายหรือพระสร้างและผู้มีสิทธิ์ของพระกระดาษเป็นผู้คุมทุกอย่าง (Job 17:23-65.)

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ยิ่งกว่านั้น หนังสือโยบได้นำเสนอแนวคิดเรื่องความตายไว้ว่า เป็นความเป็นไปของธรรมชาติ ทางด้านกายภาพซึ่งต้องถูกทำลายไปเป็นธรรมดา โดยบรรยายในเนื้อเรื่องถึงคำว่าการที่พ่อพันธุ์โดย

ต้องกรรมของ บิศด์ หนังสือโยบได้กล่าวถึงความทุกข์ที่มักเกิดขึ้น ความทุกข์ที่เกิดขึ้นไม่ได้ถูกทำลายไปเป็นธรรมดา โดยบรรยายในเนื้อเรื่องที่กล่าวถึงการที่พ่อพันธุ์เป็นขาดข้างจะเกิดขึ้น และนัยน์ตาของข้าพเจ้าที่จะได้เห็น ไม่ใช่คนอื่นๆ อย่างไรก็ตาม ความหวังที่มีไว้สิ่งความตายทาง

กายภาพคือการที่จะต้องเกิดขึ้นในพระวิหารอย่างมีความสุขด้วยได้รับการนำเสนอนู่เรื่องเหตุผลบวกที่เกิด

บรูนิโอได้บรรยายให้เข้าใจอย่างง่ายๆ ว่า ตัวของจะเห็นและถึงกันเนื้อของท่านจะได้เห็น

อันเป็นการตอบคำถามที่เห็นการนุดอย้ในประมวลการนวดครั้งที่แล้วจะได้เห็นการนุดทางด้านร่างกายดังนี้

จากเนื้อหาที่นำเสนอ จะเห็นได้ว่า การไม่ทำตามคำสั่งที่พระเจ้าได้ไว้ว่า ไม่ใช่ความคิด

การที่จะรับการที่ยังคงอยู่ในตัวของ การที่จะเกิดขึ้นทั้งหมดที่จะต้องที่จะเกิดขึ้นได้เมื่อมีการที่จะได้

ต้องได้รับโทษและเนื่องจากที่สุดคือการที่ยังนั่นๆที่แสดงออกได้สิ่งที่ชัดเจนคือการที่จะต้องสูญเสีย

และลงโทษนี้มีความคิดที่มีความหมายที่สุดที่คนในรูปแบบของหยุดนิค (Original Sin) ซึ่งถูกบอกสิ่งได้

ด้วยพิธีกรรมแห่งศีลล้างบาปภายใต้การไถ่ให้รอดด้วยการสิ้นสุดแบบของพระเยซูเจ้า อย่างไรก็ตาม หากฟังจากความที่รู้แล้ว ทัศนะของพระคัมภีร์พระธรรมเก่าป่าว่าบัตร์ของความ

ตายอย่างแรกเรื่อง พระเยซู เพราะพระองค์เป็นผู้พิพากษา จัดการกัน แนวความคิดกับหนึ่งที่ถูก

นำเสนอขึ้นมาได้ถี่ถึงเพื่อเป็นกำลังใจให้คนทั้งหลาย ภายใต้เงื่อนไขว่า แม่บุญยิ่งได้กระทาคิดและมี

โทษตามแต่ละชั้น และต้องมีการกระทำที่ไม่ใช่สิ่งที่ยุติธรรม เรื่องนี้ไม่ได้ ซึ่งอุปถัมภ์ของการที่จะใช้ชีวิตอยู่ในโลกนี้อย่างไร ซึ่งหากฟังจากความที่รู้แล้ว

มิตรภาพของความตายในตัวของนี้ การที่จะใช้ชีวิตเต็มที่สิ้นสุดอย่างหนึ่งที่มันอยุติใจคือ

เพราะเป็นเอกภาพความรักและถึงความยุติธรรม ดังนั้น แนวความคิดของลงโทษที่มันยุติธรรมว่าจุด

ยุติธรรมของพระเจ้าที่ได้กำหนดในระบบของพ่อพันธุ์ในองค์พระเยซูเจ้า

จุดก้าวหน้าของความตายในพระคัมภีร์พระธรรมใหม่

ปรากฏการณ์ของความสัมพันธ์ของโลกที่อยู่ในพระคัมภีร์พระธรรมใหม่ เช่นที่พระเยซูเป็นคู่

คืนในเรื่องเป็นสภาพที่จักธรรมะอยู่ภายใต้การปกครองของชาวโรมัน ซึ่งเป็นข้อเสนอเกี่ยวกับ

การค้นหาคู่คืนทางด้านการเมือง ทำให้เห็นแนวความคิดเรื่องการปลอดภัยธรรมชาติจากการครอบครองของชาว

โรมัน โดยพระเยซูเป็นผู้กระทำที่มีข้อความอย่างมาก และพระเยซูได้ทำการสอนและทำ

กิจกรรมอันล้วนมาจากประกาศข้อความในพระคัมภีร์พระธรรมใหม่ จุดก้าวหน้าของความตายในพระคัมภีร์พระธรรมใหม่
ยังกว่านั้น พระองค์ยังเตือนให้กับคณะพวก เพราะแต่ก็กล่าวว่า พระองค์จะเป็นผู้ที่จะดำเนินการคืนให้เอเช่นมา จากการครอบครองของชนชาติอื่น จนเนื่องจากพวกเขาล้มล้างรัฐพระองค์และที่ประทับมานั้น ซึ่งรายการที่มีพระแสง และโดยมันยุทธการใกล้ว่า

คนจำนวนมากที่เดินทางตามทาง บางคนยังถูกมักทางที่ทุ่งนาด้วย พวกที่เดินไปข้างหน้าและผู้ที่ตามมาข้างหลังต่างให้เรื่องว่า โพเก่านะ พอพระ
พระผู้ใหญ่ในนามของพระเจ้าผู้เป็นพระเจ้า ขอพระพรให้เรา และพระพรให้เราที่สูงสุด (MG 11: 8-10.)

จะเห็นได้ว่า ความคิดเรื่องการปลดปล่อยหรือการให้ชีวิตเก่าแก่องค์ทางด้านการเมือง
หรือการช่วยเหลือผู้ถูกคุมกับรัฐให้รอดตามความต้องการเมืองอันเป็นการอยู่อาศัยได้การปกครองของ
ของชาวยิว เป็นเรื่องสำคัญในช่วงนั้น แต่ทั้งนี้ที่สำคัญที่พระเยซูต้องการทำ ไม่ใช่การเป็น
พระแสงในพระมหากาญญเด็กนักจัดการคืนให้พ้นจากการครอบครองของชาวยิว กลับเป็น
การให้ผู้คนยิวให้รอดตามความต้องการฝ่ายวิญญาณ หรือรอดพ้นจากการจัดการของความตายฝ่าย
วิญญาณ ซึ่งพระองค์ได้เคลื่อนบรรดาประชาชนของพระองค์ว่า "อย่ากลัวผู้ที่ฆ่าได้แต่กายแต่ไม่อาจฆ่า
วิญญาณได้ จงกลัวผู้ที่ทำลายทั้งกายและวิญญาณให้พินาศไปในนรก" จากประเด็นดังกล่าว จะ
พบว่าถ้าศิษย์ของความตายทางฝ่ายวิญญาณคือพระเจ้า แม้จะไม่มีข้อความบ่งบอกไว้อย่างเป็นลาย
ลักษณ์อักษรก็ตาม เรายังคิดข้อความนี้สอดแทรกอยู่ ได้เห็นถึงการฟื้นฟูจากความที่บันทึกต่อ
จากข้อความที่อ้างท่านนั้น ซึ่งมีเขียนไว้ว่าเป็นการเปรียบเทียบอันเป็นความช้าของพระ
เจ้าที่มีการศิลป์ของซึ่งมีชีวิตทั้งหลายว่า "นอกจากของสองตัวเดียวที่เคยมีชีวิต" หรืออันเป็น
การสร้างพื้นที่ดั้งเดิมที่ไม่สามารถให้การก้าวหน้าได้

หากพิจารณาด้านดั้งเดิมนี้จะเห็นว่า นั้นที่มีการศิลป์ของซึ่งมีชีวิตทั้งหลายว่า "นอกจากของสองตัวเดียวที่เคยมีชีวิต" หรืออันเป็น
การสร้างพื้นที่ดั้งเดิมที่ไม่สามารถให้การก้าวหน้าได้

โดยชัดเจนเห็นว่าว่า นั้นที่มีการศิลป์ของซึ่งมีชีวิตทั้งหลายว่า "นอกจากของสองตัวเดียวที่เคยมีชีวิต" หรืออันเป็น
การสร้างพื้นที่ดั้งเดิมที่ไม่สามารถให้การก้าวหน้าได้
ยิ่งกว่านั้นเหตุพระคัมภีร์พระธรรมใหม่ได้นำเสนอทัศนะใหม่ให้กับความคิดเรื่องความตาย โดยเน้นเป็นพิเศษเรื่องความตายทางด้านวิญญาณภายใต้การมองความคิดเชิงอุปมาอุปมัย ที่มีปรากฏการณ์อย่างเป็นที่แนบแน่น การยึดอกถามจักรวาลหรือจักรวาลของพระเจ้าที่มีบทบาทในเหตุการณ์นั้นแสดงถึงปัญหาในพระคัมภีร์พระธรรมเก่า เพราะเหตุนี้เนื่องกับการไม่ยึดมั่นอยู่หนึ่งในของพระเยซูเจ้าจากความคิดที่ตัดแยกเดียวได้กระทบส่งผลให้มนุษย์อยู่นอกอาณาจักรพระเจ้า และเกิดความตายทางด้านวิญญาณในอีกมิติหนึ่งคือการไม่กลับใจเปลี่ยนวิถีชีวิต ที่ได้มีรับรองไว้เป็นคำลูกบุญไปอย่างชัดเจน โดยเฉพาะอย่างยิ่งในพระวรสารคมัญสูติ ได้เป็นเหตุพระวาระของการประทางชีวิตที่ยึดอยู่บนกิจกรรมการตายในวิญญาณโดยมีความที่รับรู้จากการตายด้านวิญญาณ

ในอาเภอนั้น คนบางคนเห็นว่าทุกประชาชนที่เกี่ยวข้องคือความตายทางกายภาพของวิญญาณ พระองค์จึงทรงสอนอย่า “ท่านคิดว่านายจะกำลังควรเว้นถึงพร้อมเพื่อภัยที่จะเกิดขึ้นอย่างนี้ มันได้เราบอกท่านทั้งหลายว่า ท่านไม่กลับใจเปลี่ยนวิถีคิด怎能ทำให้เกิดความตายที่ทุกท่านจะพินาศไปห่างไกลแล้ว คนสิบคนที่ไล่ลอยตามพยานที่กล่าวว่า ท่านคิดว่านายจะเดินพิภพมีความคิดก้าวข้ามคนทุกคนที่พยายามต้องการขยายความที่ทำผิดของทุกคนที่อาศัยอยู่ในกรุงเยรูซาเล็มหรือ มันได้เราบอกท่านทั้งหลายว่า ท่านไม่กลับใจเปลี่ยนวิถีชีวิต ทุกท่านจะพินาศไปย่อมเลยนั้น (Lok 13: 1-5.)

การที่อาเภอภูมิคติชีวิตพระประทานคำสั่งของเปียกลาถูกสึกกับใครutoff หรือดูพระประทานโดยสะท้อนเป็นการเผ็ดที่เผ็ดอยู่เป็นการแสดงของด้านกายภาพซึ่งเป็นเรื่องที่หลีกเลี่ยงไม่ได้ เนื่องจากความตายที่เกิดขึ้นในรูปแบบใดก็ได้แล้วที่เกิดคำสั่งให้มนุษย์ทุกคนจะได้เห็นที่เห็นความพินาศหรือการตายด้วยการตัดตามคำสั่งของพระประทาน ไปสู่การปฏิบัติตามคำสั่งของชาตินั้นเป็นการตัดตามคำสั่งของทางวิญญาณที่มีความรุนแรงอยู่ตามที่พระประทานฟังนั้นคือ “ถ้าความชอบธรรมของท่านไม่ดีไปกว่าความชอบธรรมของบรรดาธรรมจารย์แล้ว ท่านจะเข้าทางอาณาจักรศรัทธาไม่ได้เลย” และ

กิจกรรมสำคัญคือการต้องมีความอดทนที่จะทางค้ำข้อของพระเจ้าด้วยความจริงใจอยู่เสมอพร้อมทั้งไม่ถือการตัดวันมาสถานะ พระเจ้าพระเจ้าที่จะเป็นเจ้าชีวิตของมนุษย์จะมายอดชีวิตของมนุษย์อีกต่อไปได้เลยไม่ได้ แต่สิ่งบกพร่องหน้า ดังที่พระประทานได้เล่าที่

จงเตรียมตัวให้ท่านไม่รู้วาจะต้องทำไปเมื่อไร จงเตรียมตัวให้ท่านไม่รู้วาจะต้องทำไปเมื่อไร จงเตรียมตัวให้ท่านไม่รู้วาจะต้องทำไปเมื่อไร จงเตรียมตัวให้ท่านไม่รู้วาจะต้องทำไปเมื่อไร จงเตรียมตัวให้ท่านไม่รู้วาจะต้องทำไปเมื่อไร (Matt 5: 20.)
คำพูดเปรียบถึงการตื่นตัวการตื่นตัวการป้องกันการเสด็จมาของบุตรแห่งมนุษย์คือพระเยซู คือการบ่งบอกถึงการที่พระองค์เป็นผู้ให้ความตายทางด้านร่างกายแก่มนุษย์ และอาจจะเป็นความตายทางด้านวิญญาณโดยด้วยการว่าข้างจิตวิญญาณไม่ได้เตรียมตัวให้พร้อม ลิ้งกว่านั้นในพระวรสารนักบุญลูกยาส์บรรยายไว้ว่าผู้คนจะต้องมีการตื่นตัวการป้องกันความตายจากที่เกิด

 understandable of the text. If there is any information that needs to be clarified or translated, please provide the necessary details. If the text is already in Thai, please provide the Thai text so it can be read naturally.
ความเชื่อชิงปรชญาเรื่องความตายในทับศรีศิริษา

คริสต์ศาสนายังได้เสนออื่นถึงการที่สังเกตการณ์ธรรมชาติของมนุษย์พระเจ้าองค์หนึ่งได้สังเกตการณ์ความตายที่เป็นการที่สังเกตการณ์ที่กล่าวถึง การตายของเชื้อสายของ адамและอาวุธที่เกี่ยวกับความตายของคนที่ถูกใช้ในการตัดสินชีวิตของนักบุญเปาโลได้บรรยายไว้ในจดหมายของท่านถึงชาวโครินทร์ฉบับที่สองว่า "พิน้อง เรารู้ว่า เมื่อเต้นท์ซึ่งเราอาศัยในโลกนี้ ถูกเก็บพับไปแล้ว เราจะมีบ้านซึ่งพระเจ้าทรงสร้างไว้สำหรับเราเป็นบ้านถาวร ที่มิได้สร้างขึ้นด้วยมือของมนุษย์อยู่ในสวรรค์" เป็นการแสดงออกถึงความเข้าใจต่อความตายในแนวนี้ เพราะท่านพุทธเป็นลูกผู้ชายของมนุษย์เป็นเหมือนกันการเก็บรักษาพุทธมหาสมคีร(hourly) ไว้ซึ่งมีอยู่เป็นเรื่องธรรมชาติ ดังนั้น การ์ด เพชรย์ได้อธิบายใน Christian Ethic ปี 12: 29-34 เมื่อถ้าเริ่มการวิจัยเกี่ยวกับการจัดการรักษาชีวิตให้มีชีวิตอยู่ต่อไปโดยอาศัยอุปกรณ์ช่วยหรือว่าคือ ปล่อยให้ความในความเป็นธรรมชาติว่า หากการรักษาแล้ว ไม่ได้เก็บสู่สุดที่ชีวิตของผู้ป่วยเอง เพราะผู้รักษาจำเป็นต้องปล่อยให้คนเป็นศูนย์ขยายไปตามธรรมชาติ (Bernard Haring, 1978:92)
ความตายถือว่าเป็นการให้รางวัล

แต่ยิ่งมาถึง ความตายยังชื่นพระเจ้ารับคนที่ตายกลับไปอยู่กับพระองค์ อันเป็นการแสดงออกซึ่งความเมตตากรุณาของพระที่มีต่อมนุษย์ เช่นการตายของอาโรนและโมเสส ตลอดจนความตายของบรรพบุรุษผู้มีชื่อเสียงของชาวยิว ที่สิ้นอภิปรายในหนังสือปฐมกาลจนถึงหนังสือแยกสวีท มักจะมีการกล่าวถึงการกลับไปอยู่กับพระเจ้าของคนที่มีชื่อเสียงของชาวยิวและเยวิคเอโนค โดยไม่ล่าถึงการตายของแซล

เอโนคยังมีบุตรชื่อเมธูเสลาห์ ตั้งแต่เอโนคมีบุตรแล้ว ก็แย่งกับพระเจ้าสามร้อยปี และมีบุตรชายหญิงอีกหลายคน รวมอายุในที่ได้สำเร็จหลักสูตรที่เอโนคดันเนินกับพระเจ้า แล้วทำหน้าที่เป็นพระเจ้าทางรัฐifice ที่ ยก

จากเนื้อหาของเรื่องเล่าดังกล่าวทำให้เห็นได้ว่าความคิดของอาดัมและเอว่าที่ไม่เชื่อฟังพระเจ้า ซึ่งถือว่าเป็นการแยกตนออกจากอาณาจักรของพระเจ้า ไม่มีผลกระทบต่อร่างกายคนนักองค์ความสัมพันธ์ระหว่างมนุษย์กับพระเจ้าในระยะต่อมา เพราะมนุษย์เข้าใจค่อนข้างคนกับพระเจ้า ซึ่งปองความแสบซ่อหรือค่าคำสอนของพระเจ้า พระองค์ก็จะรับเอาในอยู่อยู่พระองค์เอง อันเป็นการพยายามเสนอความสำคัญเรื่องความรักของพระเจ้าที่มีต่อมนุษย์ ก็ถือว่าการถือตามหลักการต่างๆ ที่ทางไว้ไทยอย่างจริงจัง เพราะพวกเคล็ดลับต่างๆ ที่ก่อนหน้านี้เป็นเพียงเครื่องมือช่วยเข้าถึงมนุษย์ให้รับรู้และเป็น เพียงเพียงสิ่งที่เพียงพอที่จะให้เกิดผลการได้กิณทั้งนี้ได้แต่ที่มีของใหม่ที่ยุคล้ำค่าความรักของพระเจ้า ซึ่งสามารถเปลี่ยนแปลงชีวิตต่างๆ ที่ได้รับในที่ ๆ ผลิตมาที่ความตายอย่างด้านปากพูดเป็นเรื่องราวของไปได้ที่มีแนวความคิดว่าการถือตามการปล่อยผ่านที่จะขยายวิเคราะห์กับพระเจ้าอีกครั้งหนึ่ง ต้นนี้พันธสัญญาที่พระเจ้าได้ทำกับบุคคลที่คู่ของมนุษย์โลกจึงได้รับการยอมรับเพื่อตลอดมา ในประวัติศาสตร์ของชาวยิวที่พระเจ้าพระเจ้าพระเจ้าเพื่อทำให้มนุษย์ได้รับเคารพจากความตาย ไม่ว่าจะเป็นพันธสัญญาที่ทำกับอับราฮัมผ่านอาเบลงานที่ทำให้มองหา섯ิควด้วยพระเจ้าหรือพันธสัญญาที่ทำกับประชาชนชาวยิวผ่านโมเสสบนภูเขาซีไน

3 การตายถือว่าเป็นการลงโทษ

อย่างไรก็ตาม เมื่อความตายที่พระเจ้าได้หลังวิจิตรในช่วงหลัง จะไม่มีเนื้อหาทางญาติ ทางสืบสานแต่ไปถึงเนื้อหาอย่างหนึ่งซึ่งให้ความหมายโดยยังคงผลของการตายทางวิญญาณ อันเป็นการพัฒนาเป็นสิรุโค้กพระเจ้า นั่นคือการไม่ทำตามคำสอนหรือระเบียบกฎเกณฑ์ของพระองค์ บางคือที่ใช้เยี่ยงการกระทำชั่ว นั่นและการทำแบบนี้เป็นการกระทำออกจากกันเป็นสมาชิก
ของการกระทำของพระเจ้า เช่นเดียวกับการกระทำอยู่ภายใต้การครอบครองของชนชาติอื่น อันเป็น
สภาพชีวิตที่ไม่ได้อยู่ในอำนาจของตนเองทำให้ชนชาวอิสระอยู่ภายใต้การครอบครองของ
ชนชาติอื่นอย่าง การเป็นทาสที่ถูกทารงรับใช้จำกษา ภาพลักษณ์ของความตายทางกายภาพที่
ทำให้ประชากรที่แบริ่งทะเลสาบริกได้เข้าใจในแบบเชิงปรียาภิสัมพันธ์ และสภาพชีวิตของตนเองที่
ต้องเป็นเชลย ซึ่งสภาพเช่นนี้เป็นเหตุผลกับการกระทำการเป็นพลเมืองของรัฐอิสระที่อยู่ภายใต้
การรุนแรงของพระเจ้า ทำให้สมถะในการเป็นประชาชนที่พระองค์ทรงเลือกสรร ดังนั้น
แนวความคิดของของการเป็นเชลยหรือการช่วยให้ประชาชนเป็นทาสของชนชาติอื่นได้ถูกอธิบาย
ในขณะเดียวกันกับการมีภาพเชิงของพระผู้ไถ่ถึงวิัญญาณให้รอดจากการเป็นเชลย ทันที
เมื่อพบว่าสภาพเช่นนี้เป็นเช่นกันกับการเป็นเชลยที่ไม่ได้อยู่ในอำนาจของพระองค์

อภิปรายว่า ความหมายโดยสังเขปของ “ความตาย” จากบริบทของความหมายก็สื่อถึงการค้นหา
 우리가 알고มุ่มยุคผู้แรกเริ่มค้นหาและอีที่ควรเริ่มต้นในการสร้างอภิปรายที่มุ่มยุคของพระ
เจ้าหรือเป็นการแสดงของการเป็นครูบุกเบิกพระเจ้าของการบรรทุกภาระของความตาย
นักเทศนาของพระผู้ไถ่ บุคคลที่มุ่มยุคที่จะแยกตัวออกจากความเป็นหนึ่งเดียวกับพระเจ้า และ
เมื่อพระเจ้าเป็นบุคคลของชีวิตมุ่มยุค แต่มุ่มยุคมุ่มยุคที่จะแยกตัวออกจากบุคคลนั้น
แล้วมุ่มยุคจึงมีชีวิตอยู่อย่างไร เมื่อเป็นเช่นนี้ มุ่มยุคที่แยกตัวจากความหมายของความตาย
ในบริบทของมุ่มยุคของความเชื่อใหม่ ประถกิจได้ถูกย่นการอธิบายอธิบายของตนเองอยู่ ใน
อันที่จะระบุถึงเป็นที่สุดของชีวิตในอนาคต การได้เข้าไปอยู่ในสถานะของพระเจ้าคือ
รวมทั้งแบบข้อตกลงที่มีผลถึงการสนับสนุนภูมิภาค การได้รับการสนับสนุนจากพระ
คู่กับพระเยซู ซึ่งเป็นการเปิดเผยของการเป็นหนึ่งเดียวกับพระเจ้า โดยพระ
บุคคลของพระเจ้า พระเยซู ผู้มีลักษณะความจริงพร้อมกับอภิปรายของพระองค์เป็นลักษณะ
ให้รอดจากการตายก็วิญญาณ โดยการยอมรับกับปัญหาซึ่ง
อภิปรายว่า การรอดจากการตาย

ดังนั้น หากมองอีกด้านหนึ่งการค้นหาความตายที่เป็นการเริ่มต้นแล้วก็มีแผนการให้ผู้
มนุษยชาติให้รอดจากการตายโดยเหตุผลเพื่อซึ่งมุ่มยุคในสมัยพระเยซูคริสต์ที่มา
กล่าวถึงในพระธรรมใหม่ผู้ซึ่งมุ่มยุค แต่อย่างไรก็ตามการพิจารณาการค้นหาความตายที่
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เป็นการเริ่มต้นแล้วก็มีแผนการให้ผู้
จะเห็นได้ว่า การประมวลสรุปในความคิดของนักบุญเปาโลซึ่งได้เข้ามามีส่วนในสังคมของผู้ที่เชื่อในพระเยซูคริสตเจ้าหลังจากที่พระเยซูได้ถูกตรึงตายบนไม้กางเขนแล้ว ทำให้ผ่านได้มีโอกาสให้แรงของความหมายของคำสอนที่พระเยซูได้ให้ไว้ยังมีคู่ค้าสำหรับการดำเนินชีวิตในโลกนี้เพื่อที่จะได้กลับไปพบพระเจ้าและมีชีวิตนิรันดรอย่างมีความสุขในสวรรค์ จะพบแนวความคิดเรื่องความตายที่แบ่งออกเป็นส่วนใหญ่ๆ คือความตายทางด้านร่างกายซึ่งเป็นเรื่องธรรมดาและความตายทางด้านวิญญาณซึ่งเป็นการนำเสนอย่องที่มีชีวิตกับพระเจ้าหลังจากความตายแล้วอยู่เสมอ อีกทั้งยังมีความคิดของนักบุญเปาโลซึ่งจะมีขึ้นอย่างแน่นอนหากการดำเนินชีวิตของบรรดาผู้เชื่อในพระสิ่งเหล่านี้ได้มาจากคำสอนของพระเยซูสามารถปฏิบัติได้จริง อันเป็นกระบวนการให้บรรดาผู้เชื่อในคติของพระเยซูได้มีโอกาสที่จะได้กลับไปพบพระเจ้าและมีชีวิตนิรันดรอย่างมีความสุขในสวรรค์ ให้พวกเขาปรับปรุงตนเองออกมาสำหรับการเป็นประชาชนของพระเจ้าในอนาคตทำให้บรรดาผู้ที่เชื่อในพระเจ้าทั้งหลายไม่ได้ยากต่อการสรรหาที่มีคุณค่าสําหรับการดำเนินชีวิตของพวกเขาในอนาคตที่จะมีการดำเนินชีวิตแบบธรรมชาตินี้ การกล่าวถึงความตายที่แบ่งออกเป็นสองส่วนใหญ่ๆ คือความตายทางกายและวิญญาณ ซึ่งมีการนำเสนอในจดหมายที่นักบุญเปาโลเขียนถึงชาวโครินทร์ซึ่งประมวลสรุปการตายแบบธรรมชาติไปจนถึงสภาพชีวิตว่า

ที่หนึ่ง เราจะเห็นว่า เมื่อความตายเข้ามาอยู่ในโลกนี้ถูกเก็บพันไปแล้ว เราจะมีบ้านซึ่งพระเจ้าสร้างไว้สำหรับเรา เป็นบ้านของพระเจ้า ที่มีการสร้างขึ้นด้วยมิตรของมนุษย์อยู่ในวรรคดังนั้น เราจึงมีความนั้นอยู่เสมอ... เราจะสามารถมีความนั้นที่จะทำให้เป็นที่พักของพระเจ้า เพราะว่า เราจะคัดเลือกและผสมผสานกับบทบาทของนักบุญนี้ได้ เพราะที่มีความนั้นนั้นนี้จะมีชีวิตอยู่ได้ที่นั่น นี่คือความเชื่อของนักบุญเปาโลซึ่งจะมีความสุขได้ในสวรรค์อย่างแน่นอน (Cor 5: 1, 8-10)

จากข้อความที่กล่าวถึงนี้ซึ่งต้องเน้นจากกรณีของนักบุญในจดหมายนี้ นั่นคือเน้นอาจเห็นว่า แม้เนื้อหาในจดหมายนี้จะเป็นการสำนึกให้เห็นถึงความเป็นไปตามธรรมชาติของความตาย แต่ด้วยการปรับปรุงในความตายทางกายผ่านการมีชีวิตในอีกสภาพหนึ่งของชีวิต ที่ไม่ต้องการเสียใจในความเป็นไปตามธรรมชาติ ความตายทางกาย พยายามความช้ำในการรับรู้การมีชีวิตในอีกสภาพหนึ่งของชีวิต ที่ไม่ต้องการเสียใจในความเป็นไปตามธรรมชาติ ความตายทางกายผ่านการมีชีวิตในอีกสภาพหนึ่งของชีวิต ที่ไม่ต้องการเสียใจในความเป็นไปตามธรรมชาติ ความตายทางกายผ่านการมีชีวิตในอีกสภาพหนึ่งของชีวิต ที่ไม่ต้องการเสียใจในความเป็นไปตามธรรมชาติ ความตายทางกายผ่านการมีชีวิตในอีกสภาพหนึ่งของชีวิต ที่ไม่ต้องการเสียใจในความเป็นไปตามธรรมชาติ ความตายทางกายผ่านการมีชีวิตในอีกสภาพหนึ่งของชีวิต ที่ไม่ต้องการเสียใจในความเป็นไปตามธรรมชาติ ความตายทางกายผ่านการมีชีวิตในอีกสภาพหนึ่งของชีวิต ที่ไม่ต้องการเสียใจในความเป็นไปตามธรรมชาติ ความตายทางกายผ่านการมีชีวิตในอีกสภาพหนึ่งของชีวิต ที่ไม่ต้องการเสียใจในความเป็นไปตามธรรมชาติ ความตายทางกายผ่านการมีชีวิตในอีกสภาพหนึ่งของชีวิต ที่ไม่ต้องการเสียใจในความเป็นไปตามธรรมชาติ ความตายทางกายผ่านการมีชีวิตในอีกสภาพหนึ่งของชีวิต ที่ไม่ต้องการเสียใจในความเป็นไปตามธรรมชาติ ความตายทางกายผ่านการมีชีวิตในอีกสภาพหนึ่งของชีวิต ที่ไม่ต้องการเสียใจในความเป็นไปตามธรรมชาติ ความตายทางกายผ่านการมีชีวิตในอีกสภาพหนึ่งของชีวิต ที่ไม่ต้องการเสียใจในความเป็นไปตามธรรมชาติ ความตายทางกายผ่านการมีชีวิตในอีกสภาพหนึ่งของชีวิต ที่ไม่ต้องการเสียใจในความเป็นไปตามธรรมชาติ ความตายทางกายผ่านการมีชีวิตในอีกสภาพหนึ่งของชีวิต ที่ไม่ต้องการเสียใจในความเป็นไปตามธรรมชาติ ความตายทางกายผ่านการมีชีวิตในอีกสภาพหนึ่งของชีวิต ที่ไม่ต้องการเสียใจในความเป็นไปตามธรรมชาติ ความตายทางกายผ่านการมีชีวิตในอีกสภาพหนึ่งของชีวิต ที่ไม่ต้องการเสียใจในความเป็นไปตามธรรมชาติ ความตายทางกายผ่านการมีชีวิตในอีกสภาพหนึ่งของชีวิต ที่ไม่ต้องการเสียใจในความเป็นไปตามธรรมชาติ ความตายทางกายผ่านการมีชีวิตในอีกสภาพหนึ่งของชีวิต ที่ไม่ต้องการเสียใจในความเป็นไปตามธรรมชาติ ความตายทางกายผ่านการมีชีวิตในอีกสภาพหนึ่
สิ่งที่สำคัญที่สุดคือ การเปลี่ยนแปลงความเข้าใจจากการตายของวิถีคำพิพากษา นำไปสู่การเข้าใจแบบราวของวิถีคำพิพากษาเดิมวิถีที่ดีต่อเนื่องกันอย่างง่ายดายออกไป โดยการนำเสนอของสาระสำคัญได้ว่า ธรรมชาติคือเป็นไปตามธรรมชาติ แต่เหนือธรรมชาติสามารถทำให้ธรรมชาติเป็นไปแบบเหนือธรรมชาติโดยอาศัยธรรมชาติได้ และต้องไม่ขัดกับธรรมชาติ เพราะการด้านนี้วิถีคำสอนของพระเจ้าต่างแวดวงคิดของพระเจ้าศึก การใช้วิถีสอนคลองกับธรรมชาตินั้นคือการใช้วิถีหนึ่งไปไม่เป็นไปตามธรรมชาติและความรู้สึกของแต่ละบุคคลแต่ยังถือเป็นไปตามธรรมชาติ ซึ่งความตายทางกายภาพคือเป็นไปตามธรรมชาติทางกายภาพแต่ความตายที่ต่างจากกายภาพยังต้องแตกต่างจากกายภาพเช่นเดียวกัน

สรุป

ความตายเป็นจุดสุดท้ายของวิถีมนุษย์ที่ไม่อาจหลีกเลี่ยงได้ การศึกษาที่เกี่ยวกับความเชื่อเรื่องความตายในคริสตศาสนาที่มีความชี้วัดความตายเป็นสิ่งสำคัญมากในบรรดาหลักคำสอนทั้งนี้ มีความชี้วัดความตายเป็นสิ่งสำคัญมากในบรรดาหลักคำสอนอันมุ่งหมายเป็นผลมาจากการศึกษาที่มีเหตุผลเกี่ยวกับความมีจริงเป็นพื้นฐานโดยเฉพาะในเรื่องที่เกี่ยวกับการตาย (พระมหากาพย์, พระบุตร, พระจิต) ความตายจึงเป็นปัญหาสูงสุดสำหรับคริสต์ชนที่จะต้องช่วยกันรับรู้ในทางการศึกษาของพระเจ้าหรือพระบิดาบุตรและการคิดความความจริงความเชื่อเรื่องความตายเป็นเรื่องหลักที่ต้องมีความรู้ไว้เพื่อให้เกิดความน่าเชื่อได้จากพระเจ้าให้เห็นความตายเป็นผลมาจากการทำความดีหรือการกระทำที่ผิดต่อกฎเหล่าจะยอมรับได้ถ้าหากเป็นความปรารถนาของพระเจ้าอันเป็นผลมาจากการทำความดีนั้นเอง

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Bangkok: Chamrat, typing. [in Thai]


การพัฒนาสังคมและสังคมศึกษา
พลวัตของเรื่องเล่าเกี่ยวกับพระธาตุพนมในบริบทสังคมร่วมสมัย

The Dynamics of the Story about Phra That Phanom in the Contemporary Social Context

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บทคัดย่อ

เรื่องเล่าเกี่ยวกับพระธาตุพนมในจังหวัดนครพนมเป็นสิ่งที่แสดงให้เห็นวัฒนธรรมและการสร้างสรรค์ข้อมูลทางคดีที่สืบทอดกันมายาวนาน บทความนี้มีวัตถุประสงค์คือ 1) เพื่อศึกษาเรื่องเล่าเกี่ยวกับพระธาตุพนม และ 2) เพื่อศึกษาพลวัตของเรื่องเล่าเกี่ยวกับพระธาตุพนมในบริบทสังคมไทยร่วมสมัย โดยใช้แนวคิดพลวัตวัฒนธรรมและแนวคิดการสร้างสรรค์ ผลการศึกษามีดังนี้

ลักษณะเรื่องเล่าเกี่ยวกับพระธาตุพนมสามารถแบ่งได้ 3 ลักษณะ คือ 1) เรื่องเล่าที่เป็นต้นาน, 2) เรื่องเล่าที่แสดงความคิดสืบ, 3) เรื่องเล่าที่แสดงความคิดสืบพันธุพันธุ์วัฒนธรรมของเรื่องเล่าเกี่ยวกับพระธาตุพนมโดยเปรียบเทียบลักษณะที่เป็นอยู่ลักษณะและมุขปาฐะ พบว่าเรื่องเล่าที่เกี่ยวกับพระธาตุพนมมีการปรับเปลี่ยนลักษณะและมีความหลากหลายของตัวบท สำหรับการสร้างสรรค์เรื่องเล่าเกี่ยวกับพระธาตุพนมในบริบทสังคมร่วมสมัยพบว่ามี 3 รูปแบบคือ 1) ผ่านบทเพลง, 2) ผ่านสัญลักษณ์, และ 3) ผ่านสัญลักษณ์ลักษณะ

เรื่องเล่าเกี่ยวกับพระธาตุพนมแสดงให้เห็นว่าในบริบทสังคมไทยร่วมสมัยที่พัฒนาการท่องเที่ยวทางวัฒนธรรมทำให้มีการนำเสนอเรื่องเล่าที่หลากหลายรูปแบบและมีพลวัต เพื่อนำไปสู่การนำเสนอความเป็นเหตุเกิดและการประยุกต์ใช้ในบริบทการท่องเที่ยวในชีวิตขังสร้างสรรค์เพื่อประโยชน์ทางเศรษฐกิจด้วย

คำสำคัญ: เรื่องเล่า, พระธาตุ, นครพนม
บทนำ

ตามพระพุทธประวัติหลังจากการถวายพระเพลิงพุทธสรีระของพระพุทธเจ้าแล้ว ได้มีการแบ่งพระบรมสารีริกธาตุเป็นส่วนต่าง ๆ เพื่อสักการบูชาอัฐิของพระพุทธเจ้า หรือ พระบรมสารีริกธาตุของพระพุทธเจ้า และพระอัฐิของพระสาวกอย่างสักกัญในพระพุทธศาสนา รวมไปถึงพระอัฐิของกษัตริย์และบรรจุถังของต่าง ๆ อันเกี่ยวกับประเพณีที่ทางพระพุทธศาสนา ซึ่งเป็นสิ่งที่สับสนกันมาแต่เดิมว่าพุทธศาสนาเป็นการสักการบูชาธาตุ เป็นการสร้างเจดีย์เป็นที่บรรจุพระบรมสารีริกธาตุ และพระอัฐิของพระพุทธเจ้า และพระอัฐิของกษัตริย์และบรรจุสิ่งของต่าง ๆ เกี่ยวกับพระพุทธศาสนา ซึ่งเป็นสิ่งที่สืบทอดกันมาตั้งแต่สมัยพุทธกาลจนถึงปัจจุบัน สถูปเจดีย์สามารถจำแนกได้ 4 ประเภท ได้แก่ 1) บริโภคเจดีย์ เป็นเจดีย์ที่บรรจุเครื่องวิหารของพระพุทธเจ้า 2) ธาตุเจดีย์ พระเจดีย์บรรจุพระบรมสารีริกธาตุ 3) อุททสิกเจดีย์เจดีย์ที่ประดิษฐานพระพุทธรูป หรือสิ่งที่สร้างเป็นตัวแทนพระพุทธเจ้า และ 4) ธรรมเจดีย์ เจดีย์บรรจุใบลาน หนังสือที่เป็นบันทึกธรรมต่าง ๆ (พระศรีสุทธิพงศ์, 2560 : 40)

ตั้งแต่พุทธศตวรรษที่ 19 เป็นต้นมาความนิยมบูชาพระบรมสารีริกธาตุ ตามหลักของพระพุทธศาสนาแบบเถรวาทจากประเทศศรีลังกาเข้าสู่ประเทศไทยผ่านภาคเหนือ และภาคตะวันออกเฉียงเหนือ โดยการสร้างสถูปเจดีย์เพื่อประดิษฐานพระบรมสารีริกธาตุไว้ภายใน (สมชัย, มณีโชติ, 2554 : 11) ซึ่งเรียกว่า “พระธาตุ” มีลักษณะทางสถาปัตยกรรมแตกต่างกันไปตามรูปแบบของศิลปะแต่ละท้องถิ่น

นอกจากความศรัทธาต่อพระพุทธศาสนาแล้ว ยังปรากฏว่าพื้นที่ของพระธาตุนั้นมีลักษณะและเรื่องเล่าที่น่าสนใจเป็นที่สนใจสืบต่อมา ทำให้ผู้คนสนใจให้เข้าไปและก่อสร้างหรือการท่องเที่ยวที่เป็นทางปฏิบัติึยิ่งขึ้น ซึ่งมีลักษณะที่น่าสนใจที่เรียกว่า “พระธาตุ” มีลักษณะทางสถาปัตยกรรมแตกต่างกันไปตามรูปแบบของศิลปะแต่ละท้องถิ่น

 national and International Conference on Humanities and Social Sciences 2019
การไหว้พระปฏิบัติธรรมจํานวนถึงร้อยละ 59.8 เป็นสัดส่วนที่สูงกว่าจุดประสงค์อื่น ซึ่งสัดส่วนนี้มาจากแผนการพัฒนาจังหวัดนครพนม วิโครงการพัฒนาและส่งเสริมการท่องเที่ยวพระธาตุสำคัญจังหวัดนครพนม (คณะกรรมการบริหารงานบูรณาการจังหวัดนครพนม, ม.ป.ป. : 81)

การพัฒนาการท่องเที่ยวจังหวัดนครพนมทำให้สภาพเศรษฐกิจของจังหวัดโดยรวมดีขึ้นเนื่องจากที่มีประโยชน์ของการพัฒนาจังหวัดมีความส่วนร่วมกับท้องถิ่นและชุมชนในการสร้างสรรค์ประยุกต์ใช้เรื่องเล่าและประเพณีของท้องถิ่นเพื่อนำเสนอของอัตลักษณ์ให้นักท่องเที่ยวโดยใช้ทุนทางวัฒนธรรมที่มีอยู่แล้ว จังหวัดนครพนมมีวัตถุประสงค์คือเพื่อสร้างสรรค์และส่งเสริมการท่องเที่ยวในจังหวัดนครพนม อันมีส่วนมาจากความเชื่อที่ว่าตราสภาราษฎร์ที่มาจากท้องถิ่นและเรื่องเล่าก็เป็นที่น่าสนใจแก่นักท่องเที่ยวและผู้คนทั่วไป สร้างให้เกิดประโยชน์จากการนำข้อมูลท้องถิ่นมาประยุกต์ใช้กับบริบทสังคมสมัยใหม่อย่างสร้างสรรค์และทำให้มีมูลค่าเพิ่มขึ้นอยู่มากนั่นเองเป็น "คิดศิลป์สร้างสรรค์" ตามแนวคิดของ ศิริพร ฉ. วง (2559 : 19) ซึ่งเป็นการใช้ข้อมูลทางด้านวัฒนธรรมที่สำคัญให้แก่กับบริบทสังคมสมัยใหม่

บทความนี้มุ่งศึกษาเรื่องเล่าเกี่ยวกับพระธาตุพนมโดยใช้แนวคิดพลวัตวัฒนธรรมและคติชนสร้างสรรค์เพื่อศึกษาการสร้างสรรค์และคิดศิลป์สร้างสรรค์เรื่องเล่าเกี่ยวกับพระธาตุพนมในบริบทสังคมไทยร่วมสมัย เพื่อได้เข้าใจการคิดสร้าง หรือประยุกต์ ค่อยยอดเพื่อสืบทอดข้อมูลทางเรื่องเล่าของคนไทยในท้องถิ่นที่กำลังเผชิญกับบริบทการเปลี่ยนแปลงในปัจจุบัน

วัตถุประสงค์
1. เพื่อศึกษาเรื่องเล่าเกี่ยวกับพระธาตุพนมในจังหวัดนครพนม
2. เพื่อศึกษาพลวัตและการสร้างสรรค์เรื่องเล่าเกี่ยวกับพระธาตุพนมในบริบทสังคมไทยร่วมสมัย

ผลการศึกษา
d้านพระธาตุพนมเป็นเรื่องเล่าที่สืบทอดคู่กันมาอย่างยาวนาน เพื่ออธิบายปัญหาและความสําคัญของพระธาตุ ส่งผลให้ผู้คนสร้างสรรค์และรักษาไว้ในเรื่องราวของพระธาตุรวมไปถึงเรื่องราวปฏิทธิ์อย่างต่าง ๆ ซึ่งเรื่องเล่าเหล่านี้ยังมีการเปลี่ยนแปลงและถูกสร้างสรรค์ไปตามสมัยอันทันสมัยต่าง ๆ
1. ลักษณะเรื่องล่าการบูชาพระธาตุในจังหวัดนครพนม

การบูชาพระธาตุเป็นกิจกรรมที่มีความหมายสำหรับพุทธศาสนาและแพร่หลายในประเทศที่มีวัฒนธรรมพุทธ ตรงนี้อยู่ในบริเวณภาคเหนือและภาคตะวันออกเฉียงใต้ การบูชาพระธาตุมักมีการสร้างคำนวณหรือเรื่องล่าเป็นการเสริมสร้างความศักดิ์สิทธิ์ของพระธาตุ และดึงดูดความเชื่อและความเชื่อของผู้คนพบพระธาตุ ลักษณะเรื่องล่าเกี่ยวกับพระธาตุเหมาะสมจังหวัดนครพนมของเรื่องล่าได้ ลักษณะของคำนวณเรื่องล่าจึงประวัติศาสตร์และเรื่องล่าแสดงความศักดิ์สิทธิ์ ดังนี้

1.1 คำนวณ (Myth)

คำนวณ คือ เรื่องล่าที่แสดงความเป็นมาของสถานที่ บุคคล หรือสิ่งต่าง ๆ ถูกเล่าสืบต่อกันมาในเรื่องราว ซึ่งเรื่องล่าเกี่ยวกับพระธาตุลักษณะแรกนี้มีลักษณะเป็นเรื่องที่เล่าสืบต่อกัน มาจนถึงปัจจุบัน การบูชาพระธาตุอย่างมากในบริเวณภาคเหนือและภาคตะวันออกเฉียงใต้ มักมีการสร้างเรื่องราวที่เล่าสืบต่อกันมาถึงวัยที่อาจรวมถึงเรื่องราวที่เกี่ยวข้องกับพิธีกรรม วัฒนธรรมและประวัติศาสตร์ ตลอดจนเรื่องราวที่เกี่ยวข้องกับเรื่องราวที่เกิดขึ้นในอดีต ซึ่งอาจเกี่ยวข้องกับคำนวณหรือเรื่องราวที่เกิดขึ้นในอดีตในบริเวณที่นั้น

เรื่องราวของพระธาตุพนมซึ่งเป็นเรื่องราวที่ปรากฏในคำนวณอุรังคณาหรือคำนวณพระธาตุพนม กล่าวว่า พระธาตุพนมเป็นพระธาตุที่มีความสำคัญและเก่าแก่ที่สุดในกลุ่มพระธาตุในจังหวัดนครพนมและภาคตะวันออกเฉียงเหนือ ภายในบรรจุพระบรมสารีริกธาตุ พระอุระบรรจุอยู่ในผอบแก้วและผอบทองคำซับซ้อนหลายชั้น ประดิษฐานบนเรื่องธาตุชันที่สามขององค์พระธาตุ จากหลักฐานทางโบราณคดีพบว่าพระธาตุพนมแรกมีอายุราวพุทธศตวรรษที่ 12-14 มีประวัติความเป็นมาปรากฏในคำนวณอุรังคธาตุ หรืออุรังคนิทานว่า สร้างโดยพระมหาคชาสีศรีพระอาถรรพ์ในรัชสมัยพุทธศตวรรษที่ 500 องค์ ร่วมกันกับพญาเจ้าสุวรรณภิงคา เจ้าผู้ครองเมืองหนองหารหลวง พญาจุลนิพรหมทัต เจ้าผู้ครองเมืองจุลนิพรหมทัต และพญาอินทปัฐนคร เจ้าผู้ครองเมืองอินทปัฐนคร โดยสร้างโดยพระมหาคชาสีศรีพระอาถรรพ์ในรัชสมัยพุทธศตวรรษที่ 500 องค์ ร่วมกันกับพญาเจ้าสุวรรณภิงคา เจ้าผู้ครองเมืองหนองหารหลวง พญาจุลนิพรหมทัต เจ้าผู้ครองเมืองจุลนิพรหมทัต และพญาอินทปัฐนคร เจ้าผู้ครองเมืองอินทปัฐนคร โดยสร้างโดยพระมหาคชาสีศรีพระอาถรรพ์ในรัชสมัยพุทธศตวรรษที่ 500 องค์ ร่วมกันกับพญาเจ้าสุวรรณภิงคา เจ้าผู้ครองเมืองหนองหารหลวง พญาจุลนิพรหมทัต เจ้าผู้ครองเมืองจุลนิพรหมทัต และพญาอินทปัฐนคร เจ้าผู้ครองเมืองอินทปัฐนคร โดยสร้างโดยพระมหาคชาสีศรีพระอาถรรพ์ในรัชสมัยพุทธศตวรรษที่ 500 องค์ ร่วมกันกับพญาเจ้าสุวรรณภิงคา เจ้าผู้ครองเมืองหนองหารหลวง พญาจุลนิพรหมทัต เจ้าผู้ครองเมืองจุลนิพรหมทัต และพญาอินทปัฐนคร เจ้าผู้ครองเมืองอินทปัฐนคร โดยสร้างโดยพระมหาคชาสีศรีพระอาถรรพ์ในรัชสมัยพุทธศตวรรษที่ 500 องค์ ร่วมกันกับพญาเจ้าสุวรรณภิงคา เจ้าผู้ครองเมืองหนองหารหลวง พญาจุลนิพรหมทัต เจ้าผู้ครองเมืองจุลนิพรหมทัต และพญาอินทปัฐนคร เจ้าผู้ครองเมืองอินทปัฐนคร โดยสร้างโดยพระมหาคชาสีศรีพระอาถรรพ
ขุดเป็นลำดับไป เสนาอานัตย์และประชาราษฎรทั้งหลายจึงได้ขุดต่อไป หลุมนั้นลึก 2 ศอก ของพระมหาสัสดาประเพณี ว่าว่า พระมหาสัสดาประเพณีเท่านั้นที่ทางพระพุทธเจ้า 5 จึงนําเอาพระอุรังคธาตุไปป่าไว้ในอุโมงค์นั้นแล้ววิจิตรดูที่ยิ่ง 4 ด้าน...”

(กรมศิลปากร, 2483:158-160)

เมื่อประดิษฐานพระอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้วพระอินทร์ก็นําเทวดาลงมานิ้งและมอบหมายให้เทวดาอุรังคธาตุแล้
เรื่องเล่าเชิงประวัติศาสตร์ (Historical narrative)
เรื่องเล่าเชิงประวัติศาสตร์ มีลักษณะเป็นเรื่องเล่าที่เกี่ยวข้องกับเหตุการณ์ บุคคลและสถานที่ที่เกิดขึ้นจริงหรือมีอยู่จริง สามารถระบุที่มาได้ เรื่องเล่าเชิงประวัติศาสตร์จึงพบในเรื่องเล่าของพระธาตุพนม ทั้งพระธาตุพนมและพระธาตุที่สร้างขึ้นในยุคหลังมานี้ถือเป็นข่าว ระยะเวลาไม่ถึงหนึ่งร้อยปีมีหลักฐานเกี่ยวกับการสร้างหรือการบูรณะที่ชัดเจน บอกประวัติและที่มาของสถานที่ศักดิ์สิทธิ์ เป็นเรื่องเล่าที่สามารถหาข้อมูลและการอ้างอิงได้ สำหรับความเป็นเรื่องเล่าเชิงประวัติศาสตร์ของพระธาตุพนมนั้นนอกจากมีหลักฐานและคำกล่าวแล้ว ยังมีลักษณะเป็นเรื่องเล่าเชิงประวัติศาสตร์ที่มีเหตุผลที่คุ้มค่าด้วยดังนี้

พระธาตุพนมเป็นพระธาตุที่เก่าแก่และมีมีด้านฐานสร้างเรื่องราวเกี่ยวกับการสร้างแล้ว มีเรื่องเล่าเชิงประวัติศาสตร์ที่บันทึกไว้ในيتهุคหลัง เช่นเป็นบันทึกเกี่ยวกับการบูรณะปฏิสังขรณ์ ดังที่ พระธรรมราชานุวัตร (2551) ได้บันทึกไว้ดังนี้ "...ครั้งศุลคศิศการ 1052 ปี กล่าวว่า คงเป็นพุทธศักราช 2233 ปียังมีบทที่ให้คนไปขวัญจังหนังอย่างจริงจังในการบูรณะต่อเนื่องของสถานที่ศักดิ์สิทธิ์ มีการบูรณะที่บันทึกไว้ในประวัติศาสตร์ของพระธาตุพนม...."

ข้อความข้างต้นเป็นเหตุการณ์ที่เกี่ยวข้องกับชีวิตของพระธาตุพนมในปี พ.ศ.2332 และยังมีการบูรณะที่สำคัญอีกครั้งหนึ่งในปี พ.ศ.2444 เป็นบันทึกทางประวัติศาสตร์ โดยพระธรรมราชานุวัตร (2551) ได้บันทึกไว้ดังนี้ "...บนที่ท่านพระครูวิโรจน์รัตโนบล อดีตเจ้าคณะจังหวัดอุบลราชธานี ได้ทรงผู้คนลงมาจากบูรณะพระธาตุพนมเมื่อ พ.ศ.2332 และยังมีการบูรณะที่สำคัญอีกครั้งหนึ่งในปี พ.ศ.2444 เป็นบันทึกทางประวัติศาสตร์ โดยพระธรรมราชานุวัตร (2551) ได้บันทึกไว้ดังนี้ "...นั้นท่านท่านพระครูวิโรจน์รัตโนบล ได้ทรงผู้คนลงมาจากบูรณะพระธาตุพนม..."

จากข้อความที่ยกมานี้เหตุการณ์ที่พระครูวิโรจน์รัตโนบล อดีตเจ้าคณะจังหวัดอุบลราชธานีบูรณะพระธาตุพนมเมื่อ พ.ศ.2332 เท่านั้นได้วันนี้จากพระธาตุพนมจะมีเรื่องเล่านั้นเป็นด้านแรกขึ้นและยังเป็นเรื่องเล่าเชิงประวัติศาสตร์บันทึกในปัจจุบันได้ชัดเจน ทั้งนี้ปัจจุบันจากพระธาตุพนมมีฐานะเป็นปูชนียสถานสำคัญในระดับภูมิภาคทั่วไป จากเรื่องเล่านั้นของพระธาตุข้างต้น จะเห็นได้ว่าเรื่องเล่าที่เกี่ยวกับสถานที่และภูมิภาพนี้มีลักษณะเป็นเรื่องเล่าเชิงประวัติศาสตร์ มีการกล่าวถึงห้วงเวลาที่ชัดเจนไม่เกินความเป็นจริง บุคคลผู้สร้างและการกล่าวถึงมีตัวตนจริงในประวัติศาสตร์

1.3 เรื่องเล่าแสดงความศักดิ์สิทธิ์ (Sacred narrative)
เรื่องเล่าแสดงความศักดิ์สิทธิ์ เป็นเรื่องราวที่เกี่ยวข้องกับบุคคล สถานที่ หรือสิ่งของมีความเกี่ยวข้องกับเรื่องอภินิหาร หรือมีความเหนือธรรมชาติ แสดงให้เห็นและเสริมความ
ศักดิ์สิทธิ์ให้แก่บุคคล สถานที่ หรือสิ่งเหล่านั้น เรื่องล่าที่แสดงความศักดิ์สิทธิ์ของพระธาตุพนม
แบ่งได้ 3 ลักษณะ ได้แก่ เรื่องล่าเกี่ยวกับการบรรจุพระบรมสารีริกธาตุ เรื่องล่าเกี่ยวกับเหตุการณ์และ
สิ่งศักดิ์สิทธิ์ และเรื่องล่าเกี่ยวกับผู้สร้างหรือบูรณะพระธาตุ ดังนี้

1.3.1 เรื่องล่าเกี่ยวกับการบรรจุพระบรมสารีริกธาตุ

เนื่องด้วยเหตุการณ์ในการสร้างพระธาตุมามาจากการสร้างเพื่อเป็นที่เก็บรักษา
พระบรมสารีริกธาตุ พระอรหันตธาตุ อัฐิพระสงฆ์ อัฐิพระมหากษัตริย์ ตลอดจนการสร้างเพื่อ
เก็บอัฐิของพระบรมบูรพา ได้แก่ เรื่องล่าเกี่ยวกับการบรรจุพระบรมสารีริกธาตุ หรือเรื่องล่าเกี่ยวกับ
พระพุทธเจ้าโดยตรงซึ่งมักจะมีลักษณะเป็นเรื่องเล่าที่ยิ่งใหญ่และทรงจำ หรือพระธาตุที่ถูกสร้าง
เป็นสถานที่บรรจุพระบรมสารีริกธาตุของพระพุทธเจ้าที่มักจะเป็นพระธาตุสำคัญและเป็นที่รู้จัก
ความเชื่อและสร้างจิตมามาจากความศรัทธาในพระพุทธศาสนาเป็นที่เดียวในโลกที่ถูกสร้าง
สำคัญของชาวด้านบูรพาได้มีอยู่ในเมืองพระพุทธศาสนาของพุทธศาสนิกชน ดังเช่น
พระธาตุพนม

ไหม พันธุพาน (2561: สัมภาษณ์) แสดงความเห็นว่า “...บุญเดือนสาม
t้องไปไหว้ธาตุ (พระธาตุพนม) ไปเสียก่อนว่า ได้ไหว้ธาตุที่มาเท็จบังได้ตัดท้อหัวพระพุทธเจ้าแล้ว
กระท่าหัวออกก่อนอยู่นี่...” จากตัวอย่างนี้แสดงให้เห็นถึงการให้ความหมายพระธาตุมามาเป็น
ตัวแทนของพระพุทธเจ้าและพระวัฒนธรรมในฐานะเป็นที่บรรจุพระบรมสารีริกธาตุของพระพุทธเจ้า
ซึ่งความศรัทธาในการด้านนี้แสดงถึงการบริการและประทับใจความของพระธาตุบรรจุพระบรม
สารีริกธาตุ ดังนั้นที่เรื่องล่าพระธาตุพนมในด้านกูรังค์นั้นเป็นที่รู้จักชื่นชอบ และปรากฏว่าสิ่ง
จากตัวอย่างนี้แสดงให้เห็นว่าเป็นที่บรรจุพระบรมสารีริกธาตุไว้ว่า
“...พบพระอุระศรีวัชร ในพระพุทธรูปในคุณว่า หรือห้มอดเก้า มีสัณฐานคล้ายล้อมรอบท่าไว้ของพระธาตุแต่
ละองค์มีอักษรฉลามเม็ดข้าวสารแท้ มีอักษรภูษณฉลาม 2 องค์ สีออกภูษณฉลาม 3 องค์ และสีที่จับ
3 องค์ รวม 8 องค์ ซึ่งอุระศรีวัชรไว้ว่ายังสัณฐานข้าวสารแท้...” (พระธรรมราชานุวัตร, 2551 : 189-
190)

การพบพระบรมสารีริกธาตุหรือพระอุระศรีวัชรที่ถูกชี้เป็นการเชื่ออันยืนยันเรื่อง
ในข้อสงสัยของพระธาตุพนมว่ามีพระบรมสารีริกธาตุส่วนพระธุระของพระพุทธเจ้าอยู่จริง เรื่องล่า
ที่กล่าวถึงนี้เป็นการถือว่าพระพุทธเจ้าในฐานะคุณว่าของพระพุทธเจ้าและเป็นสถานที่บรรจุพระ
บรมสารีริกธาตุ ซึ่งเรื่องเหล่านี้แสดงให้เห็นถึงหลักความเชื่อและความศรัทธาของคนในชุมชนและ
คนที่มีศรัทธาต่อพระพุทธวิillisecondและเป็นที่อิทธิพลอย่างนั้น สามารถปกป้องคุ้มครองหรือ
บันดาลสิ่งต่าง ๆ ให้ จนมีการสักการะเป็นลูกหลานพระธาตุ หรือเป็นสิ่งไอพวกพระธาตุ ซึ่งขัดเจน มากกับพระธาตุพนมเนื่องจากเป็นพระธาตุที่แกล้นและเป็นที่รู้จักกันอย่างกว้างขวางในภูมิภาคโดย พบความเชื่อว่า “การได้มาไหว้พระธาตุพนมสักครั้งหนึ่งในชีวิตนั้นเป็นบุญมาก หากแต่ไม่ได้ กระท่าให้ได้ขึ้นสวรรค์ หรือการได้มารับพระธาตุ 7 ทรง จะได้เป็นลูกพระธาตุพนม” (รัศมี คำเปี้ยง, 2561: สัมภาษณ์)

1.3.2 เรื่องเล่าเกี่ยวกับพวกพุทธและสิ่งศักดิ์สิทธิ์ (Sacred narrative)

ความเคารพในพระพุทธศาสนาได้เป็นเหตุผลประการสำคัญเพียงอย่างเดียวในการบูชาพระธาตุ แต่ความเคารพสร้างต่อพระธาตุพนมของผู้คนมีเหตุผลที่อย่างกว้างว่าพระธาตุ เป็นสิ่งศักดิ์สิทธิ์นับตั้ง พระธาตุเป็นสิ่งกลั่นบุญภัณฑ์เก็บแฝงผู้ปกครอง หรืออาจพยากรณ์ในผู้มีอำนาจ เนื่องจากควมศักดิ์สิทธิ์อยู่เป็น.OrderBy และหลักเมืองปกป้องราษฎรและกู้ความภัยบุญนำ้ใจให้กู้ยืนเป็น ศรัทธา คู่บ้านคู่เมือง อยู่ในความเชื่อและถูกบูชาที่สิ่งต่าง ๆ ให้เกิดแก่ผู้บูชาได้ ซึ่งเห็นได้จากการกระท่านั้่นต่าง ๆ ในบ้านเมืองต้องบอกล่ำพระธาตุ ข้าราชการมารับราชการในท้องที่ ต้องมาบอกกล่าวถึงการแนะนำต่างและสักการะที่นั่น ตลอดจนการบูชา ขอพรต่าง ๆ ซึ่งการกระท่านั้่นนั้นเป็นการยอมรับการการพยากรณ์และพี่พงพระธาตุ จงศึกษาเป็น เรื่องเล่าที่สะท้อนถึงความเชื่อและสร้างปรากฏการณ์การกิจกรรมหรือปฎิบัติการที่เกิดขึ้นจากพระธาตุ คู่บ้านคู่เมือง พันธุ์พาน (2561: สัมภาษณ์) กล่าวว่า “...ไปอยู่บนพาน(พระธาตุพนม) ไปเป็นสุกศรัทธา หลานพระธรรม זכามได้เพื่อเป็นบุญกิจ ข้าไม่ได้เห็นความสุข...”

นอกจากนี้ความสำคัญของพระธาตุมั้งเป็นเป็นเหตุผลเป็นประโยชน์ในถิ่นเป็นอย่างยิ่ง หากแต่ยังมีบทบาทในการปรากฏอยู่ขององค์การบูชาเมืองให้กู้ยืนเป็นสุขเป็นที่คิดเห็นว่า จาก บันทึกของพระธรรมราชานุวัตร (2551) ได้กล่าวถึงเรื่องการสร้างปรากฏการณ์ของพระบรมสารีริกธาตุ ในครั้งที่พระพุทธบรมมหาจารุศักดิ์UniqueId บรรจุพระบรมสารีริกธาตุหลังพระธาตุพนมพังทลายไว้ “...เมื่อมีปัญหา ด้วยสำนวนที่บรรจุศักดิ์สิทธิ์อยู่ในศิลาและบุษบกพระอุระคุณ เมื่อปิดคุณ ปรากฏว่ามีกลิ่นหอม อันทรา ๆ กล้ำกล่อมที่มนัสจั่นทรัพภายในเจดีย์และบุษบกพระอุระคุณ เมื่อปิดคุณ ปรากฏว่ามีกลิ่นหอม อันทรา ๆ กล้ำกล่อมที่มนัสจั่นทรัพภายในเจดีย์และบุษบกพระอุระคุณ เมื่อปิดคุณ ปรากฏว่ามีกลิ่นหอม อันทรา ๆ กล้ำกล่อมที่มนัสจั่นทรัพภายในเจดีย์และบุษบกพระอุระคุณ เมื่อปิดคุณ ปรากฏว่ามีกลิ่นหอม อันمرا ..” (พระธรรมราชานุวัตร, 2551: 195) เพื่อการณ์ในครั้งนี้บูชาเบื้องหน้าและเล่าเรื่องจากเรื่องการสร้างปรากฏการณ์ของพระธาตุ และยังแสดงความรักษาของผู้คนที่ได้รับจั่นทรัพเป็นอย่างมาก

จากเรื่องเล่านี้เป็นการนำเสนอความศรัทธาและให้ความเคารพต่อพระธาตุที่ เชื่อมโยงกับพื้นที่มีถิ่นที่อยู่ของบรรดาศักดิ์สิทธิ์ต่าง ๆ และกู้ยืนการของพระธาตุ อันแสดงให้เห็นถึงความเสียบ้านระหว่างกันเช่น โยงกับพระธาตุในระดับจิตวิญญาณ สะท้อนให้เห็นถึง คติแบบชาวพุทธท้องถิ่นอันที่จะมีสิ่งศักดิ์สิทธิ์เป็นอย่างเห็นรู้จักใจในท้องถิ่น  ในนั้นก็ถือ
พระธาตุ ทั้งอันเชื่อมโยงไปสู่การสร้างประเพณีและพิธีกรรมในชุมชน ในขณะเดียวกันก็มีถึงเป็นเรื่องสำคัญที่เกี่ยวข้องและช่วยลดภัยความเสียหายความคิดสร้างสรรค์ของเรื่องราวประชำชาตุพนมได้เป็นอย่างดี

1.3.3 เรื่องเล่าเกี่ยวกับผู้สร้างหรือบูรณะพระธาตุ

นอกจากอภินิหารจากองค์พระธาตุแล้ว ความเชื่อในความศักดิ์สิทธิ์ของพระธาตุยังมาจากความศรัทธาที่มีต่อผู้ที่มีส่วนเกี่ยวข้องในการสร้างหรือบูรณะพระธาตุพนมด้วย พระธาตุพนมตามคำบอกอุ้งรัตน์นี กล่าวถึงการสร้างพระธาตุพนมว่าได้รับการอุปถัมภ์จากพญาเจ้าผู้ปกครองนครทัง ซึ่งเป็นเจ้าผู้ปกครองนครเวียงจันทน์ และมีพญาผู้ปกครองทรงอุปถัมภ์บวริภูมิ ทรัพย์และข้า provokeราวในการสร้างพระธาตุ และตามหลักฐานทางประวัติศาสตร์บันที่เกี่ยวกับการสร้างพระธาตุพนม คำตีนบุตรของพระมหากษัตริย์ล้านช้าง (2551) กล่าวถึงพระเจ้าโพธิสัมสารราช พระเจ้าไชยเชษฐาธิราช และเจ้าอนุวงศ์ ว่าได้เสด็จมาถวายพร้าวที่ดินพระธาตุพนมให้บูรณปฏิสังขรณ์ เนื่องจากมีเหตุผลมีนั้นเจริญกว้างพระณาการบูรณะปัจจุบันเป็นข่าวเช้าของอาณาจักรที่นี้

จนมาในยุคปัจจุบันที่เป็นเขตแดนของประเทศไทย วัดพระธาตุพนมได้รับการสถาปนาเป็นพระอารามหลวง จักรีนิเวศน์เมื่อพระบาทสมเด็จพระเจ้าอยู่หัวภูมิพลอดุลยเดชมหาราชบรมนาถบพิตรและสมเด็จพระนางเจ้าสิริกิติ์ พระบรมราชินีนาถ ทรงพระกรุณาโปรดเกล้าฯ ให้ดำเนินพระราชพิธีบรมราชาภิเษกพระบรมราชสมบัติครบ 50 ปี และทรงพระกรุณาโปรดเกล้าฯ ให้ทรงพระกรุณาโปรดเกล้าฯ ให้พระบาทสมเด็จพระเจ้าอยู่หัวภูมิพลอดุลยเดชมหาราชบรมนาถบพิตรและสมเด็จพระนางเจ้าสิริกิติ์ พระบรมราชินีนาถพระบรมราชชนนีพันปีหลวง ได้เสด็จพระราชดำเนินบรรจุพระบรมสารีริกธาตุเข้าสู่พระธาตุองค์ใหม่ เหตุการณ์นี้ยังได้รับความสนใจจากชาวบ้านทั่วประเทศเป็นอย่างมากแต่ยังคงมีภูมิเปี่ยมรคกับประชาชนที่มีรักพระธาตุพนมอย่างยิ่ง เหมือนกันกับพระธาตุพนมที่เป็นศูนย์กลางความศรัทธาของพุทธศาสนิกชนไทยและลุ่มน้ำโขงในทั่วโลก มีความสัมพันธ์กับผู้นับถือพระมหากษัตริย์หรือพระพักตร์ที่นี่ในอดีตและปัจจุบัน

การที่พระธาตุได้รับการอุปถัมภ์จากพระมหากษัตริย์นับได้ว่าเป็นการคุ้มครองความศรัทธาให้แก่ราชบูรณะ ทั้งยังสร้างขึ้นอยู่บนในความเชื่อและสร้างคุณค่าให้ทั้งพระธาตุซึ่งเป็นสิ่งศักดิ์สิทธิ์ของคนในท้องถิ่นผู้ที่จะไม่มีโอกาสได้ชัยชนะใด้ทั้งนี้ ผู้ที่มีความรู้จากวัฒนธรรมไทย สามารถแสดงให้เห็นถึงคุณค่าเป็นบรรดาชาของพระมหากษัตริย์
ที่ทรงเลื่อมใสในพระพุทธศาสนาและการเป็นองค์เอกอัครสำราญปฏิบัติคือด้วย อันเป็นการสร้าง
ความภูมิใจและความร่วมมือของคนในท้องถิ่นว่าพระธาตุที่เคยนับถือมีความสำคัญใน
ระดับชาติและองค์พระมหากษัตริย์

1.2 พลวัตของเรื่องเล่าการบูชาพระธาตุพนมในบริบทสังคมไทยร่วมสมัย
เรื่องเล่าการบูชาพระธาตุมีความสัมพันธ์กับความเชื่อทางพุทธวัฒนธรรมที่เป็นหลักด้านที่
เป็นหลักคือการบูชาพระธาตุพนมในบริบทสังคมไทยร่วมสมัย โดยใช้หลักคือการบูชาพระธาตุพนม
เป็นวัตถุหลักเพื่อวัฒนธรรมพุทธวัฒนธรรมไทย ที่มีการสร้างความภูมิใจ
พลวัตของเรื่องเล่าการบูชาพระธาตุพนมในบริบทสังคมไทยร่วมสมัย

1.2.1 การปรับเปลี่ยนเรื่องเล่า
การปรับเปลี่ยนเรื่องเล่าหมายถึง การคงเค้าโครงเรื่องเดิมแต่มีการปรับ
รายละเอียดของเรื่องให้แตกต่างไปจากเดิม หรือเป็นการนำเอาเรื่องเดิมทีมีการเปลี่ยน
เปลี่ยนการปรับเปลี่ยนเนื้อหาของเรื่องเล่าที่มาจากเรื่องเล่าต้นฉบับของพระธาตุ
พนมที่กล่าวถึงการสร้างพระธาตุพนม โดยทั่วไปเรื่องเล่าที่กล่าวถึงพระธาตุพนมจะปรากฏ
ในต้นฉบับที่เป็นที่รู้จักอย่างกว้างขวางคือ การอธิบายเรื่องราวของจักร
ธรรมราชานุพัฒ (แก้ว นภิรมย์) ซึ่งมีลักษณะในเนื้อหาไปในทางลือกล่าว เนื่อง
จากเรื่องเล่ามุขปาฐะที่เล่าสืบต่อที่ในท้องถิ่น พบว่ามีการเปลี่ยนแปลงเรื่องราวพระธาตุพนมที่ต่างออกไป เช่น
เรื่องเล่าของไหม พันธุพาน (2561: สัมภาษณ์) ที่ให้สัมภาษณ์ว่า

"เริ่มแรกในการสร้างพระธาตุพนมนั้น ผู้คนรู้จักการแม่ทูหักทรงพระธาตุพนม
ของพระมหากัสสปะสุคนธะ ทั้งคนไทยและชาวลาวที่ทราบเรื่องราวเกี่ยวกับ
พระธาตุ พบว่าก็มีการสร้างพระธาตุพนมที่ต่างออกไป เช่น เรื่องเล่าของไหม พันธุพาน (2561: สัมภาษณ์)

จากเรื่องเล่าของไหม พันธุพาน ซึ่งมีการอธิบายเรื่องราวพระธาตุพนมที่ต่างออกไป เช่น
เรื่องเล่าของไหม พันธุพาน (2561: สัมภาษณ์)
ผู้สร้างที่ไม่ใช่กษัตริย์ด้วยที่ปรากฏในเรื่องเล่าหลักที่เป็นลายลักษณ์ ตั้งด่านอุรังค์โมหา ฉบับกรมศิลปากร (2483) ที่กล่าวถึงการสร้างพระธาตุพนมไว้ว่า

"...ท้าวพระยาทั้ง 5 จึงครั้งครังให้คนทั้งหลายบันทัดเดิม... พระยาสุวรรณภิงคาร พระยาจุลณีพรหมทัต พระยาอินทปัฐนคร และพระยาอินทเสน จึงขุดเป็นลําดับไป สำหรับคุณภาพและความถูกต้องเหล่านี้ได้ขุดต่อไป...พระยาสุวรรณภิงคาร พระยาจุลณีพรหมทัต พระยาอินทปัฐนคร และพระยาอินทเสน จึงนํามาเอาพระอุรังคธาตุขึ้นไปปนไปในอุโมงค์นั้นแล้วโดยประยุกต์ทั้ง 5 ด้าน..."

(กรมศิลปากร, 2483 :158-160)

จากเรื่องเล่าข้างต้นแสดงให้เห็นถึงการปรับเปลียนเนื้อหาในการสร้างพระธาตุ ซึงในครั้นค่อนข้างนิทานกล่าวว่า พระธาตุพนมสร้างโดยพระแม่ภัสระสุขะพร้อมด้วยพญาทั้ง 5 ท้าว คณะที่พานานนั้นได้แก่ พระยาสุวรรณภิงคาร พระยาจุลณีพรหมทัต พระยาอินทปัฐนคร และพระยาอินทเสน จึงขุดเป็นลําดับไป เสนาอํามาตย์และประชาราษฎรทังหลายจึงได้ขุดต่อไปในอีกหลายแห่ง แล้วโดยประยุกต์ทั้ง 5 ด้าน..."
ให้ผู้ชายมาช่วยสร้าง หญิงผู้นั้นที่ผู้หญิงไปแต่งตัวมีชื่อว่า บ้านใหม่สายถั่ว และเมื่อผู้ชายได้เห็นก็พักก่อนจะไปช่วยผู้หญิงที่ประกาศกันก่อนแล้วเป็นพระธาตุชุดชมพู และผู้หญิงจึงเป็นคู่สร้างพระธาตุเชิงชุมก่อน”

(สมจิตร วงษ์ขันติ, 2561 : สัมภาษณ์)

เรื่องเล่าของสมจิตร มีความแตกต่างจากเรื่องเล่าพระธาตุพนมเรื่องอื่น และมีการกล่าวถึงพระธาตุชุดชมพู และพระธาตุพนม ซึ่งโครงเรื่องมีลักษณะคล้ายกับเรื่องเล่าพระธาตุบุษเบกษา ที่มีการแข่งขันสร้างพระธาตุระหว่างชายหญิง และยังมีลักษณะเป็นเรื่องเล่าภูมินามของสถานที่ เช่นเดียวกับเรื่องเล่าของ มณฑิตา สุตัญสิริ (2561 : สัมภาษณ์) เล่าว่า

“การสร้างพระธาตุพนมเป็นการสร้างแข่งกันระหว่างคนไทยกับคนลาว สร้างพระธาตุน้อย ใครชนะได้พระธาตุของพระพุทธเจ้าไปบรรจุ ซึ่งผลปรากฏว่าฝ่ายไทยชนะ เพราะฝ่ายไทยมีผู้หญิงสวย ๆ เยอะ ตอนสร้างพระธาตุมีคู่รักสร้าง ผู้ชายฝ่ายลาวเข้าเกินมา และมาช่วยกันพระธาตุเสร็จก็ได้เป็นพระธาตุพนมของคนไทย และเรียกว่า ธาตุปะนม”

(มณฑิตา สุตัญสิริ, 2561 : สัมภาษณ์)

เห็นได้ว่าทั้งสองเรื่องมีความต่างจากเรื่องเล่าพระธาตุพนมอื่น ๆ แต่มีลักษณะร่วมกันคือการแข่งขันสร้างพระธาตุ และมีผู้หญิงเป็นคู่รักที่ช่วยทำให้ชนะการแข่งขัน ซึ่งแสดงให้เห็นถึงการต้องการชิงอำนาจของผู้หญิงในการอุปถัมภ์ศาสนา ในขณะที่เรื่องเล่าของมณฑิตา มีการกล่าวถึงการแข่งขันของคนไทยกับคนลาว แสดงให้เห็นถึงการชิงชนะที่เป็นการแสดงความเป็นเจ้าของที่มีคิดพระธาตุ และเป็นการชิงชิงความหมายในสมัยหลังเมื่อมีการแบ่งแยกพระוצר ประเทศไทยเป็นสองชั้น ซึ่งเห็นได้ว่าแสดงให้เห็นถึงวัฒนธรรมของเรื่องเล่าที่มีความหลากหลาย เดียวกันกับที่มาเรื่องเล่าที่มีในก้าวหน้าของผู้คนที่มีความหลากหลาย เดียวกันกับที่มาเรื่องเล่าที่มีความหลากหลาย เดียวกันกับที่มาเรื่องเล่าที่มีความหลากหลาย
การสร้างสรรค์เรื่องเล่าเกี่ยวกับพระธาตุพนมในบริบทลักษณะร่วมสมัย

เรื่องเล่าเกี่ยวกับพระธาตุพนมมีส่วนสำคัญในการนำเสนอและตอกย้ำความสำคัญของพื้นที่พระธาตุพนมเป็นที่พักที่กล่าวถึงซึ่งในพื้นที่มีความสำคัญในชีวิตประจำวัน ผู้ศึกษาพบว่ามีการนำเสนอเรื่องเล่าเกี่ยวกับพระธาตุพนมมีการเปลี่ยนแปลงและนำเสนอในรูปแบบต่าง ๆ ที่หลากหลาย ได้แก่ ผ่านบทเพลง ผ่านสื่อสัญลักษณ์ และผ่านสัญลักษณ์

1.3.1 การนำเสนอเรื่องเล่าผ่านบทเพลง

สำหรับเรื่องเล่าการบูชาพระธาตุพนม พบการนำเรื่องเล่ามาดัดแปลงเป็นบทสรรพสิทธิ์ประกอบพิธีกรรม คือ บทสวดคุ้มพระธาตุพนม เป็นเพลงถูกทุ่งเข้า เพลงยิ้มแย้มพระธาตุพนม เสมกทรรศน์เมืองงาม และเป็นกอล์ฟ ที่มีชีวิตชาวพระธาตุพนมมีการนำเรื่องราวในด้านอุรุวัฒน์ภายในที่มีการสร้างและสังเคราะห์เป็นบทผ่านบทเพลงที่คิดขึ้น ได้แก่ บทเพลงนครพนมเมืองงาม และบทเพลงพระธาตุพนม ซึ่งเป็นบทที่มีการนำทำนองตามรูปแบบอย่างต่าง ๆ เช่น บทเพลงสวดคุ้มพระธาตุพนม ประกอบด้วยบรรเลงผู้ที่นำรายละเอียดในบทเรื่องของเรื่องราวในด้านอุรุวัฒน์มาสร้างสรรค์เป็นบทเพลงที่มีการเปลี่ยนแปลงและนำเสนอในรูปแบบต่าง ๆ เช่น เรื่องราวของชีวิตผู้ที่มีสัญลักษณ์ในบทเพลงนครพนมเมืองงาม

ปัจจุบันเป็นโอกาสในการให้พระธาตุภูมิเป็นพระธาตุประจำวันเกิดตามนโยบายทางการท่องเที่ยว มีการนำเสนอเรื่องเล่าเกี่ยวกับพระธาตุในนางวิศิษฏ์มีการสร้างและคัดแปลงในรูปแบบต่าง ๆ คล่องแคล่ว และที่โดดเด่นที่สุดคือการนำเรื่องของเรื่องราวผ่านบทเพลงที่มีการประพันธ์เป็นบทเพลงพระธาตุพรมบังคับด้วยสัญลักษณ์ที่มีการประพันธ์เป็นบทเพลงพระธาตุพรมบังคับด้วยสัญลักษณ์ที่มีการประพันธ์เป็นบทเพลงพระธาตุพรมบังคับด้วยสัญลักษณ์ที่มีการประพันธ์เป็นบทเพลงพระธาตุพรมบังคับด้วยสัญลักษณ์ที่มีการประพันธ์เป็นบทเพลงพระธาตุพรมบังคับด้วยสัญลักษณ์ที่มีการประพันธ์เป็นบทเพลงพระธาตุพรมบังคับด้วยสัญลักษณ์ที่มีการประพันธ์เป็นบทเพลงพระธาตุพรมบังคับด้วยสัญลักษณ์ที่มีการประพันธ์เป็นบทเพลงพระธาตุพรมบังคับด้วยสัญลักษณ์ที่มีการประพันธ์เป็นบทเพลงพระธาตุพรมบังคับด้วยสัญลักษณ์ที่มีการประพันธ์เป็นบทเพลงพระธาตุพรมบังคับด้วยสัญลักษณ์ที่มีการประพันธ์เป็นบทเพลงพระธาตุพรมบังคับด้วยสัญลักษณ์ที่มีการประพันธ์เป็นบทเพลงพระธาตุพรมบังคับด้วยสัญลักษณ์ที่มีการประพันธ์เป็นบทเพลงพระธาตุพรมบังคับด้วยสัญลักษณ์ที่มีการประพันธ์เป็นบทเพลงพระธาตุพรมบังค์ติดตามนโยบายทางการท่องเที่ยวและมีการประพันธ์เป็นบทเพลงพระธาตุพรมบังค์ติดตามนโยบายทางการท่องเที่ยว

1.3.2 การนำเสนอเรื่องเล่าผ่านสัญลักษณ์

การนำเสนอเรื่องเล่าการบูชาพระธาตุผ่านสัญลักษณ์เป็นการนำเสนอสัญลักษณ์ที่เชื่อมโยงความเป็นท้องถิ่น และการประยุกต์ในบริบททางพื้นที่ การนำเสนอสัญลักษณ์ที่
เชื่อมโยงกับความเป็นท้องถิ่นนั้นพบว่า ปัจจุบันมีการใช้ประวัติศาสตร์และเรื่องเล่าจำนวนมากที่ใช้ในการนำเสนอสัญลักษณ์ของความเป็นท้องถิ่นอีก ทั้งในระดับจังหวัด อำเภอ หรือแม้กระทั่งองค์กร หรือใช้สถานที่สำคัญประกอบกับเรื่องเล่าในอดีตเพื่อถูกเรียงรูปการเชื่อมโยงความสัมพันธ์ มานำเสนอเป็นสัญลักษณ์ให้เกิดความโดดเด่น ให้ความหมายเพื่อสร้างความนำเสนอให้สื่อสังคม สำคัญหรือเป็นสัญลักษณ์ความคัดบางองค์การและตอบสนองวิวัฒนาทางสังคมในปัจจุบัน เช่นเดียวกับการนำเสนอสิ่งที่เกี่ยวกับพระธาตุในจังหวัดนครพนมเป็นจุดนำเสนออดีตและของชุมชน ท้องถิ่น และจังหวัดนครพนม ตลอดจนสร้างคุณค่าและให้ความหมายใหม่ เช่น การใช้ภาพพระธาตุเป็นตราสัญลักษณ์ของหน่วยงาน องค์กร และสถาบันการศึกษา

1.3.3 การนำเสนอเรื่องเล่าผ่านสื่อสมัยใหม่

ด้านการสร้างพระธาตุพนมถูกนำเสนอผ่านและตัดแปลงในรูปแบบต่าง ๆ ในสื่อสมัยใหม่อย่างหลากหลาย และเมื่อมีการกำหนดนโยบายการท่องเที่ยวประชุปารจันต์วัฒนธรรมของจังหวัดนครพนมและการท่องเที่ยวแห่งประเทศไทยในปัจจุบันทำให้พระธาตุเกิดความสนใจมากขึ้น ได้รับความสนใจของผู้ที่ชื่นชอบและมีการนำเสนอผ่านด้านงาน และความสำคัญของพระธาตุ ประจันต์วัฒน์และวัฒนธรรมของพระธาตุพนมผ่านสื่อโทรทัศน์ เรื่องราวทางสังคมไทย โทรทัศน์สีกองทัพบก ช่อง 7 ออกอากาศเมื่อวันที่ 5 กรกฎาคม พ.ศ. 2554 และรายการค้นหาข้อมูลไทย แลนด์ องค์การกระจายข่าว ได้ขยายผลผ่านสื่อผ่านช่องทางโทรทัศน์ ทางช่อง GMM 25 ออกอากาศเมื่อวันที่ 27-28 มกราคม พ.ศ. 2557 เป็นการแสดงความเข้าใจในเชิงเศรษฐกิจสร้างสรรค์ โดยใช้ทุนทางวัฒนธรรมที่มีมานำเสนอในบริบทสำคัญสมัยใหม่และพบว่าการนำเสนอในสื่อต่าง ๆ มีพัฒนาการสร้างพระธาตุพนมเป็นหลัก เนื่องจากเป็นพระธาตุสำคัญ มีความแลกเปลี่ยนและเป็นที่รับรู้อย่างกว้างขวาง เป็นที่ศรัทธาของคนโดยทั่วไป

กล่าวได้ว่ารูปแบบการนำเสนอเรื่องเล่าในสื่อสมัยใหม่ของเรื่องเล่าภูมิทัศน์ของจังหวัดนครพนม ที่มีความหลากหลายและตัดแปลงในรูปแบบต่าง ๆ ในสื่อสมัยใหม่นั้นทำให้เห็นการสร้างสรรค์เรื่องเล่าผ่านหลากหลาย สัญลักษณ์ และสื่อในสมัยปัจจุบัน เป็นการเผยแพร่เรื่องเล่าให้คนรู้อยากได้รับรู้ รวมไปถึงการส่งต่อความเชื่อที่สร้างสรรค์ความสำคัญของพระธาตุท้องถิ่น ซึ่งเป็นผลมาจากวิวัฒนาการทางสังคมที่เปลี่ยนไป สื่อ และเทคโนโลยีมีบทบาทสูงมากขึ้นในสังคม และเป็นการส่งเสริมการท่องเที่ยวและเศรษฐกิจในอีกน้อยหนึ่งด้วย
สรุปและอภิปรายผล

การศึกษาคัดย่อมร่างสรรค์ทำให้เข้าใจการเปลี่ยนแปลงข้อมูลทางคดีชนทั้งเรื่องเล่าและประเพณีอย่างชัดเจนในการเปลี่ยนแปลงของเรื่องเล่าและประเพณีในลักษณะที่เป็นพจนานุกรมและการศึกษาร่างสรรค์ในบริบทสังคมไทยรวมวิสัยต่างๆ เช่นเรื่องเล่าข่าวบูชาพระธาตุพนมที่กล่าวมาข้างต้นที่มีความหลากหลายและการปรับเปลี่ยนเรื่องเล่า อันแสดงให้เห็นความเป็นแหล่งของคำตอบ อันแสดงถึงการเข้าใจบางส่วนในกรณีศึกษาพฤติกรรมของตัวบทที่ทางวัฒนธรรมในงานของ อุมารินทร์ คุลารักษ์ (2544) ที่ได้ศึกษาบทบาทจิตวัญญาและพิธีทางจิตวิญญาณของชาวไทยภาคใต้ การสร้างสรรค์และการสืบทอด พบว่าบทที่จิตวัญญาที่มี 4 ประเภท คือการสืบพระธาตุมีลักษณะฐานว่ามาจากกล่าวนิยมดีกว่าจากนัยปัจจุบัน ตัวบทที่แต่งขึ้นใหม่และตัวบทที่เป็นการอนินิตร มีการสืบฮอดตัวบทที่เป็นแบบจิตวิญญาณโขมือลักษณะมีลักษณะและเป็นเหลว และมีการสร้างสรรค์ตัวบทของหมู่ลักษณะนี้เป็น 6 ประเภท คือ การแต่งตัวบทโดยทำให้เป็นเรื่องของที่จะแสดง การปรับเปลี่ยนแบบตัวบท การแต่งตัวบท การประยุกต์แบบตัวบท การกระทำคุณค่าตัวบท การกล่าวข่าวตัวบทและและการแต่งตัวบทขึ้นใหม่

การเปลี่ยนแปลงของเรื่องเล่าการบูชาพระธาตุมีการเปลี่ยนแปลงอย่างเป็นพลวัต เรื่องเล่าการบูชาพระธาตุแต่เดิมมีการเปลี่ยนแปลงต่างๆที่เป็นต้นที่เป็นเรื่องเล่าเชิงประวัติศาสตร์ อันจะเป็นต้นที่มีการสืบทอดต้นต่อด้วยเรื่องเล่าไม่ได้เลย ส่วนเรื่องเล่าเชิงประวัติศาสตร์เป็นการนำเสนอประวัติที่ไม่ยาวนานมาก ทั้งสองลักษณะไม่ได้แสดงให้เห็นความเป็นมาและความสำคัญของพระธาตุ ขณะเดียวกันเรื่องเล่าแสดงในพัฒนาการสร้างสรรค์ความครั้งที่ได้รับความรวดเร็วและมีการเปลี่ยนแปลงของ

การแสดงให้เห็นว่าเรื่องเล่ามีส่วนอยู่ในความเชื่อในการบูชาพระธาตุ คือว่าพระพุทธศาสนาที่มีความสัมพันธ์ต่อระบบความคิด ความเชื่อของคนไทยและคนแถบลุ่มน้ำโขงเป็นอย่างมาก ทั้งประเพณี วัฒนธรรม คดีและค่านิยมที่เป็นเนื้อหาจากพระพุทธศาสนา เช่นคุณค่ากับขาวอาสน์ที่ยั่งยืนและเชื่อพระธาตุต่อพระพุทธศาสนาอย่างนั้น ขณะเดียวกันเรื่องเล่าเกี่ยวกับการพึ่งถือพระพุทธศาสนาถือเป็นเรื่องเล่าที่มีความสัมพันธ์กับค่านิยม หรือเรื่องเล่าที่มีความสัมพันธ์กับเรื่องเล่าที่มีความสัมพันธ์กับค่านิยมและเรื่องเล่าที่มีการเปลี่ยนแปลงอย่างเป็นพลวัต

เรื่องเล่าการบูชาพระธาตุที่มีมาแต่เดิมให้ความหมายของพระธาตุในแก่ของความคิดคิด เป็นที่การสร้างการของคนในท้องถิ่นเป็นสมบัติของบ้านเมือง เป็นสิ่งที่ต้องรักษาและชุดมันบนกาลสมัยเปลี่ยนไป สังคมและวัฒนธรรมรูปแบบและกลายเป็นภูมิภาคของพระธาตุในตั้งจุดเปลี่ยนแปลงไป เมื่อไม่ว่าในคิดความคิดพระธาตุในฐานะพระธาตุศักดิ์สิทธิ์และที่คิดเห็นว่าจิตวิญญาณนั้นเรื่องของอยู่แต่รูปแบบในการนำเสนอพระธาตุที่ดังไปจากเดิม ซึ่งมีทั้งรูปแบบ สิ่งของสมัย และสิ่งลักษณะ
อย่างไรก็ตามเรื่องเล่าไม่ว่าจะเป็นรูปแบบใดล้วงทำหน้าที่เรียบและเด่นอยู่ที่ความศักดิ์สิทธิ์ ดังที่ศิรปราณ ณ ถลาง (2558 : 224) ได้กล่าวไว้ว่าเรื่องเล่าในฐานะทุนทางวัฒนธรรมถูกนำมาใช้ในบริบททางสังคมอยู่ในหลายวงการ ทั้งสังคมศาสตร์ท้องถิ่น พุทธพนิชย์ ต้องมีความ ตลอดจนความท้องถิ่นในจังหวัดนครพนม

รูปแบบการนำเสนอเรื่องเล่าในสื่อมวลชนของเรื่องเล่าการบูชาพระธาตุในจังหวัดนครพนมนั้นทำให้เกิดการสร้างสรรค์เรื่องเล่าที่มาถูกถูกเสนอในสมัยปัจจุบัน เป็นการเผยแพร่เรื่องเล่าให้คนภายนอกได้รับรู้ ปรากฏไปเป็นการส่งต่อความเชื่อที่เสริมสร้างความศักดิ์สิทธิ์แก่พระธาตุอีกทางหนึ่งซึ่งเป็นผลมาจากบริบททางสังคมที่เปลี่ยนไป สื่อและเทคโนโลยีมีบทบาทอย่างมากขึ้นในสังคม และเป็นการส่งเสริมการท่องเที่ยวและเสริมสร้างความศักดิ์สิทธิ์อีกหนึ่ง

นโยบายการท่องเที่ยวทางคู่ทางการท่องเที่ยวทำให้ความหมายของพระธาตุเปลี่ยนไป คือแต่เดิมพระธาตุเป็นที่พึ่งและศูนย์รวมจิตใจของคนในชุมชนมีประเพณีการบูชาในรูปแบบของเหล่าภูมิคนในชุมชน แต่ในชุมชนให้ความหมายพระธาตุอยู่ในบริบททางวัฒนธรรมเป็นสิ่งที่ศักดิ์สิทธิ์ ดังที่郦การและอันทรงอ้างสูงสุด มีความเชื่อตามตำนานและเรื่องเล่าที่ต่ออดอัคความศักดิ์สิทธิ์ต่อมา เมื่อกวารธารชามีบทบาทจัดการและนำเสนอให้พระธาตุเป็นที่ท่องเที่ยวที่จะทำให้พระธาตุมีความหมายในฐานะสถานที่ท่องเที่ยวของคนภายนอก ซึ่งเป็นการให้ความหมายใหม่แก่คนในชุมชน

ดังนั้นความหมายของคนในชุมชนจึงเปลี่ยนแปลงไปตามบริบทสังคมสัญญาณใหม่ คนในพื้นที่และนักท่องเที่ยวรวบรวมน่างทำการรู้และอภิปรายที่มีความจำเป็นท่องเที่ยว หลายอยู่มิใช่ไม่ได้เพราะพื้นที่ของพระธาตุจะเป็นที่ทั้งการบูชาพิโรธดำเนินการไปกว่าพื้นที่เป็นที่ท่องเที่ยวทำให้มีการไหลลื่นการท่องเที่ยวครั้งใหญ่และมีความหมายอย่างสูงสุดต่อมา ทัวร์รักษาความศักดิ์สิทธิ์ที่เสริมสร้างหรือเกี่ยวกับพระธาตุต่างๆ อันเป็นพื้นที่ที่มีศักดิ์สิทธิ์ในการสร้างสรรค์เพื่อเรื่องจริง เห็นได้จากการพัฒนาการขึ้นของความศักดิ์สิทธิ์งานกับนโยบายการท่องเที่ยวที่ทำให้ความหมายธุรกิจหลักสูตรการท่องเที่ยวของที่พื้นที่ของพระธาตุต่างๆ อันเป็นความศักดิ์สิทธิ์ที่ส่งเสริมเศรษฐกิจสร้างสรรค์ทางการท่องเที่ยวของพื้นที่ของพระธาตุต่างๆ ที่สามารถทำให้เกิดผลการท่องเที่ยวที่มีความหมายใหม่กับความศักดิ์สิทธิ์ที่ส่งเสริมการท่องเที่ยวของพื้นที่ของพระธาตุต่างๆ อันเป็นการกระตุ้นความสำคัญของพื้นที่ใหม่ ได้อย่างที่พึ่ง

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“บังบด”¹: ชาติพันธุ์วรรณนา ความรู้และความยุติธรรมชิ่งนิเวศในดินแดนคุณธรรม

“Bung Bod” : Ethnography Knowledge, Justice and Ecological in Moral Land

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บทคัดย่อ

บทความนี้มีจุดมุ่งหมายเพื่อนำเสนอเรื่องเล่าท้องถิ่นอีสานเกี่ยวกับเมืองบังบัดและเมืองบาดาล ในเชิงชาติพันธุ์วรรณนา (ethnography) ทั้งนี้เรื่องเล่าดังกล่าวได้กระจายอยู่ทั่วไปในพื้นที่ป่าต้นน้ำจากพื้นที่ปลายสุดและลําบากจากป่าต้นน้ำอื่นๆ ที่ไหลไปบรรจบกัน ณ พื้นที่ชุมนุมที่มีความสำคัญระดับท้องถิ่นและระดับโลกในภูมิภาคตอนล่าง ได้แก่ พื้นที่ชุมนุมภูเขาสลับ และพื้นที่ชุมนุมแม่น้ำโขง จ.บึงกาฬ ก่อนไหลลงสู่แม่น้ำโขง ด้วยวิธีวิจัยเชิงคุณภาพร่วมกับแนวคิดพื้นที่พิเศษ Heterotopia และ Zomia เพื่อเป็นกรอบในการวิเคราะห์ความรู้ของเรื่องเล่า (textual analysis) ผลการศึกษาพบว่า เรื่องเล่าประเภทนี้ถูกเข้าใจโดยภูมิคนในกลุ่มนิทานและต้นงานว่าด้วยหุบเขาและพื้นที่อินดีล้อมอยู่ สามารถพิสูจน์ได้ด้วยระบบความรู้วิทยาศาสตร์ แต่ก็ต้องคำนึงถึงเรื่องเล่าที่ชัดเจน ว่ามีบทบาทสำคัญ โดยมีการเก็บข้อมูลในพื้นที่สันทรายและกิจกรรมเฉพาะที่ช่วยในการเข้าถึงพื้นที่ร่วมกับการค้นพบที่มีความภูมิวิทยาศาสตร์ ไม่ว่าจะเป็นข้อมูลเกี่ยวกับการจัดงานพื้นที่ และสรรพสิ่งที่เกี่ยวข้องที่ชีวิตประชีวิตในบริบทชน ผู้ที่จะเข้าถึงพื้นที่ดังกล่าวได้ต้องผ่านการทดสอบระดับคุณธรรมจริยธรรม

คำสำคัญ: บังบัด ชาติพันธุ์วรรณนา ความรู้ ความยุติธรรม พื้นที่ชุมนุม

¹เรื่องเล่าเกี่ยวกับคนและดินที่สับ มีผู้ชีวิตเงียบในป่าหรือภูเขา เรียก บังบัด (people that can become invisible who live in the mountains and forests)
Abstract

This article aims to present a story about the city of Bangalore East, local treatment and underground cities. In ethnography, the story has been widely distributed in the area upstream from the Phu Phan mountain range and watershed upstream from the other. Flowing to the confluence of wetlands that are important locally and globally in the Lower Mekong Basin, including wetland Kut Ting. Wetlands and Bung Khong district. Alor before flowing into the Mekong River. With qualitative research with the concept of Heterotopia and Zomia a framework for textual analysis. The study finds. This story was supplied by the tales and legends that mystical space and can not be proven by scientific knowledge. But the other side of the story about the relationship with the city covering the ground rules of access to forest resources. The story about the underworld, he is associated with the doctrine of the serpent and the rules of access to water. Both areas have rules to reach common area is adhering to truth. Altruism Not greedy Respect for the spiritual birth. And all complementary virtual life creatures ancestors. So who would have access to such areas must pass the test of morality.

บทนํา

ในระหว่างการทบทวนเอกสารและงานวิจัยที่เกี่ยวข้องกับยุทธศาสตร์การพัฒนาพื้นที่ชุมนําที่มีความสำคัญในระดับด้านของการมีนาการพื้นที่ชุมนําที่มีความสำคัญระหว่างประเทศบริเวณกลุ่มนําโขงตอนล่างและประวัติศาสตร์ภูมิปัญญาท้องถิ่นเพื่อมีการมีน้าที่มีกฎหมายในการจัดการความหมายของพื้นที่ต่างๆที่มีลักษณะทางวัฒนธรรมการประทับบุรุษ ด้านนันทนาการ และด้านนันทนาการบุคคล โดยเฉพาะอย่างยิ่งในอุทยานบริเวณพื้นที่ชุมนําที่มีน้าที่มีความสำคัญระดับนานาชาติ (Ramsar) ในเขตสุบาน์บึงกุมอัมล ทั้งพื้นที่ชุมนําภูฎสนีและบึงโขง แฉซองบึงปินกา พบการนําใช้เรื่องเล่าอย่างเข้มข้นและสถานการณ์ของเรื่องเล่าต่างล่าวนี้ได้ดำเนินไปพร้อมกับพันธกิจของWWF. แฉซองประเทศไทย ครอบคลุมสถานการณ์การจัดการความรู้ว่าด้วยความหลากหลายทางชีวภาพของพื้นที่ชุมนํารหัส(Number) ในประเด็น ความหมาย ความสำคัญ คุณค่า สถานการณ์ และภัยคุกคามพื้นที่ชุมนํา ตลอดจนสถานการณ์การพัฒนาของอนุภูมิภาคกลุ่มนําโขง.
บริบทการพัฒนาเศรษฐกิจในอนุภูมิภาคลุ่มน้ำโขง ได้ส่งผลกระทบต่อสุขภาพและความ
บรรจบกับลุ่มน้ำโขงตอนล่างทั้งพืนที่ชุ่มกุดทิงและบึงโขงหลง จังหวัดบึงกาฬ ทั้งนี้ได้เริ่มต้น
สำรวจสั่นทางด้านพยาธิกำลังและความบังคับต่อสังคมกลุ่มที่ใน ร. จังหวัด คือ
จังหวัดfdf กอ ้ อดูธรรม ทองคำ ปิยาภา และภูพรม มีค้นหานิพัฒน์เพื่อกำจัดพยาธิ บริวณ
ภูพรม ภูพรม ภูพรม ในพื้นที่ดับทatif ร. อ่างของตลาด จังหวัดfdf กอ และตัวบล.
ริมทาง อ่างโขงตูรา จังหวัดfdf กอ บริเวณต้นนี้มีสิ่งที่สวยงามต่าง ๆ ที่ไหลลงน้าส่งความรู้ไม่ไป
บรรจบกับแม่น้ำโขงที่บ้านไชยวิรุฬและบ้านดอยก์ปากน้ำ ดับทatif อ่างท่าสุทธิ จังหวัด稹
นครพนม ด้านวิจัยเชิงคุณภาพ โดยการสังเกตและสัมภาษณ์ที่ชุ่มกุดทิงในพื้นที่ชุ่มกุดทิงและบึงโขงหลง เพื่อรวบรวมข้อมูลเรื่องราวในของการนำเสนอพื้นที่ มุมมองความสัมพันธ์ของชีวิตกับป่าไม้ และสิ่งแวดล้อมทางธรรมชาติ (visual representation) ซึ่งพบว่าพื้นที่ดังกล่าวปรากฏเรื่องราวของกู่เล็กน้อยและพยาธิแผลเป็นจำนวนมาก ทั้งนี้มีข้อสังเกตเบื้องต้น
คือ เรื่องราวที่เกิดขึ้นเมื่อน้ำบกคัมภีร์น้ำในบริเวณที่เป็นพื้นที่ป่าหรือเกิดเป็นพื้นที่แน่นที่ลง
อยู่ส่วนในที่ชุ่มกุดทิงมักจะขัดแย้งกันในพื้นที่เสียกับน้าสันที่ชุ่มกุดทิงของชุมชนต่าง ๆ นอกจากนี้ยังพบอีกเรื่องที่เกิดกับ “กูเล็ก” ที่ชุ่มป่าบรรจบกับพื้นที่อุทยานฯ ป่าสันที่ชุ่มกุดทิงในพื้นที่แหล่งต้นน้ำในพื้นที่ไม่เกี่ยวข้องกับชุมชน จึงต้องเริ่มต้นสังเกตถึงถึงวิกฤติและความทรหดในพื้นที่ชุ่มกุดทิงเพื่อให้เห็นว่ามีการนำเสนอเรื่องราวและสิ่งแวดล้อมทางธรรมชาติ ทั้งนี้มีข้อสังเกตเรื่องที่เกิดขึ้นในพื้นที่ชุ่มกุดทิงและสิ่งแวดล้อมทางธรรมชาติ (visual representation) ซึ่งพบว่าพื้นที่ดังกล่าว
ปรากฏเรื่องราวของกู่เล็กน้อยและพยาธิแผลเป็นจำนวนมาก ทั้งนี้มีข้อสังเกตเบื้องต้น
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เนื่องจากแนวคิดเรื่องพื้นที่ (Space) ที่สูงของ Foucault อยู่ใน Thanya 2013, 171)

กล่าวถึงพื้นที่ 3 แบบ ได้แก่ พื้นที่จริง (Real Space) พื้นที่ในอุดมคติ (Utopia) และพื้นที่พิเศษ (Heterotopia)
พื้นที่จริงเป็นพื้นที่ที่มุมมองอยู่คอกลับในชีวิตประจำวัน พื้นที่อุดมคติเป็นพื้นที่
ที่ไม่มีจริง แต่มีความสัมพันธ์กับพื้นที่จริงในสมอง ได้รับการนำเสนอในรูปแบบของสังคมที่
สมบูรณ์แบบ โดยด้วยการเพิ่มพื้นฐานของพื้นที่ไม่เป็นจริง พื้นที่พิเศษมีความต่างไปคือ เป็นพื้นที่
ที่อยู่ระหว่างพื้นที่อุดมคติและพื้นที่จริง มีความลักษณะระหว่างสองพื้นที่ดังกล่าว คือคือที่ส่วนของ
พื้นที่จริงและพื้นที่คนสร้างขึ้นมา เราจะมองว่าพื้นที่พิเศษคือพื้นที่พิเศษเป็นพื้นที่จริงทาง
อุดมคติและพื้นที่ที่ขึ้นจากประสบการณ์ส่วนต่าง ๆ บทบาทของพื้นที่พิเศษคือการสร้างภาพลวงตาให้
เห็นว่าเป็นพื้นที่ “เป็นอีก” แต่การสร้างพื้นที่มักจะทำได้โดยให้เห็นที่จริงว่าพื้นที่หลงลอก ไป
จะชะลออยู่ในสถานที่พิเศษให้เป็นรูปแบบต่าง ๆ ที่เด่นชัดเป็นอย่างมากว่าใด้เล็ก เมนิกเกิดการถูก
การzb หรือถูกปล่อยของช่่นหรือเป็นทางเลือกของพื้นที่พิเศษ ที่พิเศษแปลงเป็นพื้นที่ 2 รูปแบบ
คือ พื้นที่ของผู้ที่เกี่ยวกับอ่างในการวิวัฒนาการช้องช่วงของชูก่ำและพื้นที่พิเศษสำหรับผู้ที่เบื่อ
ลงของพื้นที่เป็นพื้นที่ของพื้นที่ยุ่งยาก ,—
โดดเดี่ยว มีความลีลับ (อ้างใน ควรรรรม ฤทธิศรี ปฐม ทรงสุวรรณ และธัญญา สังขพันธา สังฆพานิช 2562, 137)

คำนำบัญชา เรื่องล่าลี้ภัยหลบภัยกัน

คำนวณ “เมืองบังบด” คือ เรื่องเล่าที่กล่าวกันเมืองที่เชื่อว่าเป็นแผนที่พิภพ ไม่ใช่คือเป็นมนุษย์ย์ หรือเป็นที่ที่พวกตัวได้กำลังพื้นที่ชื่อมนุษย์ธรรมดาๆ ไม่สามารถมองเห็น ถ้าตกลงถอยหลังของหลวงปู่พัฒน์ โพสปัญญ์ ซึ่งถูกกันถูกเป็นหลักฐานเอาไว้ในหนังสือประวัติของทางปู่ กล่าวว่า ว่า “ดินแดนลับแล” เป็นพื้นที่ของคนบังบดที่มีวิบากกรรมที่คล้ายกันจึงมีการกล่าวถึงกันเพียงน้อยนัก เพื่อปฏิบัติธรรมและสร้างคืออย่างเคร่งครัด ความเป็นอยู่ดังกล่ากับมนุษย์ แต่สภาพเป็นทิพยว์ หรือกับมนุษย์ที่เชื่อว่าเป็นแห่งชชชั้นที่เกินกว่ามนุษย์ โดยสิ่งของต่างๆ ที่ใช้บริโภคกินมาจากมนุษย์ เกินที่จะหาซื้อได้ แต่เมืองบังบดจะไม่สามารถที่พันกับมนุษย์ เพราะมนุษย์ส่วนใหญ่ไม่ต้องบริสุทธิ์ เพราะต้องอยู่ที่เมืองบังบดส่วนจะใช้ธรรมหนวดแต่จะสามารถรับประทานที่มีมนุษย์ได้ถูกที่ส่วนภูมิศาสตร์ที่มีการทำได้ ที่บ้านที่ที่ต้องการหาทานในป่าป้อง บรรณาธิการเจ้าป่าเจ้าเขา การทำพิธีเปิดบ้าน คำความพร้อมที่ที่สุทธิทาง เพื่อให้ได้รับสัตว์ช่วยขยับความหายอันเกิน

บ้างก็ว่า “พวกบังบด หรือบางที่เรียกว่าพวกบังบดนั้น ตามข้อเป็นไปไม่ได้ไม่ไกลจากเมืองมนุษย์ราวที่เกิดแต่ที่ข้ามจะพบเห็นได้ง่ายๆ ป่าบนผืนของกลางดงสม สะอาดสะอาดทุกของมนุษย์ไม่มีหยากไย่กุมฝอยกองสุม ชาวบังบดทุกคนหน้าตาสะสวย คงจะไม่ขีริวขีเหร่ ทุกคนมีจิตใจบริสุทธิ์บริบูรณ์ด้วยศีลธรรมเป็นชุดที่ที่สูง ชาวบังบดพื้นที่มีเสียงเสียง เด็กข้ามบ้านไม่ต้องกินอาหารตามมื้อที่มีอย่างมา เพราะเด็กที่มีเด็กอยู่ไม่ต้องไปไหน เพราะอาหารและอากาศของเจ้าป่าเป็นที่พิษภัย” ความสัมพันธ์นั้นตัดความของเมืองบังบดได้ดูแล่งดูกลับและภูมิคคลเต็มที่ในรูปแบบของขี้โมะโมะ เช่น กระทั่ง หรือกรณีแนวทางแดนเชิงบ้าง เช่น ภาษาบ้านเกิดความสัมพันธ์ ที่ดีอีกนักบ้างว่า “...กลับไม่ได้อย่างที่กล่าวถึงพับกว่าเป็นมนุษย์ที่ซื่อซั้งพับบัญชีเป็นมิตรเด็กกัน...มิตรที่ดีอยู่บ่อยจะเป็นเมืองบังบด คำนำบ้านบานของเนื้อที่ถวายบันทึกของหนึ่งของประเทศไทย” ซึ่งเรื่องเล่าเมืองบังบดมีลักษณะหลายอย่างที่อาจกล่าวได้ว่า เป็นการเป็นเมืองนี้ในอุดมคติ หรือ ยูโทเปีย (Utopia) สมบัติ จันทวงศ์ (More 1983, 1-23) ได้พิจารณาถึงสภาพความเป็นอยู่ของชาวบังบดว่า ชาวบังบดเป็นไปได้รับผลประโยชน์ทุกอย่างที่เหมือนกัน ไม่มีการแบ่งชั้นบรรณาธิการเป็นสิ่งที่ตอบสนองความต้องการขี้โมะโมะเท่านั้น วัตถุประสงค์ในการทำงานของ

2 ข่าวดังขึ้นมาแล้ว: ปริศนาป่าบังบด ใน https://tna.mcot.net/view/xe2c3q7y เข้าถึงข้อมูลเมื่อวันที่ 23 มิถุนายน 2562
3 ข่าวดังขึ้นมาแล้ว: ปริศนาป่าบังบด ใน https://medium.com/@AnanOnuraues/ เข้าถึงข้อมูลเมื่อวันที่ 23 มิถุนายน 2562
4 ข่าวดังขุ้นมาแล้ว: มหานครแห่งความลับ ใน https://www.readawrite.com/c/เข้าถึงข้อมูลเมื่อวันที่ 23 มิถุนายน 2562
ชาวบ้านโพธิ์ที่ให้มีระดับศิลปินญี่ปุ่นและจิตใจดีขึ้น ซึ่งมีก้าวหน้าในประ定向เรื่องสิ่งแวดล้อมไป พร้อมกัน โดยมุ่งแสดงให้เห็นความสัมพันธ์อันแนบแน่นระหว่างมนุษย์กับธรรมชาติ เรื่องราวราวชีวิตของชายผู้เลือกลองหล่อขึ้นจากเมืองบ้าน ณ อุทัยธานี

แต่ละบุคคล อันบ่งบอกถึงนิสัยใจคอ และสถานะของภูมิจิต เป็นต้น แม้เมืองสกลนครของเราจะเป็นศูนย์กลางของศิลปะที่มีการย้อมสีที่สุดแล้ว แต่ความที่ไม่มีมุมสมบัติพิเศษใดค่อนกว่าที่นั่นมักกัน ความดั่นดินเป็นเทพศิลป์ที่สุดในไทย เจ้าเจริญ มีความวรรณการในด้าน ช็อกดุ ความสามารถมีหลายด้าน ด้านความดั่นดินไม่ได้มีเพียงดีเดียว หม่ำจะไปบอก.

ไม่เพียงแต่เรื่องสีส้ม แต่อย่างยิ่งยวดเรื่องราวเกี่ยวกับความรู้และวิทยาการ ได้มาทางด้านโอ ศึกษา ไปยังมหกรรมการย้อมสีที่ได้รับการยกย่องว่าดีที่สุดแล้ว เมืองสกลนครนี้ เป็นศูนย์กลางของผ้าย้อมครามที่ได้รับการยกย่องว่าดีที่สุดแล้ว ครามที่นี่มีคุณสมบัติพิเศษที่เด่นชัดกว่าที่นั่นมากนัก เนื่องจากมีการย้อมสีที่ดีที่สุดแล้ว ช็อกดุสภาพของผ้า นั้นเป็นสิ่งที่ได้มาจากที่นี่.

เมืองบังบดเป็นภาษาอีสาน หรือภาษาลาว มีความหมายเหมือนกัน หรือคล้ายกันกับคำว่า เมืองลับแล “บัง” แปลว่า ซ่อน ปิดบัง “บด” แปลว่า ร่ม (ร่ม คือ มีเมฆมาบัง จะเรียกว่า บดแดด หรือ บด จำกแดด) ความหมายของเมืองบังบด คือ เมืองที่ซ่อนเร้น เมืองที่แอบอยู่ หรือถ้าจะพูดให้เป็นแบบภาษาอังกฤษ (the Twilight Zone) คือ คืนเดียว เต็มที่ห้องชั้นใน จะให้คนนอกเห็นหรือไม่ได้ แต่คนข้างในก็จะเห็นได้ เมืองบังบดไม่ได้ใช้ความรู้ที่ซับซ้อน ไม่ใช่เรื่องลึกลับหรือปาฏิหารย์แต่คือ ความเข้าใจต่ออักษรพื้นฐาน เมืองบังบดที่นี่มีความรู้ที่แฝงอยู่ในผ้าสีที่เด่นชัดกว่าที่นี่.

นอกจากความลึกลับของเมืองบังบดคือ ความรู้และวิทยาการของชาวบังบดที่สามารถผลิตเครื่องอุปโภคบริโภคต่างๆได้โดยมีความรู้ที่เป็นสิ่งที่มาจากธรรมชาติ พร้อมด้วยการคิดค้นจากพื้นฐานของระบบการเข้าร่วมทุกๆสิ่งที่ถูกสร้างขึ้นมาเป็นอย่างมีความรู้ที่เป็นอินทรีย์สิ่งสัมพันธ์ พร้อมกับการสร้างสรรค์ที่เป็นอินทรีย์สิ่งสัมพันธ์ พร้อมกับการสร้างสรรค์ที่เป็นอินทรีย์สิ่งสัมพันธ์.

สิ่งที่เป็นข้อแตกต่างจากเรื่องลึกลับของเมืองบังบดคือ ความรู้และวิทยาการของชาวบังบดที่สามารถผลิตเครื่องอุปโภคบริโภคต่างๆได้โดยมีความรู้ที่เป็นสิ่งที่มาจากธรรมชาติ พร้อมด้วยการคิดค้นจากพื้นฐานของระบบการเข้าร่วมทุกๆสิ่งที่ถูกสร้างขึ้นมาเป็นอย่างมีความรู้ที่เป็นอินทรีย์สิ่งสัมพันธ์ พร้อมกับการสร้างสรรค์ที่เป็นอินทรีย์สิ่งสัมพันธ์.
พิธีกรรมเท่านานี่ ซึ่งหากเราเอาใจใส่เราจะเห็นถึงธรรมชาติอย่างชัดเจน ถ้าผมเป็นรากหญ้า ผมก็จะเรียนรู้ว่ารากหญ้าจะดูดซับพลังงานจากแผ่นดินอย่างไร ถ้าผมเป็นรากหญ้า ผมก็จะเรียนรู้ว่ารากหญ้าจะดูดซับพลังงานจากแผ่นดินอย่างไร

มีข้อสงสัยว่า “ในเมืองทางไกลซึ่งปฏิบัติอย่างนิ่ม ไม่ข้างเคียงและพื้นที่อยู่ในขาวมืดที่นั้นชื่น

ถ้าผมเป็นรากหญ้า ผมก็จะเรียนรู้ว่ารากหญ้าจะดูดซับพลังงานจากแผ่นดินอย่างไร ถ้าผมเป็นรากหญ้า ผมก็จะเรียนรู้ว่ารากหญ้าจะดูดซับพลังงานจากแผ่นดินอย่างไร

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หากนำแนวคิดเรื่อง Zomia มาพิจารณาเรื่องเล่าเมืองของชาวบังบดที่อยู่เหนือขอบเขตอิทธิพลของรัฐสมัยใหม่ ชนกลุ่มนี้ยังไม่ถูกกลืนเข้าไปอยู่ใต้การปกครองของรัฐใดๆ โดยสมุทร กล่าวว่า ชาวบังบดที่มีความคลายคลึงกับกันได้รีบทำหน้าแรก (Stateless Peoples) ที่ James C. Scott ศาสตราจารย์และนักมนุษยวิทยาแห่งมหาวิทยาลัยอัมสเตอร์ดัมเคยเสนอไว้ ผู้เขียนในหนังสือเรื่อง ‘The Art of Not Being Governed’ ของ James C. Scott มองว่า รัฐเป็นแนวคิดที่เพิ่งถูกกันเกิดขึ้นในศตวรรษที่ไม่กี่ศตวรรษที่ผ่านมา ในขณะที่ชาวบังบดอยู่ก่อนงานกลายเป็นคำนามที่อยู่ยุคคลิกุลนี้ที่ยังอยู่วัฒนธรรม อนุรักษ์มรดกวัฒนธรรมของพวกเขาในทางหนึ่งที่เกิดขึ้นจากการพยายามแยกตัวจากปกครองของรัฐให้ห่างออกไปจากกันเอง แต่บังบดมิได้เป็นเช่นนั้น Zomia มีกายภาพที่ชัดเจน แต่บังบดมี ‘กายทิพย์’ ของที่อยู่ในทางหนึ่งที่บังบดมิได้หนีการควบคุมปกครองของรัฐสมัยใหม่แต่บังบดรวมกลุ่มสร้างพืนที่ของตนเองเป็นเอกเทศซึ่งคนในบ้านเราอาจเรียกว่า ‘เมืองในอุดมคติ’ เพราะมันไม่มีกฎหมาย

Scott กล่าวว่า ประชากรในโซเมียที่ประกอบด้วยชนเผ่าต่างๆ เช่น ม้ง กะเหรียว คะฉิ่น และอีกมากมายนั้น โดยส่วนใหญ่ ไม่ได้สืบเชื้อสายมาจากกลุ่มชาวนาในพื้นที่ชุ่ม (Lowland Farmers) แต่จากกลุ่มที่อยู่ในพื้นที่ที่สูงขึ้น เช่น ของกลุ่มนี้ไม่ได้ตั้งอยู่ใต้ระบบภาษีของรัฐ ดังงั้นเมื่อไหร่ ที่จะต้องจ่ายภาษีจะต้องทำให้ระบบภาษีมันไม่สามารถดำเนินการอย่างมีประสิทธิภาพ ซึ่งเป็นสาเหตุหนึ่งของอุตราวรรณ

โครงการสำรวจชนเผ่าในโซเมียมีลักษณะของการคัดค้านที่ถูกยึดในตัว เช่น ประชาชนส่วนใหญ่ในพื้นที่ที่ทำการเกษตรในอุดมคติที่เรียกว่า ‘Escape Agriculture’ หรือการเกษตรแบบหมุนเวียน ที่คล้ายกับการปลูกพืชที่ยังคงอยู่ในตัวมากกว่าการปลูกพืชแบบสุทธิ ที่เป็นอุตสาหกรรม

โดยที่กิจกรรมในโซเมียมีลักษณะของการคัดค้านรัฐอยู่ในตัว เช่น ประชาชนส่วนใหญ่ในพื้นที่ที่ทำการเกษตรในอุดมคติที่เรียกว่า ‘Escape Agriculture’ หรือการเกษตรแบบหมุนเวียน ที่คล้ายกับการปลูกพืชที่ยังคงอยู่ในตัวมากกว่าการปลูกพืชแบบสุทธิ ที่เป็นอุตสาหกรรม

โดยที่กิจกรรมในโซเมียมีลักษณะของการคัดค้านรัฐอยู่ในตัว เช่น ประชาชนส่วนใหญ่ในพื้นที่ที่ทำการเกษตรในอุดมคติที่เรียกว่า ‘Escape Agriculture’ หรือการเกษตรแบบหมุนเวียน ที่คล้ายกับการปลูกพืชที่ยังคงอยู่ในตัวมากกว่าการปลูกพืชแบบสุทธิ ที่เป็นอุตสาหกรรม
แตกต่างไปจากชาวเมืองบังบดอย่างสั้นซิ่ง แม้ว่าชาวบังบดจะท่ามกลางธรรมชาติและอ้ายศุขชุมชนเป็นระยะๆ แต่พวกเขายิ่งได้อ่ายไปเพราะอานาจรัฐ พวกเขายิ่งตามวัฏจักรของธรรมชาติที่กล่าวไปแล้วจุดนั้น

นอกจากนี้ ชุมชนในโซเมียยังมีลักษณะที่เรียกว่า โครงสร้างสังคมแบบหลบหนี (Escape Social Structure) ในความหมายคือ ไม่มี 새로ลือหรือระบุใดๆ ที่มีสถานะเหนือกว่าเสมอที่อื่นๆ ยิ่งไปกว่านั้น แนวคิดเรื่องของฐานะคนเรื่องชั้นชั้นเป็นที่กล่าวข้างในพื้นที่ด้วยซึ่งแต่ ข้อสังเกตของ Scott ที่น่าสนใจที่สุดคือ ชาวจนำเจาะกระบวนเผื่องการเขียนที่ขับขี่ชั่วโมง จะมีที่ตั้งสัญลักษณ์ลงไป แต่พวกเรื่องราวทางสอบสาระเหล่านี้ โดยอาจได้เห็นว่า เป็นไปได้ที่เรื่องหนึ่ง ชาวจนำเจาะการเขียนที่ขับขี่ชั่วโมงเดือนกับผู้คุมในที่ลู่ แม้ในที่สุดก็เกิดขึ้นที่จริงกระบวนเผื่องการเขียนไปเพราะเห็นว่า การมีอักษร หรือการจารึกใดๆ นั้นจะเป็นอานาจต่อพวกเขากจากการพทานักเกิดกับพื้นที่

ชาวบังบดไม่ได้มีโครงสร้างสังคมแบบหลบหนี แต่มีความรู้เป็นของตนเองที่เรียกบั้นจากธรรมชาติ ความรู้ของพวกเขามีที่ที่เรียบง่าย และซับซ้อน มีที่ยิ่งใหญ่เพื่อแสดงความทุ่งธรรมชาติที่เกี่ยวกับธรรมชาติและไม่ได้มีจากกระบวนการคิดค้นรูฐธิสัมมติมาย่อมเป็นสอบสาระ ในอีกด้านหนึ่งของจนำเจาะนั้นเรื่องนี้ที่เรื่องความไม่จริงใจและความมหัศจรรย์ชั่วโมงเจาะของการฟันแผนของรัฐฯ แต่เช่นว่า “ความรู้จากฐานความการธรรมชาติจะมีความยุติธรรมเมื่อลึกซึ่งความภูมิปัญญาภูมิธรรมและภูมิปัญญาภูมิธรรมที่แท้จริง สร้างแต่เจาะที่ถูกตราในอุถรีย์ก็ดีอาจจะพวกกลับมีมิตรได้ ดังที่ผมเคยบอกแล้วว่า เพราะจะเห็นคุณภาพของรัฐฯ

Scott กล่าวว่า ความพยายามของรัฐที่จะรวมผู้คนที่อยู่นอกเหนือการปกครองเกิดจากภาวะ แม้ว่าจะแนวคิดเรื่องความรู้ว่ามัน จะมีการเป็นการสังคม, การล้อมรอบความรู้สำหรับการจีน, และการควบคุมการปกครอง ซึ่งในความเป็นจริงคือ รัฐพยายามจะสร้างความนิ่งนอนใจให้กับด้วยว่าติการปกครองธรรมชาติใดๆ ที่เกิดขึ้นในพื้นที่ของตน เหมือนกับในพื้นที่ของศักยภาพเช่นกัน ต่อจากนั้นไป จะถูกนำมา, ประเมินถูกต้อง, ได้มาซึ่งความ แน่นอน และสามารถข้างเคียงและจัดตรัพในการกิจใดๆของประชาชนได้ ในที่นี้เห็นถึง การสืบคนให้รัฐก้าวขวางการปกครองรูฐธิค์ขั้นต่ำ เข้าเรื่องเมื่อผู้มั่นคงของผู้คนที่ให้เห็นว่า รัฐที่ใช้การณ์ไม่สามารถใช้การจัดการของรูฐธิค์ขั้นต่ำ เข้าเรื่องเมื่อผู้มั่นคงของผู้คนที่ให้เห็นว่า รัฐที่ใช้การณ์ไม่สามารถใช้การจัดการของรูฐธิค์ขั้นต่ำ เข้าเรื่องเมื่อผู้มั่นคงของผู้คนที่ให้เห็นว่า รัฐที่ใช้การณ์ไม่สามารถใช้การจัดการของรูฐธิค์ขั้นต่ำ เข้าเรื่องเมื่อผู้มั่นคงของผู้คนที่ให้เห็นว่า รัฐที่ใช้การณ์ไม่สามารถใช้การจัดการของรูฐธิค์ขั้นต่ำ เข้าเรื่องเมื่อผู้มั่นคงของผู้คนที่ให้เห็นว่า
นอกจากคนทั่วไปจะไม่สามารถเห็นกายภาพของชุมชนบังบดแล้ว ผู้เขียนได้ตั้งคำถามต่อเรื่องเวลาของบังบดว่า คุณที่เมืองบังบดมีวิถีในชีวิตของเขาอย่างไร เราจึงเป็นคนนอกจะเข้าไปสู่มิติเวลาของเขาได้ไหมประโยชน์ กล่าวถึงอย่างเป็นธรรมชาติว่า "...จะมีเพียงผู้คนที่ต่างๆ เพื่อรองเวลาประมาณ 4 โมงเย็น แล้วจึงเข้าไปในชุมชนของชาวบังบดโดยตรง และใช้เวลาอันที่นั้นเกือบราว 8-9 ชั่วโมง สำหรับการเดินทาง行程ของพวกเขา ชาวบังบดมีวิถีในเวลาของพวกเขา มันมีนัยยะสำคัญอย่างไร เราจะทำงานทุกข์ช้่วความประทับใจไม่รู้่วงเวลาจะจะสื่อเสรีในการทำงานที่จะทำผ่านการไม่เป็นแผนกช่างเวลามันที่ไม่ต้องการพักผ่อนก่อนการทำการที่จะทำผ่านการไม่เป็นแผนก ไม่ได้เตรียมการเป็นอย่างล่วงหน้า เพื่อให้เรารายการงานเช่นนั้นสามารถร่างกายที่ดีมากไม่ต้องเตรียมการที่จะทำผ่านช่วงتمتعกับกิจวัตรสังคมของศูนย์ในนิวассแบบนั้นจะไม่ได้สนใจอะไรเป็นพิเศษ และไม่ได้เข้าไปเพื่อมหุ่นการสังคมได้

เอกเล่าต่อไปว่าวันในวันจะมีทุ่งทุ่งที่จะดั่งเป็นประโยชน์ต่อกันด้วยความเกี่ยวเนื่อง ความรู้อย่างแรกที่ได้รับจากชาวบังบดคือ งานนี้ ความรู้อย่างที่สองคือ งานกระสังเล็กไม่ได้ความด้วยงานอีกท่า ความรู้ทางงานนี้ ความรู้เรื่องสิ่งต่างๆ ตามลำดับ จุดพิเศษที่สุดความรู้ที่เหล่าเหล้างานนั้นคือ การเรียนรู้องค์ประกอบของฐาน จนถึงการเป็นโครงสร้างภายในของความรู้แล้วนั้น เพื่อมองให้เห็นถึงหลักการ ความสัมพันธ์ ใกล้การของสิ่งต่างๆ อย่างซับซ้อนเป็นเบื้องด้านเดียวเมื่อปฏิบัติ ดังนั้นเมื่อเราทำสิ่งนี้เราเรียนรู้เสรีเป็นชิ้นงานนั้นได้แล้ว ถ้าใช้เรื่องนี้จากสิ่งที่เราจะใช้หลักการเรื่องค่าทั้งหมด หรือแม้แต่การเสรีที่เสรีที่เต็มไปด้วยความรู้ร่วมกันเราอาจจะทำให้เป็นพิเศษ

ความรู้ที่เรียนรู้นี้เป็นคันโยงอันละเอียดและแม่นยำเป็นสำคัญที่สุดของความรู้ทางชีวิตและความสามารถและการทำให้ความรู้ของที่นั้นต่างไปจากบ้านเราไม่ต้องเลือกความตั้งใจให้ความรู้ต่างกันที่มีความโดยตรง ไม่ว่าจะเป็นสีความรู้จากนั้นก็ชัดเจนสิ่งที่เราทราบคุณภาพของ_POLICY...ไม่ว่าจะคงที่นี้จากงานใดๆ ซึ่งเท่ากับความที่เราบ่งบอกให้ความสำคัญอย่างน้อยเกี่ยวกับความรู้ทางชีวิตทางธรรมชาติก็จะมีคุณค่าของความรู้และทฤษฎีปัญญา

เอกเล่าต่อไปว่า "...ในวันของเกิดการมีนั้นไม่ได้กำหนด 2,500 อย่าง งานและสังกัดไม่มีแผนจะได้ 3,388 อย่าง และสิ่งที่ทำได้เป็นความสามารถที่ว่างไปของงานที่นับเป็นเรื่องเข้าใจถึงองค์ประกอบของความรู้ แล้วความรู้พื้นฐานไปจนถึงความรู้ระดับสูงสุดหรือที่กล่าวว่าระดับปริญญา..."
เช่น จุดกำเนิดพื้นฐานของลายไทย คุณรู้หรือไม่ว่ามาจากลายสันในไพรไปบว และลายมือ ส่วนลายไทยที่ไม่เคยมีการรีก资本คันศิลป์อโคคลิค ลายฐานภาค เพราะพญาหมาค่าท่านแกรงชอบจารึกแล้วนี้ไว้ถิ่นที่ยอมรีก资本

เอกขยายความว่า "ทั้งหมดที่ผมกล่าวมาเป็นตัวอย่างนี้ มีจุดประสงค์ของการเรียนรู้ เพื่อให้คุณมีความรู้เพื่อที่จะพึงตั้น ที่จะใช้อุทัยเทวิได้ เมื่อเริ่มต้นต้องมีการจารึก

“คุณเคยได้ยินหรือไม่ว่า ต้นไม้ต้นแรกเกิดขึ้นอย่างไร ผมขอเรียกว่า ต้นตัวหนอน ต้นไม้ต้นแรกเกิดจากพืนดินที่สะสมสารอาหารต่างๆไว้มากมายจนเป็นปัจจัยเหมาะสมเก่าการเกิด และมีเย็นส์ 1
dีที่ก่อเป็นต้นต้นที่สมบูรณ์ ส่วนต้นต้นที่ไม่สมบูรณ์ก็จะตาย ต้นต้นที่มีความถี่มากจึง
ไม่ฟื้นตัวแต่อย่างไรก็ให้ก็เป็นชื้อร้ายและparseFloatของต้นต้นหนอนที่อยู่ล่างเห็นแล้ว หลังจากนั้น 15
t้นหนอนเจ็บด้วยกิจุจุนที่ทำปฏิกิริยาที่เป็นคุณรักที่มีคุณค่า ประชาชนที่รัก

เอกขยายความว่า "สายแร่ทั้งนี้ก็คือ นักษัตริย์ที่นักโหราศาสตร์มักเชื้อมโยงการก่อกำเนิดชีวิต เท่านั้น นักวิทยาศาสตร์ประดิษฐ์คิดวิวัฒนาการไปในทิศทางเดียวกันกับสรรพสัตว์ใน

คุณคงจำได้ว่า ดินคือผู้ให้และผู้รองรับทุกสิ่งเอาไว้ ในทางวิทยาศาสตร์ดินคือแหล่งสะสมพลังงานที่เท้าเราเหยียบลงไประบบที่เรียกได้ว่าต้นต้น เมื่อมีการจัดการใช้พลังงานพันธุ์หมาค่าท่านแกรง

“คุณคงจำได้ว่า ดินที่ถูกผู้คนใช้และผู้ร่วมทุกสิ่งเอาไว้ในทางวิทยาศาสตร์คือแหล่งสะสมพลังงาน ทุกพื้นที่ที่ถูกฐานบีโอไพรการจัดการสร้างพลังงาน เราต้องพิจารณาเชื้อเพลิงที่จะได้รับ

เอกขยายความว่า "สายแร่ทั้งนี้ก็คือ นักษัตริย์ที่นักโหราศาสตร์มักเชื้อมโยงการก่อกำเนิดชีวิต เท่านั้น นักวิทยาศาสตร์ประดิษฐ์คิดวิวัฒนาการไปในทิศทางเดียวกันกับสรรพสัตว์ใน

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ก็เกิดความคิด เกิดไอเดีย เกิดการตั้งคำถามขึ้นวิจัยข้อมูลของการสำรวจข้อมูลความรู้ ยอมที่สุด เสนองการสื่อสารเชิงไอเดีย ด้านนี้ถึงกับต้องการให้ทะลุอยู่ที่ยืดเส้นทางลู่ใหม่เมื่อมุมเดิมไปหมด และไปหาทำ มีการผลิตยุคสัญญาอนุรักษ์แห่งยุคใหม่ที่เหลืออยู่ เลือกมุมมองของนักพิจารณาเพื่อเข้าไปในข้อเท็จจริงสังเกตถูกรายละเอียดที่ในเวลาของขณะนี้ สะดวกถูกเข้าว่า

“ระบบลูกแปลเพลงของสมรภูมิที่สมบูรณ์แบบเป็นลูกมองน้ำลายของความรู้ได้เกิดขึ้นมาตั้งแต่เมื่อเริ่มต้นของการสื่อสาร นั้นเป็นการสร้างข้อมูลในนี้ได้มีการศึกษาถึงปัจจัยที่ส่งออกได้ 006.83 วันที่ 2 ขยาย 009.83 วันที่ 3 ขยาย 007.83 วันที่ ฮยบายของด้านไม่สามารถหายใจในช่วงต้นที่หนึ่งขึ้นมาได้ 006.83 วันที่ 3 ขยาย 007.83 วันที่ แหล่งข้อมูลเกิดขึ้นในส่วนที่เกี่ยวข้องกับการหายใจ ของหนึ่ง แย้มความในทุกๆ สิ่งมีพลังงานของถูก lokal เวลาในธรรมชาติกับเวลาที่มนุษย์เรา
ก้างค้นขั้นแม่นี้ตรงกันศูนย์หัวใจแต่มันก็คือเวลา...

เอกอธิบายความเชื้อซึ่งจริงระบบของจุดก้นเด็กวิเคราะห์กับระบบเวลาว่า “...12 สายแร่ ได้
ดํารงอยู่มาเนินนานหลายศตวรรษ เมื่อรวมกันในครั้งหนึ่งๆ จะสามารถเกิดขึ้นได้ในที่ใดคือ
มนุษย์จับเป็นที่รักษาของธรรมชาติ ศิลป์วิชิตที่แพร่กระจายออกมาจากนาทีเด็กกันออกไปตาม
ปฏิกิริยาของสายแร่ 12 ชายที่เหมือนทางสูงตัวอยู่ น่านที่ได้สุกดีแบบปกติ เพราะที่
ผ่านเกิดพิเศษ  คนเหล่านี้จึงเกิดขึ้นมาด้วยเหตุ 12 ส่วนเกิดกิ่งก้านกระแทกขัดด้วยกัน
-memory คือกิ่งก้านกระแทกที่เกิดขึ้นมาด้วยกัน

ด้วยการคัดเลือกตัวเองและเลือกที่หาย离去ได้มาประกอบกันในธรรมชาติผ่านเด็ก แต่เด็กที่กินที่
มักจะสูญกว่าผ่านธรรมชาติ ด้วยพื้นที่ขยายของความรู้ศิลป์ภูมิลูกสะกดให้เห็นเป็น
อิสระ แต่เอกอธิบายว่า “ความรู้เหล่านี้ตั้งอยู่ในปกติธรรมชาติระหว่างคุณภูมิ ไม่ได้มีอะไร
เป็นเรื่องหนึ่งวิสัยของธรรมชาติ เมื่อแต่การเกิดของพระพุทธเจ้า พระองค์ทรงทรงเหล่านี้เป็นปกติ
ไม่ได้มีอะไรยังไงผู้ทรงพระองค์หนึ่งที่จำกอยู่ภูมิที่เท่ากัน เพื่อให้กระบอกของคุณภูมิ
นั้นจะมีได้คั่นด้วยจุดที่มีการสังเกตุภูมิที่เท่ากัน พระองค์ทรงวิเคราะห์ พระองค์ทรงวิเคราะห์
ในการสังเกตุภูมิของพระพุทธเจ้าและพระองค์จะสามารถสังเกตุภูมิที่เท่ากันได้ในแผนภูมิ
พระองค์ทรงวิเคราะห์ พระองค์ทรงวิเคราะห์ พระองค์ทรงวิเคราะห์
ปั้นด้านหน้า บทที่ชีวิตที่เรียนรู้ได้ไม่ต้องคำถามด้วยกัน

“ปั้นชีวิตของผมจะครุภัคคุณยาย” คือประโยคที่บอกกล่าวอีกแม้อย่าง ฯจากเด็กผู้ชายคนหนึ่งซึ่งไม่มีอะไรเก่งเรื่องใด นอกจากภาษาไทยอย่างไม่มีการพ้นทางที่จะประทับชีวิต แต่แม้ค่อนข้างข้างซึ่ง
ปั้นจะมีทุกอย่าง กว่าแห่งเรียนรู้ ป.6 ที่ดีด้วยเวลาเรียนเกียรติเป็นเพราะมั่นใจไม่ขอถึง โน้ย เสมมจ์ของผมเพราะไม่สามารถจับสิงที่เรียนรู้ในโรงเรียนได้เลย แต่ความรู้ทั้งหมดที่ผมบอกเลย แก่คุณยายจะยกสิ้นได้มากจากปั้นทั้งปันนี้ ไปให้เห็นเรียนรู้จากหลักการความจริง หลักธรรมชาติ
สอนผม เพื่อให้มันสอนคำสอน ผมให้เห็นรู้หลักการพื้นฐานของสรรพชีวิตที่ควรอยู่ส่อง ให้
สมนวิตรเวชกรรม การก่อภักดี การเปลี่ยนของวัฏจักรชีวิตที่เรียนรู้ได้เธอจริงไม่ต้องผ่าน
ตัวอักษร ปั้นสอนให้เราเรียนรู้ที่จะเอาไว้รีบอดได้จากทุกสรรพสิงที่ควรทำทางผ่าน ถ้า
การก่อภักดี ผมจะมีทุกอย่างกว่าผมเรียนจบป. ก็ต้องใช้เวลาเรียนเกือบสองปี เพราะอ่านหนังสือไม่ออก ใน
สมองของผมแทบจะไม่สามารถจับสิงที่เรียนรู้ในโรงเรียนได้เลย และความรู้ทั้งหมดที่ผมบอกเลย แก่
คุณยายจะยกสิ้นได้มากจากปั้นทั้งปันนี้ ไปให้เห็นเรียนรู้จากหลักการความจริง หลักธรรมชาติ
สอนผม เพื่อให้มันสอนคำสอน ผมให้เห็นรู้หลักการพื้นฐานของสรรพชีวิตที่ควรอยู่ส่อง ให้
สมนวิตรเวชกรรม การก่อภักดี การเปลี่ยนของวัฏจักรชีวิตที่เรียนรู้ได้เธอจริงไม่ต้องผ่าน
ตัวอักษร ปั้นสอนให้เราเรียนรู้ที่จะเอาไว้รีบอดได้จากทุกสรรพสิงที่ควรทำทางผ่าน ถ้า
ชั้นนี้ไม่ว่าจะกล่าวถึงสิ่งที่ผมสั่นแผนแล้ว
ปั้นชีวิตของผมและคือสิ่งที่ผมรักและหวงแหนที่สุด แม้แต่อากาศที่หาด้วยปั้นก็ให้อากาศที่ดีที่สุดสู่

เอกกล่าวต่อไปว่า “ปั้นชีวิตเรียนรู้ที่ทำให้คนเราตื่นรู้ได้มากที่สุด เพราะทุกอย่างที่เรา
จะทำให้เราคิดคำถามและสร้างสรรค์พื้นฐานขึ้นเป็นคำถามของการควรอยู่ พื้นฐานดังนี้
หนึ่งจะนำไปสู่คำถามเกี่ยวกับเรื่องที่ไม่รู้หรอก คือไปไม่สิ้นสุด จนที่ความโลภของตัว
สรรพสิง ในขณะเดียวกันความรู้ที่เรียนรู้ไปก่อนและสรุปภัย ทุกความรู้ที่เจ้าตัวจัดให้นามชื่อความ
เหมือน และเรื่องค้นหาของเราให้การ ส่วนหนึ่ง คร่ำคาวควรของธรรมชาติอย่างบอกไม่ถูก”

“คุณรู้หรือไม่ว่า เสียงของปลวกคือสัญญาณที่เข้มข้นได้ที่สำคัญ ผมกล่าวไปแล้วว่าพระ
แม่ธรณีให้ทุกสิ่งและรับรู้ทุกพื้นที่ สำหรับเรื่องไม่ว่าจะเกี่ยวกับพืชแม่ชีวิตนี้ สำหรับ
จิตใจในความหมายของการทำลายให้ค่อนข้างแต่ที่จริงคิดได้ด้านหนึ่งของปลวกก็คือ การปก
ปมรักษา”

เอกกล่าวขยายอีกว่า “...น่าเสียดายที่คนบ้านเราทำลายปลวกเพราะความเข้าใจว่าปลวกคือ
ศัตรูที่ทำลาย เราเห็นเกี่ยวข้องและเช่นจ้าใจโดยไม่เรียนรู้คุณค่าของเชื้อเลขแบบนี้เอง ปลวกทำ
หน้าที่ของพืชที่ว่างไว้ไม่มีพืชผัก แม้ว่าปลวกจะอยู่ในวงการผุกรูกรีดและผ่าไป
เช่นเดียวกับสัตว์มีชีวิตอื่น แต่ไม่รู้ว่าพระแม่ธรณีสร้างชีวิตปลวกขึ้นมาเพื่อบรรพบที่ปลวกเพื่อ
รักษาป่ารักษาป่าอย่างจะก็อย่อมได้...” เอกอ้างได้ให้เข้าใจในปลวก และเข้ามามีส่วนรู้วิจารณ์ที่จะนำเอาสรรพสิงจากปลวกปลวกนี้ไปใช้
ประโยชน์อย่างมากมาย ซึ่งอยู่อยู่ในความรู้สึกในความเป็นประโยชน์กับปลวกหนึ่งหรือธรรมที่
ก่อการฟื้นฟูและรักษาปลากรรฐ์ในร่างกายของมนุษย์อีกครั้ง
ตลอดสองสั ป ดาห์ ที สั ม ภาษณ์ เอกเกี ยวกับ ระบบความรู ้ ข องเมื อ งบัง บด เอกสามารถ
ถ่ายทอดความรู ้ในเรื องต่างๆ อย่างเชื อมโยงจนเห็ นระบบความสัมพันธ์ของวงจรชี วิตชัดเจน หลัง
ออกจากสนามแล้วผูเ้ ขียนโทรหาเอกเพือขอรับฟั งความรู ้ และจดบันทึ ก การสนทนาแต่ละครังใช้
เวลาไม่นอ้ ยกว่า ชัวโมง และจํานวนชัวโมงก็เพิมขึนตามความซับซ้อนของข้อมูลความรู ้ จากนันก็
เพิมเป็ นการเรี ยนรู ้ทงเช้
ั าและบ่าย และบางวันก็เพิมเวลาเป็ นช่วงภาคคําไปจนถึงดึก ไม่เป็ นกล่าวเกิน
จริ งเลยทีจะสรุ ปว่าเอกเป็ นอาจารย์ทีนําเสนอความรู ้ทีว่ายากซับซ้อนให้เข้าใจได้ง่ายทีสุ ดในโลก ทุก
ครั งของการบรรยายเอกจะกล่าวยําถึ งตรรกะพืนฐาน สู่ พฒั นาการของสิ งๆ นัน ไปถึ งความรู ้ ขนั
สู งสุ ดแล้วย้อนกลับมาสู่ ตรรกะพืนฐานอีกครัง ก่อนทีจะขยายผลไปสู่ การประยุกต์ใช้ความรู ้พืนฐาน
ไปออกแบบทดลองสร้างสรรค์สิงใหม่ขึนอย่างเป็ นระบบ
“ขณะนีสายแร่ ทงั สายและเวลาของเรามาบรรจบแล้ว นีคือสิ งทีผมรอคอย มันไม่ใช่
ความบังเอิญ และความรู ้ของผมไม่ใช่สิงทีต้องตืนเต้น เพราะสิ งนีดํารงอยูม่ าเนินนานหลายศตวรรษ
เพียงแต่ไม่มีไม่มีคนนําความรู ้แท้มาใช้อย่างสมดุล ป่ าสอนให้ผมเรี ยนรู ้ทุกสิ ง แม้เพียงสายลมทีมา
ยังหู ตาในของเราก็ตอ้ งรับรู ้ไปพร้อมกัน เมือเสี ยงกระทบผมก็พิจารณาหาคลืนใยทีเชื อมโยงกับ
ความเคลือนไหวของสิ งอืน แรงดึงดูดจากสายลมนีผมจะแปรให้กลายเป็ นความรู ้และส่ งไปสู่ สมอง
เพือเตรี ยมทดลอง จากนันก็ประมวลข้อมูลเก็บไว้รอคอยคนทีผมจะเปิ ดเผย...และความรู ้ทีผมกําลัง
ทดลองเพือคืนเวลาให้คุณยายอยูข่ ณะนีคือการปลุกสัญญาณชีพของสัตว์ทีตายแล้วให้ฟืนคืนด้วย
หลักการง่ายๆ แต่ผมยังไม่เห็นว่ามีใครทํา...”
ในระหว่างสัปดาห์ ทีสัมภาษณ์ เอก ข่าวพยากรณ์ อากาศแจ้งว่าพายุมงั คุ ดถล่มเกาะฮ่องกง
แล้ว และพายุอีก ลู กกําลังก่อตัวอีกระลอกใหญ่ เอกกล่าวว่า “...หลักการพืนฐานของการยับยัง
ความรุ นแรงของพายุนนไม่
ั ยากเลย พายุเหล่านี ก่อตัวขึนจากหลักการดึงดูดและถ่ายเทเช่นเดียวกับ
หลายเรื องทีเราคุยกันมา แต่พายุทีก่อตัวพร้อมกันหลายลูกในเวลาเดียวกันจนมนุษย์หวาดหวันว่าจะ
เป็ นสาเหตุของนําท่วมโลกนี แท้ทีจริ งก็เกิดจากพลังดึงดูดของเทคโนโลยีมากมายทีเราใช้พลังงาน
ภายในโลกอย่างมหาศาล ทางเดี ย วทางด่ วนที เราสามารถทําให้ พ ายุอ่อนกําลัง ลงคื อ ปิ ดระบบ
พลังงานของเทคโนโลยีทีเกินความจําเป็ นทังหมด ซึ งจะช่วยให้เปลียนระดับการกดอากาศและแรง
ดึงดูดเปลียนทิศสู่ สภาวะสมดุล หลักการง่ายๆ นีเตือนให้มนุษย์เฉลียวใจว่า เมือมนุ ษย์คิดจะควบคุม
ขูดรี ดพลังงานจากธรรมชาติมากเกิ นพอดี ธรรมชาติจะหันหน้ากลับมาจัดการกับความอหังกาของ
มนุ ษย์ จนถึงขันถอนรากแห่งต้นกําเนิ ดชนิ ดทีไม่ให้หลงเหลือรอยเท้าของมนุ ษย์วา่ เคยเหยียบอยูบ่ น
โลกใบนีเลยทีเดียว...แล้วคุณคิดว่าคนในโลกนีจะพร้อมใจสละความเคยชิ นเพือสับสวิทปิ ดจักรกล
ของเทคโนโลยีหรื อไม่...เมือไม่ยอมแลกก็จงรับผลของการเลือกกระทําเถิด...”

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สรุปและอภิปรายผล

แม้เรื่องเล่าเมืองบังบดที่เก่าแก่จะมุ่งเน้นการกล่าวถึงบังบดในมิติเดินเลี้ยง แต่เนื่องจากพื้นที่มีใช้ประโยชน์ตามกฎหมายยาก แต่ผู้ที่จะได้ครอบครองพื้นที่นั้นต้องมีข้อ
เลือกเปลี่ยนสัญญาได้ การไม่โกหก การยึดมั่นในสัจธรรม อันเป็นเครื่องพิสูจน์ความบริสุทธิ์ใจ
yอย่างไรก็ตามหากพิจารณาข้อมูลดังกล่าวจะเห็นถึงลำดับของเรื่องเล่าที่ย่อว่ายกับพื้นที่พิเศษต่างๆ
ของไทยว่า มีลักษณะสำคัญ 6 ประการ ที่ซึ่งมองเห็นถึงการกล่าวถึงเมืองบังบด ได้แก่ 1) พื้นที่พิเศษมี
อยู่ในทุกสังคม เป็นที่ที่ทำให้คนมุ่งมั่นเห็นว่าเป็นสถานที่ถูกกําหนดเพื่อกิจกรรมบางประการ 2) พื้นที่พิเศษของแต่ละสังคมสามารถสร้างและกําหนด
บทบาทให้กับพื้นที่ได้แตกต่างกันไป นั่นคือ ชุดความหมายของพื้นที่พิเศษมีการเปลี่ยนไปได้ตลอดเวลา 3) พื้นที่พิเศษสามารถถูกกําหนดพื้นที่แบบอื่นในสังคมได้ เมื่อมีการขยายพื้นที่ใน
ขอบเขตที่พื้นที่พิเศษต่างกันพื้นที่เฉพาะของตนเอง 4) พื้นที่พิเศษไม่ถูกกําหนดเวลา กล่าวคือ ไม่มี
อดีต-ปัจจุบัน-อนาคต ที่แน่นอน แต่มีระบบเวลาเป็นของตัวเอง 5) พื้นที่พิเศษเป็นพื้นที่แบบระบบ
ปิดและระบบเปิดในเวลาต่อเนื่อง คือไม่ใช่สถานที่ที่โครงจะเข้าไปได้แต่ไม่ได้เปิดสัมพันธ์ การจะ
เข้าสู่พื้นที่พิเศษต้องได้รับอนุญาต เลือกตัว 6) พื้นที่พิเศษสามารถที่จะล่าถึงพื้นที่อื่นๆ ในสังคมแล้ว
ด้วยกัน พื้นที่พิเศษสร้างความร่วมมือเพื่อพื้นที่พิเศษในฐานะประสบการณ์ทางสังคม อย่างใน ธรรมรัฐ
อุทัยศรี.radius ปฐม หงษ์สุวรรณ และธัญญา สังขพันธานนท์ 2562, 137) แม้จะเป็นการสรุปต่อไปนี้

1) บังบดเป็นพื้นที่พิเศษที่ซ้อนอยู่ในมิติเวลาของสังคมปัจจุบัน หรือเป็นยุคส่วนหนึ่งของ
สังคมมนุษย์ที่ซึ่งยังคงกําลังได้รับการพัฒนาอย่างก้าวหน้าในที่นั้นทำให้ไม่สามารถมองเห็นได้คุณค่าใน
ทุนนาที่มีมิติเวลาได้รับการปฏิสัมพันธ์กับคุณค่าทางสังคมในระดับการพัฒนาการเกิดโลกาลเดิน
คุณ ยกขึ้นขึ้นวิวัฒนาการวิวัฒนาการเป็นสถานที่ที่ถูกกําหนดเพื่อกิจกรรมทางการ

2) บังบดในพื้นที่พิเศษที่ถูกสร้างและกําหนดบทบาทให้กับพื้นที่ได้แตกต่างกันไป นั่นคือ ชุด
ความหมายของพื้นที่พิเศษมีการเปลี่ยนแปลงได้ตลอดเวลา จงความหมายของการเป็นพื้นที่ของ
กลุ่มหรือชุมชนอยู่ในพื้นที่นั้นจะต้องดูความรู้สึกที่ผู้คนสามารถคิดถึงความรู้สึกนั้นได้โดยผ่าน
การสร้างขึ้นมาจากการพัฒนาภาพการทางชุมชนที่ต้องการให้สังคมและสามารถมีการใช้ประโยชน์ได้อย่าง
สูงสุด ดังนั้นการปฏิสัมพันธ์ทางชุมชนที่ต้องการให้มีการปฏิสัมพันธ์กับพื้นที่พิเศษต่างๆ
และมีการคุณค่าพื้นที่พิเศษอย่างเข้มข้นจะส่งผลให้ชุม
ชนมีการอยู่ในที่นั้นได้ นอกจากนั้นจึงจะสร้างพื้นที่พิเศษอยู่ในพื้นที่พิเศษนั้นได้ หมายถึงไม่ใช่แยกกันไป
ตลอดความก้าวหน้าเพื่อรวบรวมในมิติของพื้นที่พิเศษเพื่อเป็นพื้นที่พิเศษ ตาม}

หลักการพื้นฐานระหว่างดุษฎีการด้านสังคมและด้านที่ถูกนำไปปรับใช้อย่างมีนัยสั้นพื้นที่กับระดับ
คุณธรรมในจิตใจ ซึ่งเป็นสิ่งที่มีพลังมาก หมายความว่าพื้นที่จิตใจที่สังเกตจะดึงดูด สังคม อ่านกฎเกณฑ์ความมุ่งมั่นของโลกและจักรวาล

3) ประมวลหมายที่สู่ศูนย์และพื้นที่พิเศษที่สามารถอยู่ร่วมหรือสัมพันธ์กับพื้นที่แบบอื่นใน สังคมได้ แม้ว่าจะขัดแย้งกันก็ตาม ในขณะที่พื้นที่พิเศษต่างกันพื้นที่เฉพาะของตนเอง ผู้เดียว แม้ คนทั่วไปไม่สามารถอยู่เท่ากันหรือชายเกิดขึ้นขัดข้องกับผู้คนและสังคมบางวิถีได้ แต่จ่ำลองจาก ประสบการณ์ของผู้ให้ข้อมูลสำคัญและกิจกรรมการใช้ความรู้จากคิดเห็นบางสิ่งเพื่อรักษาผู้ป่วยที่ ระบบการแพทย์สมัยใหม่ยอมรับไม่ได้นั้น ทำให้เห็นความขัดแย้งระหว่างชุดความรู้และวิธีคิดของ คนในสังคมทั่วไปส่งผลรบกวนอย่างมาก แต่สิ่งที่มีผลมากที่ส่งผลกับความแตกต่างและมี ลักษณะร่วมกันบางประการ โดยเฉพาะวิถีของผู้คนทั่วทั้งสองมิติสามารถบรรจบกันหากมีเส้นลวด เลือกันและเมื่อมีการเปลี่ยนให้เป็นช่วงเวลาที่เกี่ยวกับชีวิต

4) บังบดเป็นพื้นที่พิเศษไม่สูญพักพนรบกวน กล่าวคือ ไม่มีมิติ-ปัจจุบัน-อนาคต ที่เน้นบน แต่มีระบบเวลาเป็นของตนเอง ผู้คนในเมืองบังบดไม่ได้ทำงานเพื่อเวลาเพียงผ่านทำหน้าที่ใน เวลาอย่างมีประสิทธิภาพที่สูง สามารถจัดเวลาในจิตวิญญาณและกายภาพ

5) บังบดเป็นพื้นที่พิเศษเป็นแบบระบบเปิดและระบบปิดในเวลาเดียวกัน คือไม่ใช่ สถานที่ที่ใครจะเข้าไปได้แต่ไม่ได้เปิดเสียทีเดียว การจะเข้าสู่พื้นที่พิเศษต้องได้รับอนุญาตเสียก่อน เรื่องล่าของก็จะเข้าอย่างชูกระเบื้องที่ขัดข้องการกลับเข้าไปในบัตร เจ้าของบัตรและได้รับการ อนุญาต เธี่ยวจะเข้าสู่บัตรที่บ้านและการพักผ่อนเข้าได้ รวมทั้งเมื่อจะล่าสุดคือหลักของบัตรใด ก็จะมีเอกสาร เช่นเดียวกับการเดินทางไปยังสถานที่ได้รับการรักษาผู้ป่วยที่พิเศษไม่ สามารถรักษาได้ เข้ยจะต้องจ้างบัตรและรายละเอียดที่จะรับประทานหรือสามารถค้น เลือกอย่าง ใครจะเป็นผู้ที่เหมาะสมจะรักษาหรือน่าอยู่ได้ ฉันก็จะต้องมีสิทธิ์เข้าไปอย่าง สถานที่พิเศษออกเอกสารต่อในเวลาที่บังบดกันนั้นที่

6) บังบดเป็นพื้นที่พิเศษที่พวกเรายังอยู่ไม่ได้ บนพื้นที่ข้อเสียกันด้วยความรู้จาก กฎหมายของธรรมชาติที่ข้อบังคับของโลกและจักรวาล บังบดจึงมีไม่ได้เป็นคินเคียนทั้งมวลที่จงรักและ เราสามารถเห็นได้ด้วยภูมิรู้ภูมิธรรมและภูมิปัญญา ตลอดทั้งสถานการณ์ปัจจุบันได้รับผลกระทบทาง วิทยาศาสตร์ซึ่งเป็นหลักการความรู้ที่มีฐานะความเข้าใจต่อระบบธรรมชาติขัดข้องกัน ดังนั้นจึง สามารถข้อคิดและเปรียบเปรียบสภาพการให้กันและเก็บได้โดยยึดหลักคุณธรรม อันเป็นระบบเหตุผล เกี่ยวกับความยุติธรรมค้นสัมวดคาดดิ่งอย่างแท้จริง
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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์ดังนี้ 1) เพื่ศึกษาบริบทชุมชน เหล่าเรียนรู้ วิธีชีวิต พื้นบ้านยูม ท้องถิ่น และอัตลักษณ์ชุมชน 2) เพื่อพัฒนาแหล่งเรียนรู้ชุมชน 3) เพื่อพัฒนารูปแบบการอนุรักษ์ และสืบทอดวิถีชีวิต ภูมิปัญญาท้องถิ่น และอัตลักษณ์ชุมชน 4) เพื่อพัฒนารูปแบบการจัดการการท่องเที่ยวเชิงวัฒนธรรม 5) เพื่อพัฒนารูปแบบการจัดการการท่องเที่ยวเชิงวัฒนธรรมแบบมีส่วนร่วม เพื่อการอนุรักษ์และสืบทอดวิถีชีวิต ภูมิปัญญาท้องถิ่น และอัตลักษณ์ชุมชน
พื้นที่ศึกษาคือ ชุมชนมอญบางกระดี เขตบางขุนเทียน กรุงเทพมหานคร วิธีดำเนินการศึกษาคือ การวิจัยแบบผสมผสานวิธีกลุ่มผู้ให้ข้อมูลและกลุ่มตัวอย่าง ได้แก่ ประธานชุมชน ประชาชน ภูมิปัญญาท้องถิ่น เจ้าอาวาสวัด ผู้บริหารโรงเรียน ครู เยาวชน และนักท่องเที่ยว เครื่องมือที่ใช้ได้แก่ แบบสำรวจชุมชน แบบสำรวจครัวเรือน แบบสัมภาษณ์ แบบสังเกต และแบบสอบถาม วิธีการวิเคราะห์ข้อมูลได้แก่ การวิเคราะห์เนื้อหา การจัดกลุ่มประเภท การสรุปข้อมูลโดยสถิติวิเคราะห์ สถิติทิวิเคราะห์ ได้แก่ ค่าร้อยละ ค่าเฉลี่ย ค่าส่วนเบี่ยงเบนมาตรฐาน สถิติ t-test เทคนิคการวิเคราะห์ความแปรปรวนแบบทางเดียว เทคนิคการวิเคราะห์ความแปรปรวนแบบทางดิบ เทคนิคการวิเคราะห์การคาดคะเนตัวแปร เทคนิคการวิเคราะห์การเปรียบเทียบชุมชน ฟังก์ชั่นการวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชน ฟังก์ชั่นการวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชน สถิติวิเคราะห์ข้อมูลการวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแปรปรวนของชุมชนของชุมชนให้เป็นข้อมูลเพื่อการวิจัยที่มีชุมชน การวิเคราะห์มูลค่าเพื่อความแพร
Abstract

The purposes of this research were to: 1) study the community context, learning resources, way of life, local wisdoms, and community identity; 2) develop the learning resources of community; 3) develop the model of cultural tourism for conservation and transmission of way of life, local wisdom, and community identity; 4) develop the management model of cultural tourism of community; 5) develop the model of participatory management of cultural tourism for conservation and transmission of way of life, local wisdoms, and community identity. Research area was Mon Bang Kradi Community, Bang Khun Thain District, Bangkok. Research methodology was mixed method research. Key informant persons and samples consisted heads of community, people in community, local wisdoms, abbot in community temple, school principal, teachers, students, and tourists. Research instruments comprised community study form, family study form, interview form, observation schedule, and questionnaires. Data analysis employed by content analysis, typology analysis, and inductive analysis. Statistics for data analysis employed by percentage, mean, standard deviation, t-test, one-way analysis of variance, multivariate analysis of variance, multiple regression analysis, exploratory factor analysis. Research result revealed that the identity of Mon Bang Kradi community was Mon ethnicity community that had conserved and transmitted the Mon culture, developed the community of learning resources, and
managed the cultural tourism resources. The model of development of community learning resources was “ALM Model” that consisted of: A: SWOT Analysis, L: Community Learning Resources, M: Activation and Motivation. The model of participatory management of cultural tourism for conservation and transmission of way of life, local wisdom, and identity of Mon community was “ALTPSSSVLMCSC Model” that consisted of: A: SWOT Analysis, L: Community Learning, T: Culture Tourism, P: Community Participation, S: Service Mind, S: Community Souvenirs, S: Community Safety, V: Spirit and Value Awareness, L: Mon Language Learning, M: Mon Music Learning, C: Mon Breast Cloth Learning, S: Songkran Festival Conservation, and C: Mon Custom Conservation.

**Keywords:** cultural tourism, learning resources of community, way of life, local wisdom, community identity
การศึกษา เทคโนโลยีและนวัตกรรมการเรียนรู้
แนวทางการจัดการศึกษาเชิงบูรณาการการเรียนรู้กับการทำงาน (WIL)
สำหรับหลักสูตรดนตรี มหาวิทยาลัยราชภัฏบุรีรัมย์
Guidelines for Integrated Learning Management and Learning (WIL) for Music Curriculum of Buriram Rajabhat University

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษารูปแบบการจัดการศึกษาและนำเสนอแนวทางการจัดการศึกษาเชิงบูรณาการการเรียนรู้กับการทำงาน สำหรับหลักสูตรดนตรี มหาวิทยาลัยราชภัฏบุรีรัมย์ ดำเนินการวิจัยด้วยวิธีการวิจัยเชิงคุณภาพ โดยศึกษานวัตกรรมและถูกลุกจากการสังเคราะห์เอกสารและงานวิจัย การรวบรวมข้อมูลครั้งนี้ ด้วยการใช้การสัมภาษณ์เชิงลึกและการสนทนากลุ่มกับผู้แทนจากสถานศึกษาและสถานประกอบการทางด้านดนตรี จำนวน 15 คน ผลการวิจัยพบว่าประโยชน์ของการจัดการศึกษาเชิงบูรณาการการเรียนรู้กับการทำงาน มีดังนี้ ผู้เรียนเกิดประสบการณ์จากการทำงานจริงทำให้เกิดประโยชน์สูงสุดต่อผู้เรียน และสร้างความพร้อมสำหรับการทำงานจริงในอนาคต โดยพบว่าปัจจัยที่ส่งผลต่อความสำเร็จของการจัดการศึกษาเชิงบูรณาการการเรียนรู้กับการทำงาน (WIL) สำหรับหลักสูตรดนตรี มหาวิทยาลัยราชภัฏบุรีรัมย์ คือการสร้างความร่วมมือกับสถาบันอุดมศึกษา สถานประกอบการ และผู้ทรงคุณวุฒิทางดนตรี ทั้งนี้การสร้างความร่วมมือในการจัดการศึกษาเชิงบูรณาการการเรียนรู้กับการทำงานที่สำคัญคือการพัฒนาหลักสูตรร่วมกัน การเปิดโอกาสให้ผู้เรียนเข้าร่วมกิจกรรมการเรียนรู้และทำงานจริงในสถานประกอบการตามหลักการจัดการเรียนรู้ในสภาพจริงและการพัฒนารูปแบบการประเมินผลผู้เรียนจากสภาพจริงร่วมกัน รวมทั้งการแลกเปลี่ยนประสบการณ์ร่วมกันระหว่างผู้สอน ผู้เรียน และผู้เชี่ยวชาญจากสถานประกอบการ เพื่อร่วมกันพัฒนารูปแบบการจัดการเรียนรู้ให้สอดคล้องกับสภาพที่เปลี่ยนแปลงในสถานประกอบการด้านดนตรีอย่างต่อเนื่อง

คำสำคัญ: การจัดการศึกษาเชิงบูรณาการการเรียนรู้กับการทำงาน (WIL) หลักสูตรดนตรี
Abstract

The purpose of this research was to study the educational management model and to propose an integrated educational management approach to work and learning. For music courses Buriram Rajabhat University Conduct research with qualitative research methods By studying concepts and theories from document synthesis and research This data collection By using in-depth interviews and group discussions with representatives from educational institutions and music establishments, total 15 people. The research found that The benefits of integrative education management, learning and work are as follows: learners gain real-life experience resulting in maximum benefit to learners And create readiness for future work It was found that the factors affecting the success of the integrated learning and work (Wil) educational management for music courses Buriram Rajabhat University is a collaboration between higher education institutions. Establishment And music experts In this regard, the creation of cooperation in the management of integrated education, learning and important work is Joint curriculum development Providing opportunities for learners to practice learning and working in the workplace in accordance with the principles of real-life learning management and to develop a model for evaluating learners from real-life together Including sharing experiences between teachers, learners and experts from the establishment In order to jointly develop a learning management model that is consistent with the changing conditions in the musical establishment continuously.

Keywords: work integrated learning, music curriculum
ด้านอื่นๆ ที่เกี่ยวเนื่องกับหัวข้อหลักของการประชุม
Porject to Analyze Marketing Mix Factors Influencing Customers’ Decision to Use Fitwhey Gym Service in Laatphrao Branch, Bangkok

พิศิษฐ์ ชานานา

สาขาวิชาการตลาด คณะวิทยาการจัดการ มหาวิทยาลัยราชภัฏบ้านสมเด็จเจ้าพระยา

บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อ 1. ศึกษาพฤติกรรมการใช้บริการศูนย์ออกกำลังกาย 2. ศึกษาระดับปัจจัยส่วนประสมทางการตลาดที่มีอิทธิพลต่อการตัดสินใจใช้บริการศูนย์ออกกำลังกาย 3. ศึกษาปัจจัยส่วนประสมทางการตลาดที่มีอิทธิพลต่อการตัดสินใจใช้บริการศูนย์ออกกำลังกาย กลุ่มตัวอย่างเป็นผู้ใช้บริการศูนย์ออกกำลังกาย FITTHEY GYM สาขาลาดพร้าว กรุงเทพมหานคร จำนวน 400 คน โดยใช้เทคนิคการเลือกตัวอย่างแบบตามความสะดวกเครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูล คือแบบสอบถาม โดยให้คำชี้นิยมและความสอดคล้องไม่ต่ำกว่า 0.5 และมีค่าความเพียงพอต่ำกว่า 0.85 สถิติที่ใช้ในการวิเคราะห์ข้อมูลได้แก่ ความถี่ ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และการวิเคราะห์ถดถอยพหุคูณ (multiple regression) แบบ Ordinary Least Square multiple regression

ผลการวิจัยพบว่า พฤติกรรมการใช้บริการศูนย์ออกกำลังกายพบว่า จำนวนครั้งในการมาใช้บริการศูนย์ออกกำลังกายต่อสัปดาห์ 4-5 ครั้ง/สัปดาห์ ผู้ใช้บริการส่วนใหญ่มาใช้บริการประเภทการบริหารกล้ามเนื้อ โดยส่วนใหญ่มาใช้บริการในวันธรรมดา ดังนั้นในการวิจัยพบว่า 19.01 – 21.00 น. ไม่จำเป็นต้องมีการใช้ครูฝึกสอนส่วนตัวในการใช้บริการ ระดับปัจจัยส่วนประสมทางการตลาดของผู้ใช้บริการศูนย์ออกกำลังกายมีค่าเฉลี่ยต่ำกว่าค่ามาตรฐาน (X=3.97) ซึ่งพบว่า ตัวแปรเด็กที่มีข้อผิดพลาดสูง (X=4.07) รองลงมาคือ ตัวแปรราคา (X=4.05) ตัวแปรระยะทางการเดินทาง (X=3.99) ตัวแปรระบบการบริการ (X=3.98) ตัวแปรบุคลากร (X=3.97) ตัวแปรสัดส่วนการตลาด (X=3.94) และตัวแปรระยะเวลาการเดินทาง (X=3.84)

สัมประสิทธิ์ถดถอยของตัวแปรที่พบว่าสำคัญที่สุดคือ ปัจจัยส่วนบุคลากร และปัจจัยตัวแปรลักษณะทางกายภาพ คำนวณประสิทธิ์สัมพันธ์พหุะระวังต่ำถึงปานกลางที่ 7 ค่า กับการ
The objectives of this research were 1) to study customers’ behavior of using the fitness center service, 2) to study the level of marketing mix factors influencing customers’ decision to use the fitness center service, and 3) to study marketing mix factors influencing customers’ decision to use the fitness center service. The sample of this study was 400 customers at Fitwhey Gym Service in LatPhrao Branch, Bangkok. The sample was selected based on a convenience sampling. The questionnaire was used as the research instrument with an Index of Consistency (IOC) of no less than 0.5 and a validity of 0.85. Data collected were then analyzed using statistics including frequency, percentage, mean, standard deviation, and Ordinary Least Square multiple regression.

The results of this research indicated that in terms of customers’ behavior of using the fitness center service, a usage frequency was 4-5 times per week. Most of the respondents visit the fitness center for muscle exercise. They mostly visited the fitness center between Monday and Friday during 19.01 - 21.00 hrs. They did not need a personal trainer. Overall level of marketing mix factors influencing customers’ decision to use the fitness center service was at a high level ($\bar{X} = 3.97$). When individual aspects were considered, a factor with the highest mean was product ($\bar{X} = 4.07$), followed by price ($\bar{X} = 4.05$), place ($\bar{X} = 3.99$), process ($\bar{X} = 3.98$), personnel ($\bar{X} = 3.97$), promotion ($\bar{X} = 3.94$), and physical evidence ($\bar{X} = 3.84$).
Regression coefficients of variables that were statistically significant included personnel and physical evidence. Seven predictive variables were correlated with decision to use the fitness center service with a statistical significance level of .05 with a multiple correlation coefficient (R = 0.209). These variables could jointly predict 2.7% of the variation in the decision to use the fitness center service (Adjusted R2 = 0.027). The predictive equation could be written as follows:

Equation in the raw score

\[ Y = 4.306 + 0.062_{\text{People}} + 0.066_{\text{Physical evidence}} \]

Equation in the standardized score

\[ Z = 0.162_{\text{People}} + 0.170_{\text{Physical evidence}} \]

**Keywords:** marketing mix factors, decision to use the service, fitness center
การศึกษาภาพลักษณ์ตราสินค้าที่มีผลต่อพฤติกรรมการเลือกซื้อเครื่องดื่มแบร์บัคส์ของผู้บริโภคสาขาเดอะสตรีท รัชดา

Brand Image Influencing Consumer Buying Behavior for Starbucks Drinks at Starbucks the Street Ratchada

ประภวิษณุ พนัสทรัพย์สุข

สาขาวิชาการประชาสัมพันธ์และการสื่อสารองค์การ คณะวิทยาการจัดการ มหาวิทยาลัยราชภัฏบ้านสมเด็จเจ้าพระยา

บทคัดย่อ

รายงานการวิจัยครั้งนี้มีวัตถุประสงค์ 1. เพื่อศึกษาภาพลักษณ์การเลือกซื้อเครื่องดื่มแบร์บัคส์ของผู้บริโภคสาขาเดอะสตรีท รัชดา 2. เพื่อศึกษาภาพลักษณ์การเลือกซื้อเครื่องดื่มแบร์บัคส์ของผู้บริโภคสาขาเดอะสตรีท รัชดา 3. เพื่อศึกษาภาพลักษณ์การเลือกซื้อเครื่องดื่มแบร์บัคส์ของผู้บริโภคสาขาเดอะสตรีท รัชดา

โดยการศึกษาครั้งนี้ได้ใช้แบบสอบถามเป็นเครื่องมือในการเก็บรวบรวมข้อมูลจากผู้บริโภคที่ซื้อเครื่องดื่มแบร์บัคส์จำนวน 400 คน ใช้วิธีการสุ่มตัวอย่างโดยไม่คำนวณความน่าจะเป็นและใช้การสุ่มตัวอย่างแบบสุ่ม โดยเก็บข้อมูลจากผู้บริโภคที่ซื้อเครื่องดื่มแบร์บัคส์สาขาเดอะสตรีท รัชดา วิเคราะห์ข้อมูลโดยใช้โปรแกรมสำเร็จรูปทางสถิติ ใช้สถิติเชิงพรรณนาและสถิติทดสอบสถิติ ได้แก่ ความถี่ ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน ทดสอบเปรียบเทียบความแตกต่างระหว่างค่าเฉลี่ยของกลุ่มตัวอย่าง 2 กลุ่ม โดยใช้สูตร t-test for independent sample และทดสอบเปรียบเทียบความแตกต่างระหว่างค่าเฉลี่ยของกลุ่มตัวอย่าง 2 กลุ่ม โดยใช้สูตร One-way ANOVA

ผลการวิจัยพบว่าผู้ตอบแบบสอบถามส่วนใหญ่เป็นเพศชาย อายุ 20 – 29 ปี มีการศึกษาระดับปริญญาตรี มีอาชีพนักเรียน/นักศึกษา มีรายได้เฉลี่ยต่อเดือนราว 15,000 บาท

ส่วนด้านภาพลักษณ์การพิจารณา มีค่าเฉลี่ยในภาพรวมอยู่ในระดับมาก (X = 3.86) เนื่องจากมีการปรับเปลี่ยนผู้บริโภคมากกว่า 6 ด้าน ประกอบด้วย ด้านคุณสมบัติมีค่าเฉลี่ย (X = 4.41) ด้านคุณประโยชน์มีค่าเฉลี่ย (X = 4.25) ด้านคุณค่ามีค่าเฉลี่ย (X = 4.15) ด้านคุณภาพมีค่าเฉลี่ย (X = 4.25) ด้านคุณภาพมีค่าเฉลี่ย (X = 4.25) ด้านคุณภาพมีค่าเฉลี่ย (X = 4.25) ด้านคุณภาพมีค่าเฉลี่ย (X = 4.25)
The objectives of this research were 1) to study consumer buying behavior for Starbucks drinks at Starbucks the Street Ratchada, 2) to study brand image of Starbucks drinks influencing consumer buying behavior for Starbucks drinks at Starbucks the Street Ratchada, and 3) to compare brand image of Starbucks drinks influencing consumer buying behavior for Starbucks drinks at Starbucks the Street Ratchada, classified by personal data. A questionnaire was used as a research instrument. Data were collected from the sample of 400 consumers who bought Starbucks drinks at Starbucks the Street Ratchada. The sample was selected based on Non-Probability Sampling and Convenience Sampling. Data collected were then analyzed using statistical package software and descriptive statistics and inferential statistics, including frequency, percentage, mean, standard deviation. A difference between two means was compared using t-test for independent sample. A comparison of more than two group means was conducted using one-way analysis of variance (ANOVA).

The results of this study indicated that most of the respondents were male, 20-29 years of age, graduated with a bachelor’s degree, worked as a student, and earned monthly income of below 15,000 baht.

Overall brand image was at a high level (\( \bar{X} = 3.86 \)). When individual aspects were considered, six aspects were at a high level, namely: attributes (\( \bar{X} = 4.41 \)), benefits (\( \bar{X} = 4.25 \)), values (\( \bar{X} = 4.30 \)), culture (\( \bar{X} = 4.24 \)), personality (\( \bar{X} = 4.34 \)) and users (\( \bar{X} = 4.16 \)).
In terms of consumer buying behavior for Starbucks drinks at Starbucks the Street Ratchada, most of the respondents preferred drinking espresso menu. Buying frequency was between once and twice per week. Buying amount per time was 1-2 drinks. A buying reason was for self-consumption because of taste preference.

The results of testing hypothesis indicated below.

1. The respondents with different gender had indifferent opinion towards brand image in terms of attributes, benefits, values, culture, personality, and users. The result was not consistent to the set hypothesis.

2. The respondents with different age, educational level, occupation, average monthly income had different opinion towards brand image in terms of attributes, benefits, values, culture, personality, and users. The result was consistent to the set hypothesis with a statistical significance level of 0.05.

**Keywords:** brand image, consumer behavior, coffee shop
Behavior and Motivation of the Marathonners in Marathon Events in Thailand

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาพฤติกรรมและแรงจูงใจของนักวิ่งมาราธอนที่เข้าร่วมแข่งขันมาราธอนในประเทศไทย โดยการศึกษาครั้งนี้เป็นการวิจัยเชิงสำรวจ ที่ใช้แบบสอบถามเป็นเครื่องมือเก็บรวบรวมข้อมูลจากกลุ่มตัวอย่างคือ นักวิ่งมาราธอนที่เข้าร่วมการแข่งขันวิ่งมาราธอนที่จัดขึ้นในประเทศไทย จำนวน 8 สนาม ในช่วงระหว่างเดือนมิถุนายน 2560 - เดือนกรกฎาคม 2561 จำนวน 400 คน โดยวิธีการสุ่มอย่างง่าย และวิเคราะห์ข้อมูลด้วยโปรแกรมการวิเคราะห์ข้อมูลทางสถิติกระชับ โดยใช้สถิติเชิงพรรณนา ได้แก่ ค่าความถี่ ค่าร้อยละ ค่าเฉลี่ย ค่าเบี้ยเบนมาตรฐาน ผลการวิจัยพบว่า
1. พฤติกรรมการวิ่งของนักวิ่งมาราธอนส่วนใหญ่จะเข้าร่วมงานวิ่งมากกว่า 10 ครั้ง/ปี โดยมีการวิ่งในระยะมาราธอน (42.195 กิโลเมตร) จำนวน 2 ครั้ง/ปี
2. แรงจูงใจของนักวิ่งมาราธอนที่เข้าร่วงแข่งขันมาราธอนในประเทศไทย โดยรวมอยู่ในระดับมาก
3. การวิจัยนี้เป็นประโยชน์ในเชิงนโยบายในการส่งเสริมการจัดการแข่งขันมาราธอนและเป็นประโยชน์ต่อหน่วยงานที่จะมีส่วนร่วมในการสนับสนุนการจัดงานวิ่ง

คำสำคัญ: การวิ่งมาราธอนในประเทศไทย พฤติกรรมนักวิ่งมาราธอน แรงจูงใจในการวิ่งมาราธอน
Abstract

The purpose of this research was to study the marathoners behavior and motivation in marathon events in Thailand. Survey questionnaires used as data collection equipment were collected from 400 runners who participated in running events in Thailand, amount of 8 courts between June 2017 - July 2018. The data were the analyzed with statistical analysis software through descriptive statistics including frequency percentage mean and standard deviation.

The results indicated that

1. Most of the marathoners in Thailand had experience of attending running events for more than 10 times/year. Their attendances in marathon events (42.195 kilometers) depended on 2 times/year.

2. The overall motivation of the marathoners in attending running events in Thailand was at the high level.

This research was a policy benefit in promoting marathon management. And is beneficial to agencies that were involved in supporting the running events.

**Keywords:** marathon events in Thailand, marathoners behavior, marathoners motivation
ฐานข้อมูลสถาปัตยกรรมพื้นถิ่นจังหวัดบุรีรัมย์

The Vernacular Architecture Database in Buri Ram Province

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อสำรวจสถาปัตยกรรมพื้นถิ่นที่มีคุณค่าในชุมชนท้องถิ่นจังหวัดบุรีรัมย์ ตามที่เน้นชุมชนโบราณ 143 ชุมชน ใน 22 อำเภอ และจัดทำฐานข้อมูลสถาปัตยกรรมพื้นถิ่น วิธีการดำเนินการวิจัยได้ทำการสำรวจภาคสนามประกอบการสัมภาษณ์เจ้าของอาคารหรือผู้ดูแลอาคารแล้ว นำมาจัดทำฐานข้อมูลและประมวลผล ผลการสำรวจได้ข้อมูลสถาปัตยกรรมพื้นถิ่นและภาพถ่ายจำนวน 532 หลัง นำมาจัดทำเป็นฐานข้อมูล Buriram Vernacular Architecture Database : Buri Ram VAD โดยเข้าถึงออนไลน์ที่ http://cul.bru.ac.th/vad/ ขอเสนอแนะสำหรับการวิจัย คือ ควรมีการดำเนินการวิจัยต่อเนื่อง เพื่อเพิ่มจำนวนข้อมูล คัดค้านสภาพของอาคารในฐานข้อมูลให้เป็นปัจจุบัน โดยส่งเสริมให้สำนักศิลปะและวัฒนธรรมมหาวิทยาลัยราชภัฏบุรีรัมย์ ผู้ใช้ประโยชน์จากงานวิจัยพัฒนากำไรใช้ประโยชน์จากฐานข้อมูลให้เป็นรูปธรรม และสามารถประชามนุษย์สู่กลุ่มนักวิชาการ นักท่องเที่ยวที่สนใจการท่องเที่ยว

คำสำคัญ: ฐานข้อมูล สถาปัตยกรรม พื้นถิ่น สถาปัตยกรรมพื้นถิ่น บุรีรัมย์
Abstract

The research objectives were to investigate the valuable local architectures in local communities in Buri Ram province according to the list of ancient communities in 143 communities in 22 sub-districts and to develop the vernacular architectural database. The research methodology has conducted a field survey and interview with the building owner or the building administrator. Bring to create database and processing. The results from the survey showed that data of 532 buildings and photos. Then the Buri Ram Vernacular Architecture Database: Buri Ram VAD was developed and can be accessed online at http://cul.bru.ac.th/vad/. Suggestions for further research studies included that the research must be conducted continuously for increasing the data and for following up on the conditions of the buildings in the database to update the information; the Arts and Cultural Center of Buriram Rajabhat University should be supported as the research user in developing the use of the database; and the database should be publicized to the scholars and tourists who are interested in the tourism by communities in the future.

Keywords: database, architecture, vernacular, vernacular architecture, Buriram
การนำเสนอแบบโปสเตอร์
The Factor Effecting to Success of Advertising and Public Relation of Cultural: Area Mueang District Buriram

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาปัจจัยด้านสื่อออนไลน์ และการรับรู้ด้านข้อมูลข่าวสารส่งผลต่อความสำเร็จด้านการโฆษณาประสัมพันธ์การท่องเที่ยวเชิงวัฒนธรรมเขตพื้นที่อำเภอเมืองบุรีรัมย์ การวิจัยนี้เป็นการวิจัยแบบผสมผสาน กลุ่มตัวอย่างได้แก่ การสัมภาษณ์ผู้ประกอบการบริษัททัวร์ทั้งหมด ผู้ประกอบการที่พัก และผู้ประกอบการขนส่ง จำนวน 10 คน เก็บข้อมูลโดยใช้แบบสอบถามกับนักท่องเที่ยว 400 คน วิเคราะห์ข้อมูลโดยใช้ คำเบญจพฤกษ์มาตรฐาน สหสัมพันธ์ ผลการวิจัยพบว่าสื่อออนไลน์และการรับรู้ด้านข้อมูลข่าวสารส่งผลต่อส่งผลเชิงบวกต่อความสำเร็จด้านการโฆษณาประสัมพันธ์การท่องเที่ยวเชิงวัฒนธรรมอย่างมีนัยสำคัญทางสถิติ การเผยแพร่ข้อมูลข่าวสารผ่านสื่อออนไลน์ทำให้เกิดการรับรู้ข้อมูลข่าวสารรวดเร็ว งานวิจัยนี้เป็นประโยคต่อการนำไปใช้ในการบริหารจัดการเพื่อการโฆษณาประชาสัมพันธ์การท่องเที่ยว การจัดกิจกรรมด้านการท่องเที่ยว

คำสำคัญ: ปัจจัยด้านสื่อออนไลน์, การรับรู้ด้านข้อมูลข่าวสาร, ความสำเร็จด้านการโฆษณาประสัมพันธ์, การท่องเที่ยวเชิงวัฒนธรรม
Abstract

The objective of this research was to investigate online media factors and information perception affecting the success of advertising and public relations in cultural tourism in Mueang Buri Ram District. This research was a mixed methods research. Data were collected by interviewing 10 entrepreneurs of tour operators, accommodations, and transport operators. A questionnaire was used as a research instrument to collect data from 400 tourists. Data collected were then analyzed using statistics including percentage, standard deviation, and multiple regression correlation. The results of the research indicated that online media and information perception had a positive effect on the success of advertising and public relations in cultural tourism with a statistical significance. The dissemination of information via the Internet led to widespread and rapid information perception. The findings of this study could be beneficial for management in tourism advertising, public relations and organizing tourism activities.

Keywords: online media factors, information perception, the success of advertising and public relations, cultural tourism
เป็นสัดส่วนการผลิต นอกจากนั้นประชาชนจะต้องให้ความสำคัญกับการด้านรัฐวิถี โดยไม่ ประมาท และนำหลักการส่งเสริมด้านสุขภาพ ผลิตภัณฑ์ใช้เป็นแนวทางเพื่อให้ได้ผลผลิตที่ ยั่งยืน สุขภ套การท่องเที่ยวจะเป็นปัจจัยที่สร้างให้กับประชาชนในพื้นที่โดยเฉพาะ อย่างยิ่งขับเคลื่อนและประสบผลิตภัณฑ์ ขาดทุนหรือว่าเป็น จุดเด่นของจังหวัดบุรีรัมย์ที่ ก้าวตามจะเห็นได้ว่า แผนยุทธศาสตร์จังหวัดบุรีรัมย์นี้ได้นำหลักการบูรณาการ การบริหารจัดการ ศิลปะขนบธรรมเนียมประเพณีที่ดั้งเดิมที่ต้องออกมาจากวัฒนธรรมของ การท่องเที่ยว และ ศาสตร์ พระราชวิถี หลักเศรษฐกิจพอเพียง ที่จะทำให้ประชาชนในจังหวัดบุรีรัมย์มีความสมบูรณ์ทั้งกาย ใจ และใจ ( สะพิพรรณ พงษ์อินทร์วงศ์. 2562)

ในการจับจ่ายวัฒนธรรมเป็นอีกหนึ่งที่สำคัญในการท่องเที่ยวและปัจจัยที่จะทำให้ นักท่องเที่ยวระดับท้องถิ่นระดับภูมิภาค ระดับภาค ระดับประเทศ และระดับนานาชาติ รับรู้ข้อมูล ต่างๆด้านการท่องเที่ยวที่จะมีการสนับสนุนยุทธศาสตร์ของจังหวัดให้ได้ตามเป้าหมายที่ต้องการ โดยแนวทางการประสานพื้นที่ที่จะให้ข้อมูลข่าวสารในการจัดกิจกรรมการท่องเที่ยวที่ต่างๆของจังหวัด จากที่กล่าวมาข้างต้นผู้วิจัยจึงมีวัตถุประสงค์เพื่อศึกษาปัจจัยส่งผลต่อความสัมพันธ์การท่องเที่ยวที่มีชีวิตวัฒนธรรมเขต พื้นที่ก่อนถึงเมืองบุรีรัมย์ โดยขอบเขตในการศึกษาวิจัยครั้งนี้ศึกษาในบริบทของเขตพื้นที่อำเภอเมือง จังหวัดบุรีรัมย์ โดยมีรายละเอียดที่จะกล่าวต่อไป

วัตถุประสงค์การวิจัย
เพื่อศึกษาปัจจัยสัมพันธ์การท่องเที่ยวเชิงวัฒนธรรมเขตพื้นที่อำเภอเมืองบุรีรัมย์

สมมุติฐานในการวิจัย
ปัจจัยสัมพันธ์การท่องเที่ยวเชิงวัฒนธรรมเขตพื้นที่อำเภอเมืองบุรีรัมย์

ทฤษฎีและการทบทวนวรรณกรรม
การศึกษาวิจัยเพื่อกำหนดปัจจัยสัมพันธ์การท่องเที่ยว ได้รับมั่นคงและนักวิชาการได้ตอบกล่าวไว้ว่า การท่องเที่ยวที่มีประสิทธิภาพเกี่ยวข้อง เนื่องในสาระนี้ต้องมีความเคลื่อนไหวที่ส่งผลมีการกระคูณของ
สารเพื่อให้เกิดความน่าสนใจ และจุใจ ผู้รับสาร ดังนั้นสื่อที่สามารถสร้างแรงดึงดูดใจให้กับผู้รับสารได้ดีนี้คือช่องทางการสื่อสารผ่านออนไลน์ ได้แก่ เฟซบุ๊ค, ไลน์, บล็อก, ทวิตเตอร์, เว็บยูทูบ และการรับรู้ผ่านข้อมูลข่าวสารส่งผลต่อความสำเร็จด้านการโฆษณาประสัมพันธ์การวิจัยและพบว่าในปัจจุบันนี้การสื่อสารที่รวดเร็วถือเป็นปัจจัยที่สำคัญที่ส่งผลต่อระดับการตัดสินใจในพฤติกรรมของผู้รับสาร (วิภัคฉัณฑ์, นิมิตรพันธ์, ศิริจันทรา พลกนิษฐ, 2559) นอกจากนั้น จุฑารัตน์ สรรัตติวงศ์ (2561) อ้างอิงถึงการใช้สื่อสังคมออนไลน์สามารถประยุกต์ทำให้ในงานโฆษณาการสื่อสารมีประสิทธิภาพ อย่างไรก็ตามการสื่อสารอ้างอิงใช้หลักทฤษฎีสื่อสารซึ่งในงานวิจัยเป็นปรัมปราการทฤษฎีเข็มฉีดยา (Hypodermic needle Theory) ทฤษฎีนี้กล่าวว่า องค์กรหรือผู้ส่งข่าวสารเป็นผู้มีอำนาจและบทบาทสำคัญที่สุด กล่าวคือ สามารถกำหนดข่าวสาร และส่งข่าวสารไปยังผู้รับ โดยคาดคะเนว่าที่จะเกิดขึ้นได้ กล่าวกันว่าข้อข่าวสารที่ส่งไปจะถูกต้อง การกระจาย และที่สุด ดังนั้นผู้รับข่าวสารเป็นคนจำแนกข้อมูลที่ต่างคนต่างอยู่ เข้าใจและการรับรู้ข่าวสาร หรือพฤติกรรมเปลี่ยนแปลงไปตามที่ผู้รับข่าวสารต้องการ โดยมีบทบาทหรืออำนาจควบคุมผู้รับข่าวสารได้ ทฤษฎีนี้อ้างว่า ผู้มีอำนาจ และเข้าใจสถานการณ์ สามารถใช้สื่อข่าวสารทำให้เกิดผลตามที่ตนเองต้องการได้ (เสรีวงษ์, 2535) จากที่กล่าว จึงนำมาสู่ กรอบแนวคิดการวิจัยซึ่งสกัดมาได้จากข้อมูลจากการสื่อสารที่ส่งผลต่อความสำเร็จในการโฆษณาประสัมพันธ์ด้านภาพที่ 1

![ภาพที่ 1: ปัจจัยด้านสื่อออนไลน์ และการรับรู้ผ่านข้อมูลข่าวสารส่งผลต่อความสำเร็จด้านการโฆษณาประสัมพันธ์]
นอกจากนี้ยังทำการสัมภาษณ์กลุ่มตัวอย่างจำนวน 10 คนซึ่งประกอบด้วยผู้ประกอบการบริษัทน่าเรื่อง ผู้ประกอบการที่พัก และผู้ประกอบการขนส่ง

ครั้งที่ 2 ในการวิจัย

การศึกษาวิจัยครั้งนี้ผู้วิจัยได้ใช้เครื่องมือ 2 ชุดดังนี้

ชุดที่ 1 เป็นการใช้แบบสัมภาษณ์สอบถามเกี่ยวกับช่องทางในการโฆษณาระหว่างสัมพันธ์ ข้อมูลชาร์จสารในจากการจัดกรรมการท่องเที่ยวภายในจังหวัดศรีรัมย์ กลุ่มตัวอย่างจำนวน 10 คน คำถามที่ใช้ในการสัมภาษณ์แบบนี้โครงการังได้รับการตรวจสอบข้อมูลจากผู้ทรงToWorld จ้างาน 3 ท่าน และผู้วิจัยได้ส่งคำถามไปยังกลุ่มตัวอย่างจำนวนหนึ่งที่ทำการสัมภาษณ์เพื่อกู้ข้อมูล

ชุดที่ 2 เป็นแบบสอบถามมี 3 ตอนได้แก่ ตอนที่ 1 ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม ตอนที่ 2 ข้อมูลเกี่ยวกับการใช้สื่อออนไลน์และการรับรู้ข้อมูลชาร์จสาร เป็นการคัดเลือกผู้ที่สามารถ คำถามแสดง 5 ระดับั้นแต่ละระดับที่สูง ไปถึง น้อยที่สุด ตอนที่ 3 ข้อเสนอแนะเกี่ยวกับปัจจัยที่ส่งผลต่อความสำเร็จด้านการโฆษณาประชาสัมพันธ์

ยังมีการทดสอบความเทียบเท่าและความน่าเชื่อถือของแบบสอบถามโดยการทำ try out แบบสอบถามจำนวน 30 ชุด ทําในที่ที่ที่ผ่านไปว่า อารยธรรม จังหวัดศรีรัมย์ อารยธรรมศรีรัมย์ เพื่อที่จะทราบถึงแนวโน้มที่แท้จริงในการชาร์จสาร และการทดสอบแบบสอบถามมีการแสดงความเทียบเท่า ความน่าเชื่อถือ

การเก็บรวบรวมข้อมูล

การศึกษาวิจัยครั้งนี้มีการเก็บรวบรวมข้อมูล 2 ช่วง ช่วงที่ 1 ข้อมูลในการสัมภาษณ์กลุ่มตัวอย่าง นักวิจัยได้เก็บข้อมูลจากการจัดงานดังกล่าวทั้งในจังหวัดศรีรัมย์ และจังหวัดอื่น ๆ ที่มีรายได้จากหุ้นทรัพยากร จังหวัดอื่น ๆ ซึ่งส่วนใหญ่ประกอบด้วย 400 ชุด ผู้วิจัยได้เก็บข้อมูลจากนักท่องเที่ยวที่มาเยือนในเขตเทศบาลเมืองศรีรัมย์ เช่น สิ่งปลูกเลี้ยง ชุมชนในบริเวณ และวัตถุที่น่าสนใจ เป็นต้น ในการชม ประเพณี
ผลการศึกษาตอนที่ 2 ผู้ตอบแบบสอบถามส่วนใหญ่เป็นเพศหญิง จำนวน 251 คน คิดเป็นร้อยละ 62.7 อายุอยู่ระหว่าง 41-50 ปี จำนวน 143 คน คิดเป็นร้อยละ 35.2 ประกอบอาชีพ ส่วนใหญ่เป็นพนักงานบริษัท จำนวน 191 คน คิดเป็นร้อยละ 47.8 และส่วนใหญ่จบการศึกษาระดับปริญญาตรี จำนวน 260 คน คิดเป็นร้อยละ 48.3 ส่วนวิธีการรับรู้ข่าวสารทางการท่องเที่ยวพบว่า ส่วนใหญ่รับรู้ข่าวสารทางสื่อมวลชน (สื่อโทรทัศน์,วิทยุ,อินเตอร์เน็ต) จำนวน 268 คน คิดเป็นร้อยละ 68.4 รองลงมาคือ สื่อสุนัข (ปากต่อปาก) จำนวน 98 คน คิดเป็นร้อยละ 21.0 การค้นหาข่าวสารทางการท่องเที่ยวพบว่า ส่วนใหญ่รับรู้ข่าวสารทางสื่อมวลชน (สื่อโทรทัศน์,วิทยุ,อินเตอร์เน็ต) จำนวน 301 คน คิดเป็นร้อยละ 68.1 รองลงมาคือ สื่อสุนัข (ปากต่อปาก) จำนวน 50 คน คิดเป็นร้อยละ 18.1 สื่อเฉพาะกิจ จำนวน 17 คน คิดเป็นร้อยละ 2.6 นอกจากนี้ผู้วิจัยได้ทำการศึกษาด้านประวัติสังคมส่วนตัวในการสื่อสารด้านการโฆษณาประสัมพันธ์ทางท่องเที่ยวโดยผลการวิเคราะห์ข้อมูลแสดงตามตาราง 1
ตารางที่ 1
ผลการวิเคราะห์การถดถอย

<table>
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<th>ตัวแปรต้น</th>
<th>ตัวแปรตาม</th>
<th>ความสัมพันธ์ด้านการโฆษณาประชาสัมพันธ์</th>
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|ปัจจัยด้านสื่อออนไลน์|ผลการวิเคราะห์การถดถอย| .237***
|&nbsp;&n
วงศ์ (2561) อ้างอิงถึงการใช้อินเทอร์เน็ตในปัจจุบันจุบบันนี้ได้รับความนิยมในการเลือกใช้เป็นช่องทางในการเปรียบเทียบประเภทโฆษณาประชาสัมพันธ์อย่างกว้างขวาง การศึกษาเยี่ยมแยงของผลการศึกษาไทยต่างประเทศ (Hypodermic needle Theory) ซึ่งเป็นผู้มีอำนาจและบทบาทสำคัญที่สุด เสน่ห์ของโฆษณา และส่งข่าวสารไปยังผู้รับข้อมูลประกบกันอย่างกว้างขวาง หัวข้อสำหรับข่าวสารเป็นคนจำนวนมาก ที่ต่างคนต่างอยู่ เร็วขึ้น และมีปัญญาหรือพฤติกรรมเปลี่ยนแปลงไปตามที่ผู้ส่งข่าว สารต้องการ ไม่มีบทบาทหรืออำนาจควบคุมผู้ส่ง (เสรี วงษ์ณัฐ, 2535)

ข้อเสนอแนะเพื่อการนำผลการวิจัยไปใช้

1. ข้อเสนอแนะเชิงนโยบาย การวิจัยนี้ทำให้เกิดองค์ความรู้เพื่อที่จะนำผลการวิจัยไปใช้ในการโฆษณาประชาสัมพันธ์ในการจัดกิจกรรมในเขตพื้นที่อำเภอเมืองบุรีรัมย์ให้มีประสิทธิภาพโดยการเน้นการโฆษณาประชาสัมพันธ์ผ่านช่องออนไลน์ซึ่งเป็นช่องที่สามารถเข้าถึงกลุ่มผู้รับข้อมูลบ้านถึง 4.00 ชิ้นรับสื่อข้อมูลข่าวสารผ่านระบบโทรศัพท์ งานวิจัยนี้จะเป็นประโยชน์ต่อการประยุกต์ใช้การเผยแพร่ข้อมูลข่าวสารในหน่วยงานการรัฐและภาคเอกชนในอนาคตต่อไป

2. ข้อเสนอแนะในเชิงปฏิบัติ องค์ความรู้จากการวิจัยนี้ได้ทำให้การศึกษาเพื่องจัดงานออนไลน์และปัจจัยการรับรู้ข้อมูลข่าวสาร อย่างไรก็ตามในเชิงปฏิบัติจะต้องให้ความสำคัญกับรายละเอียดข้อมูลข่าวสาร ภาพที่ใช้ในการสื่อโฆษณาประชาสัมพันธ์ด้วย

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Knowledge Dissemination to Improve the Quality of Life for the Elderly

by Using Information Technology

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อ 1) พัฒนาระบบและ 2) ประเมินประสิทธิภาพของระบบการเผยแพร่ความรู้ด้านการพัฒนาคุณภาพชีวิตแก่ผู้สูงอายุโดยใช้เทคโนโลยีสารสนเทศ การวิจัยครั้งนี้เป็นการวิจัยและพัฒนาโดยพืนทีในการศึกษา ได้แก่ ตําบลเสม็ด ผู้วิจัยแบ่งขันตอนการวิจัยเป็น 4 ระยะ ได้แก่ ระยะที่ 1 ศึกษาความต้องการ ทำภาระสรุปคำถามซึ่งสิ่งที่ผู้ให้ข้อมูลสําคัญโดยวิธีการเลือกแบบจำลองจำนวน 5 คน ได้แก่ นายกองค์การบริหารส่วนตําบล หัวหน้าชุมชน ระยะที่ 2 พัฒนาระบบโดยใช้กระบวนการพัฒนาระบบสารสนเทศ (Software Development Life Cycle: SDLC) ระยะที่ 3 ประเมินประสิทธิภาพของระบบโดยใช้แบบสอบถามที่ผ่านการตรวจสอบความสอดคล้องและความเที่ยงตรงขั้นตอน (IOC) จากผู้ใช้เข้ามามา 3 คน และ ระยะที่ 4 การนำไปใช้ประโยชน์ กลุ่มตัวอย่างที่ใช้ในการศึกษาคือ ผู้สูงอายุและประชาชนในตําบลเสม็ด ได้แก่ โดยวิธีการสุ่มอย่างง่าย จำนวน 20 คน เครืองมือที่ใช้ในการพัฒนาระบบ ได้แก่ PHP, MySQL, Edit Plus แบบสัมภาษณ์ผู้ให้ข้อมูลสําคัญ และแบบสอบถามในการประเมินประสิทธิภาพ สถิติที่ใช้ในการวิเคราะห์ข้อมูลได้แก่ ร้อยละ ค่าเฉลียและส่วนเบียงเบนมาตรฐาน

ผลการวิจัยพบว่า ด้านความต้องการการทำของระบบผู้ใช้มีความพึงพอใจในภาพรวมระดับมาก โดยผู้ประเมินมีระดับความคิดเห็นของระบบตั้งรูปแบบการนำเสนอเนื้อหาอยู่ในระดับมากที่สุด รองลงมาคือ ลำดับการนำเสนอเนื้อหาและการออกแบบหน้าจอ ส่วนด้านการทำของระบบผู้ใช้มีความพึงพอใจในภาพรวมระดับมาก โดยผู้ประเมินมีระดับความคิดเห็นด้านความง่ายต้องการเรียนรู้และการใช้งานอยู่ในระดับมากที่สุด รองลงมาคือ เนื้อหามีประโยชน์และมีความเหมาะสม
Abstract

The objective of the research were: 1) to develop the system and 2) to evaluate the efficiency of the knowledge dissemination system on the development of quality of life for the elderly by using information technology. The research technique is research and development and area of study is Samet subdistricts. The research procedure was divided into 4 phases: **Phase 1**

The needs of key informants were examined through in-depth interviews with 5 key informants: a chief executive of Samet Subdistrict Administration Organization, a chief of social development section, a village headman, an assistant village headman and a community leader. The key informants were selected by using a purposive sampling method. **Phase 2**

The system was developed by using the Software Development Life Cycle (SDLC). **Phase 3**

The efficiency of the system was evaluated by 3 experts via checking content validity using Index of Item-Objective Congruence (IOC) and **Phase 4**

the system utilization 20 participants from the elderly and the general public in Samet Subdistricts were used as a sample group of the study obtained by using a simple random method. The tools used in the system development included pHp, MySQL, Edit Plus, Interview and questionnaire. Statistics used in data analysis were percentage, mean and Standard Deviation.

It was found that in terms of the needs on the operational system, the users had a high satisfaction level in overall aspect. The evaluators had the highest satisfaction level on the system in terms of the content presentation, followed by the order of content presentation and screen design. As for the system utilization, the users had a high satisfaction level in overall aspect. The evaluators had the highest satisfaction level on the ease of learning and the ease of use, followed by the content that is useful and appropriate.

**Keywords:** dissemination, elderly, information technology, improve the quality of life
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သူများနေထိုင်သောနေရာများ, ဗိုလ်ချုပ်(သူများ)
ဗျည်းသံစစ်စစ်များကို ဖော်ထွတ်ရန် ရည်ရွယ်ပါသည်။
သဒေဗဒသေဘာအရ ဗျည်းသတ်မတ်ချက်သည် လက်ေတွ ရွတ်ဆိမ်အေပတွင် အေြခခံပါသည်။ အစအလာသဒါကျမ်းများ၏ ဗျည်းသတ်မတ်ချက်များမာ အများအာြဖင့် အနက်အဓိပာယ်အေပတွင် အေြခခံေကာင်းေတွ ိရသည်။ ထိ ့အတြမန်မာဗျည်းအေရအတွက်များ သတ်မတ်ရာတွင်လည်း အစအလာြမန်မာသဒါများင်သဒေဗဒသေဘာမာကွာြခားလျက်ိပါသည်။ ထိ ့ေကာင့် အစအလာြမန်မာသဒါတိတွင် သတ်မတ်ထားသည့်ြမန်မာဗျည်းများတွင် ြမန်မာဗျည်းစစ်စစ်မည်မိေကာင်းင့်ဗျည်းစစ်စီ၏ ထတ်လပ်ပံများကိ သဒေဗဒနည်းြဖင့် လက်ေတွကျကျစိစစ်သွားမည်ဖစ်ပါသည်။ ဤစာတမ်းတွင်အစအလာသဒါလာြမန်မာဗျည်းများကိ စိစစ်ရာ၌ ၁. အစအလာသဒါများင့်သဒေဗဒ ၂. ဗျည်းသတ်မတ်ချက် ၃. အစအလာသဒါလာြမန်မာဗျည်းများကိ စိစစ်ြခင်း ၄. ြခံငံသံးသပ်ချက် ဟအခန်းများခွဲ၍ ေလ့လာသွားမည်ဖစ်ပါသည်။ မျက်ေမာက်ေခတ်ြမန်မာဗျည်းများကိ သပ်ေဖာ်စိစစ်ရာတွင်ြမန်မာဗျည်းအေရအတွက်များကိ စိစစ်ြခင်း၊ အသံအရည်အေသွးကိစိစစ်ြခင်း၊ အသံြဖစ်ရာေနရာကိ စိစစ်ြခင်း၊ အသံြဖစ်ဟန်ကိ စိစစ်ြခင်း၊ ဗျည်းတစ်ခချင်းစီ၏ ထတ်လပ်ပံကိ စိစစ်ြခင်းဟ၍ ခွဲြခားစိစစ်သွားမည်ဖစ်ပါသည်။ အခန်း ၁ အစအလာ ြမန်မာသဒါများင့်သဒေဗဒ အစအလာြမန်မာသဒါဟသည် ေးအစအဆက်ကစ၍ ယေနၷအချိန်အထိပညာင်တိ ့ြပစခဲ့ကသာြမန်မာသဒါကျမ်းများကိ ဆိလိပါသည်။ သဒေဗဒဟသည်မာ ၁၉ရာစောင်းပိင်းတွင် တိးတက်ကျယ်ပန့်လာခဲ့သောဘာသာစကား၏စကားသံမာလည်း စကားသံကိအေြခခံ၍ ဘာသာစကားကိ ေရးသားေပာဆိရာ၌အသံးြပရမည့်နည်းစနစ်တိ့ကိေဖာ်ြပထားြခင်းဖစ်ပါသည်။

သဒါဟသည် 'သဒ'ဟေသာပါဠိစကားဖစ်၍ အသံ၊ 'ေဝါ'ဟာရ၊ ပညတ်၊ သဒါဟ အနက်ရပါသည်။ အဓိပာယ်ိေသာအသံကိ အစွဲြပ၍ ေရးသားထားေသာေကာင့်သဒါဟေခသည်။ လတိ့၏တ်မထွက်ေသာအသံတိ့ကိ ဆိလိသည့်အဓိပာယ်ေရာက်ေအာင်စနစ်တကျေြပာဆိေရးသားရသည်။ ထိသိ့ေြပာဆိေရးသားရာ၌အသံးြပရမည့်နည်းစနစ်တိ့ကိေဖာ်ြပေသာကျမ်းသည် သဒါကျမ်းဖစ်သည်။

1 ကြောင်းထားသည်။
ဘာသာစကား၏ အေြခခံမာ စကားသံများပင်ဖစ်သည်။ အသံဖစ်ပံကိ အေြခခံ၍ စကားသံများကိ အမျိးအစားခွဲလင် ဗျည်းသံင်းသရသံဟု တွေ့ပါသည်။ ထိဗျည်းသံ၊ သရသံများကိ အေြခခံ၍ပင် အစအလာသဒါဆရာများက သဒါနည်းစနစ်များဖော်ထတ်ခဲ့ကသည်။ သဒေဗဒပညာင်များကလည်း ဘာသာစကား၏စကားသံများကိ စနစ်တကျေလ့လာခဲ့ကပါသည်။ ဗျည်းင်ပတ်သက်၍ ပညာင်တိ့၏ လ့လာဖော်ထတ်ပံမတည်မများကိ ဤစာတမ်းတွင် တွေ့မင်ရမည်ဖစ်ပါသည်။

အခန်း ၂

ဗျည်းဟေသာေဝါဟာရသည် 'ဗျဥန'ဟေသာပါဠိဘာသာစကားမဆင်းသက်လာ၍ အနက်ကိဌပတတ်သေသာ သဒါ၊အကရာ၊ ဗျည်းဟ အဓိပာယ်ရပါသည်။ ဗျည်း၏အဓိပာယ်ကိ ေးဟာင်းသဒါကျမ်းဖပဆရာများက သာလည်းေကာင်း၊ သဒေဗဒပညာင်များက သာလည်းေကာင်း အမျိးမျိးဖွင်သတ်မတ်ခဲ့ကပါသည်။ ကန်းေဘာင်ခတ်တွင်မကာရေလာပခင်ကီးဖျာ်ထင်ားခဲ့သည့် ေတာင်တွင်းဆရာေတာ် ခင်ကီးဖျာ်က ဗျည်းကိ အစအံအဆံးသာသံးဆယ့်သံးလံးသာသည် ဗျည်းမည်ကန်၏။ ထိ အကရာတိ့သည် ဗျည်းမည်ကန်၏ ဟဆိပါသည်။ ဤအဆိအရ အနက်အဓိပာယ်ကိ ဖော်ပိင်လင်ဗျည်းဟဆိြခင်းဖစ်သည်။

ပံစံအားဖင က ဟေသာဗျည်းသည် ေနရာင်းအသံးကိလိက်၍ အနက်အမျိးမျိးကိ ပြစ်စီးိုင်းေကာင်း ေအာက်ပါသာ ဓကအရ သိိင်ပါသည်။ ခန်ကသည် = များသားသားများသံတိ့ဖင့် ဖက်တွဲ၍ ဦးလည်းအားဖင သီဆိတီးမတ်သံတိ့ဖင့် ဖက်တွဲ၍ ဦးလည်းအားဖင ပံစံအားဖင က ဟေသာ ဗျည်းသည် ေနရာင်းအသံးကိလိက်၍
သို့မဟုတ် အာရွယ်အနှစ်ကိုလည်း ဖော်ပြပေးနိုင်ပါလိမ့်မည်။

1. ဗျည်းအမှတ်များကို စာရင်းပြုစုရန်အတွက် အခါမှတ်ချက်ကို သိရှိရန်အတွက် အဆင့်အတန်းများကို ဖော်ပြပေးနိုင်ပါလိမ့်မည်။

2. ပြည်သူများကို အရေအတွက် မှတ်ချက်ကို သိရှိရန်အတွက် အဆင့်အတန်းများကို ဖော်ပြပေးနိုင်ပါလိမ့်မည်။

3. ပြည်သူများကို အရေအတွက် မှတ်ချက်ကို သိရှိရန်အတွက် အဆင့်အတန်းများကို ဖော်ပြပေးနိုင်ပါလိမ့်မည်။

4. သို့မဟုတ် အရေအတွက် မှတ်ချက်ကို သိရှိရန်အတွက် အဆင့်အတန်းများကို ဖော်ပြပေးနိုင်ပါလိမ့်မည်။

5. ဗျည်းအမှတ်များကို စာရင်းပြုစုရန်အတွက် အခါမှတ်ချက်ကို သိရှိရန်အတွက် အဆင့်အတန်းများကို ဖော်ပြပေးနိုင်ပါလိမ့်မည်။

6. ပြည်သူများကို အရေအတွက် မှတ်ချက်ကို သိရှိရန်အတွက် အဆင့်အတန်းများကို ဖော်ပြပေးနိုင်ပါလိမ့်မည်။

7. သို့မဟုတ် အရေအတွက် မှတ်ချက်ကို သိရှိရန်အတွက် အဆင့်အတန်းများကို ဖော်ပြပေးနိုင်ပါလိမ့်မည်။

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5. ဗျည်းအမှတ်များကို စာရင်းပြုစုရန်အတွက် အခါမှတ်ချက်ကို သိရှိရန်အတွက် အဆင့်အတန်းများကို ဖော်ပြပေးနိုင်ပါလိမ့်မည်။

6. Horsey, Richard, 101 key Ideas. 23/

7. သို့မဟုတ် အရေအတွက် မှတ်ချက်ကို သိရှိရန်အတွက် အဆင့်အတန်းများကို ဖော်ပြပေးနိုင်ပါလိမ့်မည်။
ဗျည်းသံတိ လက်တွေ့ ရွတ်ဆိကည့်ရာတွင် ဗျည်းသည် လတိ့၏တ်မထွက်သောစကားသံများကိသာ ရည်နှိုင်းတွင် ရပါသည်။ ဤစာတမ်းတွင် အစအလာသဒါက သတ်မတ်ထားသော ဗျည်းများကိ သဒေဗဒနည်စနစ်များဖင့် စိစစ်လ့လာမည်ဖစ်ပါသည်။ ဤသိ့ ဗျည်းများကိ စိစစ်ရာတွင် အနေဖြင့် (၁) ဗျည်းအေရအတွက်များကိ စိစစ်ခင်း (၂) ဗျည်းတို့၏ အသံအရည်အသွေးကိ စိစစ်ခင်း (၃) အသံဖစ်ရာဌာနကိ စိစစ်ခင်း (၄) အသံဖစ်ဟန်ကိစိစစ်ခင်း ဟူးအပိင်းကများခွဲ၍ စိစစ်သွားမည်ဖစ်ပါသည်။

၃.၁. ဗျည်းအေရအတွက်များကိ စိစစ်ခင်း။ ဗျည်းအေရအတွက်ကိ သတ်မတ်ရာတွင် အမျိးမျိးကွဲပားလျက် ိေကာင်းတွင်ရပါသည်။ အေရအတွက် (၁) သဒဗျဟာကျမ်းအလိအရ ကြော်တာ (၃၃)လံး။ လယ်တီဆရာဦးသီးခိုင်အလိအရ ကြော်တာ (၃၅)လံး။ ဗျည်းစွယ်စံကျမ်းအလိအရ ကြော်တာ (၃၅)လံး။ ဗျည်းသဒါအလိအရ ကြော်တာ (၃၃)လံးစသောက်း ကျမ်းအမျိးမျိးတွင် အေရအတွက် အမျိးမျိးကိ ပလျက်ပါသည်။ သို့ဗျည်းတိ ဗျည်းစစ်စစ်မဟတ်၊ မဟတ်ဆိသည့်အကားများကိ သဒေဗဒေထာင်လက်တွေရွတ်ဆိများဖင့် စိစစ်သွားမည်ဖစ်ပါသည်။

အစအလာသဒဵ် ဗျည်းအေရအတွက် သတ်မတ်ချက်များတွင် ကြော်တာလှ၊ လှမ်းလှစ်သော ဗျည်း(၃၂)လံးမာတည်ကောင်သောနားလည်းကောင်နားသော ဗျည်း(၃၃)လံးတွင် ပါဝင်သော ဗျည်း(၃၃)လံး။ ပါဠိဘာသာေရးေရးစအတိင်း ေရးမတ်လိသတိ့က အဆံးတွင် 'အကရာ၌ နိဂဟိတ်တင်သော အံကိြဖည့်၍က......ဠ၊အံ'ဟူး (၃၃)လံးသတ်မတ်သည်။ ဗျည်းမိအတိကျ ဗျည်းသို့သောကြော်တာ 'က......ဠ၊အ'ကိ သင်ားဗျည်းအြဖစ်ထား၍ 'က......ဠ၊အ'ဟူး (၃၃)လံးသတ်မတ်သည်

အစအလာသဒါတွင် ဗျည်း(၃၃)လံးသည် ဆိုသော်လည်း သဒေဗဒအရအချိဗျည်းများမာ ဗျည်းစစ်စစ်များ မဟတ်ကေပ။ ဗျည်း(၃၃)လံးတွင် ပါဝင်သော ဗျည်း(၃၃)လံး။ ဗျည်းအေရအတွက်သည် အပိင်းကများခွဲ၍ စိစစ်သွားမည်ဖစ်ပါသည်။

8 စာကာရီပါ ယောက်မြောင်း
"ဗျည်းသံ" အကရာတိများကို စိတ်ကူးစီးနေပါသည်။ ဗျည်းသံများဖြင့် ပြုစုထားသော အကယ်အဝေးများကို စိတ်ကူးစီး "ဗျည်းသံ" အကရာတိများဖြင့် စိတ်ကူးစီးနေသည်။ အကယ်အဝေးများဖြင့် ဗျည်းသံများ ဖြစ်သည်။

ထိဗျည်းသံတိများဖြင့် အကယ်အဝေးများဖြင့် စိတ်ကူးစီးနေသည်။

<table>
<thead>
<tr>
<th>အကရာတိ (က)</th>
<th>အကရာတိ (ခ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ကြွက်ပြန်လ်မှု</td>
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</tr>
<tr>
<td>အကယ်အဝေးများ</td>
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ထိဗျည်းသံတိများဖြင့် အကယ်အဝေးများဖြင့် စိတ်ကူးစီးနေသည်။
နိဂဟိတ်ကိ ပေါင်းစပ်ထားခင်(အ-◌ံ)ဖစ်သည်။ သဒေဗဒကျမ်းတွင် အံသည် ကစည်းဆရာအလိအားဖင့်နိဂဟိတ်မည်ဟ ပါသည်။ ထိ့ကြား သဒေဗဒကျမ်းလာနောက်ဆံးဗျည်းဖြစ်သည်။

၁၉၇၁၊ ၁၉၊ ခင်ကိးဖျား၊ တာင်တွင်းဆရာတာ်၊ ၁၉၇၁၊ ၁၉။
ဗျည်းအြဖစ်ေရာ သရအြဖစ် ပါထား၍ အသံးြပြခင်းသည် ဗျည်းစစ်စစ်မာ (၂၁)လံး သာိေကာင်း ေတွိရပါသည်။ ကိ သင်ိးဗျည်း အြဖစ်ေရာ သရအြဖစ် ပါထား၍ အသံးြပြခင်းသည် ဗျည်းစစ်စစ်မာ (၃၃)လံး သာိေကာင်း ေတွိရပါသည်။ ထိဗျည်း (၁၂)လံးသည် အစအလာသဒါ၏ သတ်မတ်ချက်တွင် ပြောင်းသွင်းထားက၍ ရပ်သံဗျည်း/ʔ မာ လံးချင်းဗျည်းဟ သတ်မတ်၍ မရေသာအဆံး ဗျည်းသံမသာ ြဖစ်ေကာင်း ေတွိရပါသည်။ ထိ့ေကာင့် ဗျည်းသံ (၃၃)သံ သာ့လင် တည်က၍ အြခားဗျည်း (၁၂)လံး၏ သတ်မတ်ပံများမာ တည်မမိေကာင်း ေတွိရပါသည်။ ဗျည်းသံ (၃၃)သံ သာ့လင် တည်က၍ အြခားဗျည်း (၁၂)လံး၏ သတ်မတ်ပံများမာ တည်မမိေကာင်း ေတွိရပါသည်။
<table>
<thead>
<tr>
<th>Voice Quality</th>
<th>Place of articulation</th>
<th>Manner of articulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voiceless</td>
<td>Active Articulator</td>
<td></td>
</tr>
<tr>
<td>Voiced</td>
<td></td>
<td></td>
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<tr>
<td>Aspirated</td>
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<td></td>
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<tr>
<td>Devoiced</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>h</strong>-sound</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10 Voice Quality
11 Place of articulation
12 Manner of articulation
13 Voiceless
14 Aspirated
15 Voiced
16 Devoiced
17 h-sound
18 Active Articulator
ယောက်ျားပျော်ရွှင်မှုသားစကားသံပေါ်များကို ပုံစံများဖြင့် စေရာထားသည်။ ပုံစံများဖြင့် စေရာထားသည်။

19 Passive Articulatar
20 Place of Articulation
21 Labial
22 Dental
23 Alveolar
24 Palato Alveolar
25 Palatal
26 Velar
27 Glottal
ဗျည်းများသည် အာေခါင်မာ၏ စိုက်ပျိုးသော စကားလုံးအဖြစ် အသုံးပြုကြသည်။ အာေခါင်မာ၏ စိုက်ပျိုးသော စကားလုံးအဖြစ် အသုံးပြုကြသည်။ လပ်ားိင်ေသာစကားသံြပအဂ ါ အစိတ်အပိုင်းစ်ခတိ ့၏အကားမည်သိမ်းမည်ပံထွက်သွားဟန်ကိ ဆိလိပါသည်။ ဗျည်းများကိ စကားသံြပအဂ ါတိ့၏အေနအထားအရလည်းကောင်း၊ အသံဖစ်ရာနှင့်နေရာ၌ကြောင်းခွာပိတ်ပင်ပံထွက်သွားဟန်ကိ ဆိလိပါသည်။ ဗျည်းများ၏စကားသံြပအဂ ါတိ့၏အေနအထားအရလည်း ကြောင်းခွာြခားကည့်ိင်သည်။ ဗျည်းများ၏အမည်ဖစ်ဟန်ကိ ခွဲြခားကည့်လင်န်းပွင့်ဗျည်းြဖစ်ဟန်၊ ရပ်သံဗျည်းြဖစ်ဟန်၊ န်းပွင့်ပွတ်တိက်ဗျည်းြဖစ်ဟန်၊ ာသံဗျည်းြဖစ်ဟန်၊ လာေဘးပွင့်ဗျည်းြဖစ်ဟန်၊ ပွတ်တိက်ဗျည်းြဖစ်ဟန်၊ သရေရွ ဗျည်း (သရတစ်ပိင်းဗျည်းတစ်ပိင်း) ြဖစ်ဟန်ဟု (၇)မျိးပါသည်။ သိ့ဥို့ ဗျည်း(၂၁)လံးတွင် ရပ်သံဗျည်း၊ န်းပွင့်ပွတ်တိက်ဗျည်းတိမပါိေပ။ ဗျည်းများကိ အမည်ဖစ်ဟန်များကိ အမည်ဖစ်ပံလည်းကောင်း၊ အသံဖစ်ရာနှင့်နေရာ၌ကြောင်းခွာပိတ်ပင်ပံထွက်သွားဟန်ကိ ဆိလိပါသည်။
ဗျည်းတစ်ခချင်းစီ၏ ထတ်လပ်ပံကိ စိစစ်ြခင်း။ ဗျည်းများကိစိစစ်ရာတွင် သတ်မတ်ထားေသာဗျည်းများင် ့ အမန်တကယ် ရွတ်ဖတ် သံးစွဲေနေသာဗျည်းများ ကိက်ညီမိမိကိ ဆန်းစစ်သင် ့ေပသည်။ ဗျည်းသံသည် သရသံကိအမီြပမ အသံထွက်ိင်ေသာ သေဘာိကျောင်း ပညာင်တိ ့မိန် ဆိခဲ့ကပါသည်။

ပတ်တိက်ဗျည်းများ စ်/ s/ ဆ်/ sh/ ဇ်/ z/ သ် / θ/ ဟ်/ h/ တိ ့ြဖစ်ကသည်။

သရပါဝါက သရေရွ ဗျည်းများ ြဖစ်ကသည်။
ိသည်အတွက် အလွန်တိေတာင်းေသာေကာင်းမိမိဘာသာအသံမထွက်ေသာေကာင်းစ်သည်။

ထိသိ့ေသာ အစအလာသတ်မတ်ချက်မာ ဗျည်းသံများကိရွတ်ဆိရာ၌ အချိန်ကာလကိအေြခခံ၍ သတ်မတ်ထားေသာေကာင်းစ်သည်။

သဒေဗဒသေဘာအရမာ ဗျည်းသံတစ်ချက်ေပါန်(၅)ရပ်စိစစ်ရာတွင် ေအာက်ပါရပ်(၅)ရပ်စိစစ်ပါသည်။ယင်းတိ့မာ(၁)လလမ်းေကာင်း၏သဘာဝ(၂)အသံကိး(၃)အာေခါင်ေပျာ့(၄)အသံြဖစ်ရာနရာ(၅)အသံြဖစ်ဟန်တိ့မာလည်း ဗျည်းသံအများစမာထွက်ေလအဆတ်ေလေကာင်းယရားများစိစစ်ကသည်။

အသံကိးသည် စကားသွင်းမအတွက် အေရးပါသည်။ အသံကိးတန်ခါြခင်းစိစစ်ပါသည်။ အသံကိးသည် အသံအရည်အေသွးကိခွဲြခားေပးိင်စွမ်းိသည်။

အာေခါင်ေပျာ့သည်လည်း ခံတွင်းသံင်းသံြဖစ်ြခင်းကိခွဲြခားေပးိင်စွမ်းိသည်။

ခံတွင်းဗျည်းများလာေစရန် အာေခါင်ေပျာ့သည်တည်က်တက်၍ ာတွင်းလမ်းကိပိတ်ရသည်။

ာသံဗျည်းများအတွက် အာေခါင်ေပျာ့သည်နိမ့်ကျ၍ ာတွင်းလမ်းကိပွင့်ေစပါသည်။

ထိသာက်ကြားေကာင့် ဗျည်းသံတစ်သံချင်းစီ၏ ထတ်လပ်ပံကိရှိပါ(၅)ရပ်စိစစ်မည်ြဖစ်ပါသည်။

28 Nature of the air-stream
29 State of the glottis
30 Position of the velum or the soft palate
က/ /k/ - အသံညင်း အာေခါင်ေပျာ့ န်းပွင့်ဗျည်း 31
(၁) အာေခါင်ေပျာ့င့်လာေနာက်ပိင်းပိတ်ဆိ့ရာ ေလလမ်းေကာင်းကိတားဆီးသည်။
(၂) အာေခါင်ေပျာ့တွင်အာေခါင်ေပျာ့အာေခါင်ေပျာ့တွင်းလမ်းေကာင်းပိတ်သည်။
(၃) အာေခါင်ေပျာ့နိမ့်ကျသည်။ ာတွင်းလမ်းေကာင်းပွင့်သည်။ ာသံဗျည်း ြဖစ်သည်။
(၄) အာေခါင်ေပျာ့င့်လာေနာက်ပိင်းပိတ်ဆိ့ရာေလလမ်းေကာင်းကိတားဆီးသည်။
(၅) ာသံဗျည်း ြဖစ်သည်။

ခ/ /kh/ - အသံညင်း အာေခါင်ေပျာ့ န်းပွင့်ဗျည်း 32
(၁) အာေခါင်ေပျာ့င့်လာေနာက်ပိင်းပိတ်ဆိ့ရာ ေလလမ်းေကာင်းကိတားဆီးသည်။
(၂) အာေခါင်ေပျာ့တွင်အာေခါင်ေပျာ့အာေခါင်ေပျာ့တွင်းလမ်းေကာင်းပိတ်သည်။
(၃) အာေခါင်ေပျာ့နိမ့်ကျသည်။ ာတွင်းလမ်းေကာင်းပွင့်သည်။ ာသံဗျည်း ြဖစ်သည်။
(၄) အာေခါင်ေပျာ့င့်လာေနာက်ပိင်းပိတ်ဆိ့ရာေလလမ်းေကာင်းကိတားဆီးသည်။
(၅) ာသံဗျည်း ြဖစ်သည်။

ဂ/ /g/ - အသံညင်း အာေခါင်ေပျာ့ န်းပွင့်ဗျည်း 33
(၁) အာေခါင်ေပျာ့င့်လာေနာက်ပိင်းပိတ်ဆိ့ရာ ေလလမ်းေကာင်းကိတားဆီးသည်။
(၂) အာေခါင်ေပျာ့တွင်အာေခါင်ေပျာ့အာေခါင်ေပျာ့တွင်းလမ်းေကာင်းပိတ်သည်။
(၃) အာေခါင်ေပျာ့နိမ့်ကျသည်။ ာတွင်းလမ်းေကာင်းပွင့်သည်။ ာသံဗျည်း ြဖစ်သည်။
(၄) အာေခါင်ေပျာ့င့်လာေနာက်ပိင်းပိတ်ဆိ့ရာေလလမ်းေကာင်းကိတားဆီးသည်။
(၅) ာသံဗျည်း ြဖစ်သည်။

စ/ /s/ - အသံညင်း အာေခါင်ေပျာ့ န်းပွင့်ဗျည်း 35

31 Voiceless velar plosive consonant
32 Aspirated velar plosive consonant
33 Aspirated velar plosive consonant
34 Voiced velar nasal consonant
35 Voiceless Alveolar Fricative consonant
(၁) အဆတ်းလေကာင်း ြဖစ်သည်။ ထွက်းလေ ြဖစ်သည်။
(၂) အသံကိးပွင့်သည်။ သံညင်းထက် အနည်းငယ် းလအားတင်းသည်။ းလတင်းသံ ြဖစ်သည်။
(၃) အားခါပျာ့ ြမင့်တက်သည်။ ာတွင်းလမ်းးကာင်း ပိတ်သည်။ ခံတွင်းဗျည်း ြဖစ်သည်။
(၄) လာချပ်င့် သွားရင်း ထိေတွသည်။
(၅) ပွတ်တိက်ဗျည်း ြဖစ်သည်။

/ sh / - အေဒီတန်းသွားရင်း ပွတ်တိက်ဗျည်း 36

(၁) အဆတ်းလေကာင်း ြဖစ်သည်။ ထွက်းလေ ြဖစ်သည်။
(၂) အသံကိးတန်ခါမ မိေပ။ ထိ ့ေကာင့် သံညင်း ြဖစ်သည်။
(၃) အားခါပျာ့ ြမင့်တက်သည်။ ာတွင်းလမ်းးကာင်း ပိတ်သည်။ ခံတွင်းဗျည်း ြဖစ်သည်။
(၄) လာချပ်င့် သွားရင်း ထိေတွသည်။
(၅) ပွတ်တိက်ဗျည်း ြဖစ်သည်။

/ z / - အေဒီတန်းသွားရင်း ပွတ်တိက်ဗျည်း 37

(၁) အဆတ်းလေကာင်း ြဖစ်သည်။ ထွက်းလေ ြဖစ်သည်။
(၂) အသံကိးတန်ခါမ မိေပ။ ထိ ့ေကာင့် သံညင်း ြဖစ်သည်။
(၃) အားခါပျာ့ ြမင့်တက်သည်။ ာတွင်းလမ်းးကာင်း ပိတ်သည်။ ခံတွင်းဗျည်း ြဖစ်သည်။
(၄) လာချပ်င့် သွားရင်း ထိေတွသည်။
(၅) ပွတ်တိက်ဗျည်း ြဖစ်သည်။

/ j / - အေဒီတန်းသွားရင်း ပွတ်တိက်ဗျည်း 38

(၁) အဆတ်းလေကာင်း ြဖစ်သည်။ ထွက်းလေ ြဖစ်သည်။
(၂) အသံကိးတန်ခါမ မိေပ။ ထိ ့ေကာင့် သံညင်း ြဖစ်သည်။
(၃) အားခါပျာ့ ြမင့်တက်သည်။ ာတွင်းလမ်းးကာင်း ပိတ်သည်။ ခံတွင်းဗျည်း ြဖစ်သည်။
(၄) လာချပ်င့် သွားရင်း ထိေတွသည်။
(၅) ပွတ်တိက်ဗျည်း ြဖစ်သည်။

/ t / - အေဒီတန်းသွားရင်း ပွတ်တိက်ဗျည်း 39

(၁) အဆတ်းလေကာင်း ြဖစ်သည်။ ထွက်းလေ ြဖစ်သည်။
(၂) အသံကိးတန်ခါမ မိေပ။ ထိ ့ေကာင့် သံညင်း ြဖစ်သည်။
(၃) အားခါပျာ့ ြမင့်တက်သည်။ ာတွင်းလမ်းးကာင်း ပိတ်သည်။ ခံတွင်းဗျည်း ြဖစ်သည်။
(၄) လာချပ်င့် သွားရင်း ထိေတွသည်။
(၅) ပွတ်တိက်ဗျည်း ြဖစ်သည်။

36 Aspirated Alveolar Fricative consonant
37 Voiced Alveolar Fricative consonant
38 Voiced palatal nasal consonant
39 Voiceless Alveolar plosive consonant
(၁) လာဖျားင့်သွားရင်း ပိတ်ဆိ့၍ ေလလမ်းေကာင်းကိတားဆီးသည်။
(၂) အသံကိးေပါက်ပွင့်သည်။ သံညင်းထက်အနည်းငေယ်လအားတင်းသည်။
(၃) ာတွင်းလမ်းေကာင်းပိတ်သည်။ ခံတွင်းဗျည်းြဖစ်သည်။
(၄) လာဖျားင့်သွားရင်း ပိတ်ဆိ့၍ ေလလမ်းေကာင်းကိတားဆီးသည်။
(၅) န်းပွင့်ဗျည်းြဖစ်သည်။

/ th / - လာဖျားင့်သွားရင်း ပိတ်ဆိ့၍ ေလလမ်းေကာင်းကိတားဆီးသည်။

/ d / - အသံကိးတန်ခါမိေပ်။ ထိ့ေကာင့် သံညင်းြဖစ်သည်။

/ n / - အသံကိးတန်ခါမိေပ်။ ထိ့ေကာင့် သံညင်းြဖစ်သည်။

/ p / - အသံကိးတန်ခါမိေပ်။ ထိ့ေကာင့် သံညင်းြဖစ်သည်။

/ ph / - လာဖျားင့်သွားရင်း ပိတ်ဆိ့၍ ေလလမ်းေကာင်းကိတားဆီးသည်။

40 Aspirated Alveolar Plosive Consonant
41 Voiced Alveolar plosive Consonant
42 Voiced Alveolar Nasal Consonant
43 Voiceless Bilabial Plosive Consonant
44 Voiced Postalveolar Plosive Consonant
(၁) အဆတ်ေလေကာင်း ြဖစ်သည်။ ထွက်ေလေ့ဖစ်သည်။

(၂) အသံကိးေပါက် ပွင် ့သည်။ သံညင်းထက် အနည်းငယ် ေလအားတင်းသည်။ ေလတင်းသံြဖစ်သည်။

(၃) အာေခါင်ေပျာ့ ြမင့်တက်သည်။ ာတွင်းလမ်းေကာင်း ပိတ်သည်။ ခံတွင်းဗျည်း ြဖစ်သည်။

(၄) ေအာက်တ်ခမ်းင့် အထက်တ်ခမ်း ပိတ်ဆိ့၍ ေလလမ်းေကာင်းကိတားဆီးသည်။

(၅) န်းပွင့်ဗျည်း ြဖစ်သည်။

/ b / - ဗ်/b/ သံြပင်းတ်ခမ်း န်းပွင့်ဗျည်း

/ m / - ဗ်/m/ သံြပင်းတ်ခမ်း န်းပွင့်ဗျည်း

/ j / - ဗ်/j/ သံြပင်းတ်ခမ်း န်းပွင့်ဗျည်း

/ l / - ဗ်/l/ သံြပင်းတ်ခမ်း န်းပွင့်ဗျည်း

44 Aspirated Bilabial Plosive Consonant
45 Voiced Bilabial Plosive Consonant
46 Voiced Bilabial Nasal Consonant
47 Voiced Palatal Vowel glide Consonant
48 Voiced Alveolar Lateral Consonant
(၅) ဗြိတိန်းရီးယား စာအုပ် စာကြောင်းခြင်း
(၆) ဗြိတိန်းရီးယား မိုးဗျည်းခြင်း

/ w / - အားဗဲ့ကေရီး အားဗဲ့များကြောင်း 49
(၂) အားဗဲ့ကေရီးလိုက်နှံဗျည်းပိတ်ဆိ့သည်။
(၃) အားဗဲ့ကေရီးလိုက်နှံဗျည်းပိတ်ဆိ့သည်။
(၄) အားဗဲ့ကေရီးလိုက်နှံဗျည်းပိတ်ဆိ့သည်။
(၅) အားဗဲ့များ အားဗဲ့များတွင် ဗျည်းပိတ်ဆိ့သည်။

/ θ / - အားဗဲ့ စာအုပ် စာကြောင်းခြင်း 50
(၂) အားဗဲ့ကေရီးလိုက်နှံဗျည်းပိတ်ဆိ့သည်။
(၃) အားဗဲ့ကေရီးလိုက်နှံဗျည်းပိတ်ဆိ့သည်။
(၄) အားဗဲ့ကေရီးလိုက်နှံဗျည်းပိတ်ဆိ့သည်။
(၅) ဗျည်းပိတ်ဆိ့သည်။

/ h / - အားဗဲ့ စာအုပ် စာကြောင်းခြင်း 51
(၂) အားဗဲ့ကေရီးလိုက်နှံဗျည်းပိတ်ဆိ့သည်။
(၃) အားဗဲ့ကေရီးလိုက်နှံဗျည်းပိတ်ဆိ့သည်။
(၄) အားဗဲ့ကေရီးလိုက်နှံဗျည်းပိတ်ဆိ့သည်။
(၅) ဗျည်းပိတ်ဆိ့သည်။

စိစစ်စာအုပ်စာကောင်းခြင်း

စိစစ်စာအုပ်စာကောင်းခြင်း သတ်မတ်ပြစ်ပြီးသူ့စိစစ်စာအုပ်စာကောင်းခြင်း ကျွန်ုပ်ကြီးစွာ ပြင်းထန်သည်။ စိစစ်စာအုပ်စာကောင်းခြင်း သတ်မတ်ပြစ်ပြီးသူ့စိစစ်စာအုပ်စာကောင်းခြင်း ကျွန်ုပ်ကြီးစွာ ပြင်းထန်သည်။ စိစစ်စာအုပ်စာကောင်းခြင်း သတ်မတ်ပြစ်ပြီးသူ့စိစစ်စာအုပ်စာကောင်းခြင်း ကျွန်ုပ်ကြီးစွာ ပြင်းထန်သည်။
လိအပ်ချက်များေကာင့် ပါဠိဘာသာစကား၏ဗျည်းများ ထည့်သွင်း၍ ြမန်မာဗျည်းများအဖစ်သတ်မတ်ထားေကာင်း ေတွ ိရပါသည်။

ထိ ့ြပင် ဗျည်းတိ ့၏ အဖစ်ရာဌာန်ကိ ေဖာ်ြပရာတွင် သဒဗျဟာကျမ်းတွင် ဌာန ိုမ်းတွင် ဌာန ရာ(၅)ပါးမ(၈)ပါး အထိိေကာင်း သဒါအသီးသီးတိ ့၏အလိအရ ေဖာ်ြပခဲ ့သည်။ သဒေဗဒအရ ြမန်မာဗျည်းတိ ့၏ ြဖစ်ရာဌာန်(၇)ပါး ိပါသည်။ ထိဌာန်(၇)မျိးအနက် အစအလာသဒါလာ ဗျည်းတိ ့တွင် သွားရင်းအာေခါင်ဌာန် မပါိေပ။

ဗျည်းတိ ့၏ြဖစ်ဟန်တွင်လည်း သဒဗျဟာကျမ်းတွင် ကိဏ်းင့်ပယတ် ဟ၍ ခွဲခားပီးလာင့် တ်ခမ်းကိ အေြခခံခွဲခားပါသည်။ သဒေဗဒ၏ြဖစ်ဟန်မာ ေလလမ်းေကာင်း၏ြဖစ်ပံြဖစ်နည်းကိ အေြခခံခဲ ့သည်။ သဒေဗဒသေဘာအရ ဗျည်းတိ ့၏ြဖစ်ဟန်(၇)မျိး ိပါသည်။ ထိ(၇)မျိးအနက် အစအလာသဒါလာ ဗျည်းတိ ့တွင် ရပ်သံဗျည်း၊ န်းပွင့်ပွတ်တိက်ဗျည်းတိ မပါိေပ။ အစအလာသဒါတွင် န်းပွင့်ဗျည်း(၉)မျိး၊ ာသံဗျည်း(၄)မျိး၊ လာေဘးပွင့်ဗျည်း(၁)မျိး၊ ပွတ်တိက်ဗျည်း(၅)မျိး၊ သေရရွ ဗျည်း(၂)မျိး ပါဝင်ပါသည်။

ထိ ့ြပင် ဗျည်းများတွင် သံညင်း၊ သံတင်း၊ သံြပင်း၊ သံြပင်းေလျာ့ ဟ၍ အသံအရည်အေသွး (၄)မျိးိသည့်အနက် အစအလာသဒါတွင် သံြပင်းေ◌လျာ့ဗျည်းတိ ့ မပါိေပ။ အစအလာသဒါတွင် ဗျည်းအေရအတွက်ကိ က . . . ဠ၊ အဟ၍ (၃၃)လံး သတ်မတ်ထားပါသည်။ သဒေဗဒသေဘာအရ မျက်ေမာက်ေခတ်ြမန်မာဘာသာစကားတွင် ရွတ်ဆိေ◌ြေကသာ ဗျည်းအေရအတွက်မာလည်း (၃၃)လံး ိပါသည်။ ယင်း(၃၃)လံးအနက် ဗျည်းသည် က/ k / င့် ယ/ j / ကိုပါသည်။}

ဗျည်းသည်ကယ/ kj / သည် အသံသေဘာအားြဖင ့် ကျ်/ ʨ/ မြဖစ်ိင်ပါ။ ကျ်/ ʨ/ သည် လက်ေတွ ရွတ်ဆိ ကည့်လင် အဆတ်ေလေကာင်းသည် အြပင်သိ ့ထွက်လာစလာချပ်င် ့ အာေခါင်မာသွားရင်းတိ ့၏ ပိတ်ဆိ ့တားဆီးမကိခံရပီးတ်တရက် ဖွင် ့ လိက်ေသာအခါ န်းပွင်ပွတ်တိကိ ထွက်သွားေသာ ဗျည်းသံတစ်ခ ြဖစ်ပါသည်။

ထိနည်းတချ်၊ ဂျ်တိ ့မာလည်း ဗျည်းသံများ ြဖစ်ကပါသည်။ ထိ ့အတမ်၊ ်၊ ည်၊ င်၊ လ်၊ ်၊ ဝ်၊ ဿ်、ʔ တိ ့မာလည်း ြမန်မာစာအေရးအသားစနစ်တွင်မ、 န、ည、င、လ、ရ、ဝလံးချင်းဗျည်းတိ ့ ဟထိး( -◌ ) ဟထိး( -◌ ) အခြေအနေကို အခြေခံ၍ ဗျည်းတွဲတွင်လည်း ပါဝင်လျက်ိသည်။ သဒေဗဒ သေဘာတွင် ဟ/ h/ သည် ဗျည်းများကိုမိန်းသာ ဆောင်ရွက်၍ အသံစ်မျိးကိေဖာ်ြပိင်ပါသည်။ ဗျည်း၏ ေနာက်တွင်ိေသာ ဟ/ h/ (သာဓက။/ ph /, / th /,/ kh /) သည် သံတင်းမကိ ေဖာ်ြပေသာ ဟ/ h/ ြဖစ်ပါသည်။
မောင်မာဘာသာစကားတွင် အသံအရည်အေသွေ့၊ ဖစ်ရာဌာန်၊ လပ်ားမအေြပာင်းအလဲများသည် ဂစိက်မတ်သား တိ့ကိ နားရပ်သံတစ်သံ မြဖင ့်ပါဝင်လျက်ပါသည်။ သည် လေကာင်းသည် အဆံးသတ်ေသာစကားလံးများတွင် ဗျည်းသံတစ်သံ အေနြဖင ့်ပါသည်။ မြဖင့်ပင် ဖစ်ပါသည်။ သံြပင်းသွားပွတ်တိက်ဗျည်း ဖစ်ပါသည်။ ထိ့ေကာင့် သ်သဒေဗဒသေဘာ အရ အေနြဖင့်ပါသည်။ သံြပင်းေလျာ့မကိ ဖာြပေသာ ဗျည်း၏ တွင်ိေသာ သည် (သာဓက။ ။ အေရးထားသင့်ပါသည်။ သံညင်း၊ (၂၃၃) ဗျည်းသံတစ်သံင့်တစ်သံ ဖစ်ဟန်များကိ ဖစ်ဟန်များကိ ဖစ်သည်။ သံညင်းသွားပွတ်တိက်ဗျည်း ဖစ်ရာဌာန်၊ လံးသာိေကာင်း မြန်မာဗျည်း (လွတ်လပ်) သင့်ပါသည်။
အစားအလာသဒါတွင် မြန်မာဗျည်း (၃၃)လံးဖြစ်လာခဲ့သည်ဟုဆိုသည်။ ဗျည်းသံစစ်စစ် (၂၁)လံးသာ ၏ကြောင့် မြန်မာဗျည်းအသံများအတွက် သာမကပါဠိဘာသာများကိပါရးသားသားျင်ရန်အတွက် ပါဠိဗျည်းများကို ထည့်သွင်းခဲ့ူင်ကာ အစားအလာသဒါတွင် မြန်မာဗျည်းစစ်စစ်မာ (၂၁)လံးဖြစ်လာခဲ့သည်ဟုယဆမိပါသည်။ ထို့ကြောင့် သဒေဗဒသေဘာအရ အစားအလာသဒါက သတ်မတ်ထားသော မြန်မာဗျည်းသံးန်းေနကျအသံများအတွက် ပါဠိဗျည်းများကို ထည့်သွင်းခင်းေကာင့် အစားအလာသဒါတွင် မြန်မာဗျည်း (၃၃)လံးဖြစ်လာခဲ့သည်ဟုယဆမိပါသည်။
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*ဗျည်းသံများကို သဒေဗဒနည်းအရ ဖော်ထားသည်။*
ကျမ်းကိးစာရင်း

၁. ခင်ကီးေဖျာ် (ေတာင်တွင်းဆရာေတာ်)
သဒဗျဟာကျမ်းင့်ဗျဥနဗဒိ ၁ဝပါး ရန်ကန်၊ဟံသာဝတီပိဋကတ်ပံိပ်တိက်၊ဒတိယအကိမ်၊ ၁၉၇၃။

၂. ခင်ကီးေဖျာ် (ေတာင်တွင်း ဆရာေတာ်)
သဒဗျဟာကျမ်း၊ လိပိဒီပါကာကျမ်းင့်တည်ြဖတ်သဆရာမာဃလိပိကဒီပနီ။ ရန်ကန်၊ ဇွဲစာပံိပ်တိက်၊ပထမအကိမ်၊ ၁၉၇၁။

၃. ခင်မင်၊ ေမာင်(ဓြဖ)
ြမနာစကား ြမနာစာပ်ပံလွာ ရန်ကန်၊စာေပဗိမာန်ပံိပ်တိက်၊ ၁၉၉ဝ။

၄. တက  သိလ်များအပ်ချပ်ေရးံး။တက  သိလ်ပညာပေဒသာစာေစာင်(ဝိဇာ)，အတွဲ(၁ဝ)，အပိင်း(၁)။ ရန်ကန်၊ တက  သိလ်များပံိပ်တိက်၊ ၁၉၇၅၊ ေဖေဖာ်ဝါရီ။

၅. တက  သိလ်များအပ်ချပ်ေရးံး။တက  သိလ်ပညာပေဒသာစာေစာင်(ဝိဇာ)，အတွဲ(၁၃)，အပိင်း(၁)။ ရန်ကန်၊ တက  သိလ်များပံိပ်တိက်။

၆. ထွန်းြမင့်၊ ဦး သဒေဗဒ။ ရန်ကန်၊ ြမြမဝင်းပံိပ်တိက်၊ ၁၉၉၆။ စက်တင်ဘာလ။

၇. ြမနာစာအဖွဲ။ ြမနာသဒါအတွဲ (၃)။ ရန်ကန်၊ တက  သိလ်များပံိပ်တိက်၊ ၁၉၈၈။

၈. ေရွသွင်၊ ဦး ြမနာသဒေဗဒဖတ်စာ။ ရန်ကန်၊ တက  သိလ်များပံိပ်တိက်၊ပထမအကိမ်၊ ၁၉၆၉။

၉. ဝန်၊ ဦး တက  သိလ်ြမန်မာစာအဘိဓာန်၊အပိင်း(၁)။ ရန်ကန်၊ တက  သိလ်များပံိပ်တိက်၊ ၁၉၅၂။

၁ဝ. ေသာင်းလွင်၊ ဆရာ (ဘီေအ) ြမနာအကရာေဗဒ။ ရန်ကန်၊ ေဒးလီေဂဇက်ပံိပ်တိက်၊ပထမအကိမ်၊ ၁၉၇၂။

၁၁. ဟတ်စိန်၊ ဦး ပါဠိြမနာအဘိဓာန်။ ရန်ကန်၊ ချမ်းသာေရာင်စံပံိပ်တိက်၊ ၁၉၉၉။


ပျိကဗျာများမြန်မာစိက်သဘာဝများကိုလျားချက်

သိရုက်စေ

သိရုပ်များသည်စာပေအများအပြားသို့မဟုတ်သို့မဟုတ် ပြောင်းလဲလာကြသည်။ ပျိကဗျာကို ဗိုလ်ချင်းစိုးတွင်မှားစွာ ကျင်းပသောအချက်များအတွက် အောက်တွင်းသိုလှောက်လျက်ရှိသည်။

စာတမ်းအကျး

ထိုစာတမ်းသည် ဗိုလ်ချင်းစိုးကို ပျိကဗျာများကို ကဏိပျိကဗျာများမြန်မာစိက်သဘာဝများကို လျားချက်သောစာတမ်းဖြစ်ပါသည်။ ဗိုလ်ချင်းစိုးတို့၏ စိက်သဘာဝများကို သိိနားလည်ကျင့်သံးခင်းဖင့် မိမိဘဝင့်မိမိ၏ လ ့အဖွဲအစည်းကိုကျင်းကျိးအဖြင့် ရည်ရွယ်၍ လျားချက်သောစာတမ်းဖြစ်ပါသည်။ ထိုသို့လျားချက်သောစာတမ်းတွင် ဗိုလ်ချင်းစိုးကို ပျိကဗျာဆိင်ရာသေဘာတရားနည်းနာများကို အောက်ချခြင်းဖြစ်သည်။ လျားချက်သောစာတမ်းတွင် ပျိကဗျာဆိင်ရာသေဘာတရားနည်းနာများကို အောက်ချခြင်းဖြစ်သည်။

နိဒါန်းယေန့် မြန်မာ့ငွေးကို ခတ်မီဖွံဖိးတိးတက်သော ငွေးတစ်ငွေး့ဖစ်လာစရန် ငွေး၊ ပညာငွေး၊ စီးပွားငွေး၊ စက်မနည်းပညာစသည်ဖင့် ဘက်ပါးစံမတိးတက်ဖစ်ထွန်းလာစရန် ဆောင်ရွက်လျက်ရှိပါသည်။ မြန်မာ့ငွေးတစ်ငွေး့ဖစ်သော ပညာကီးဘဝသာယာလပတင့်တယ်စရာ၊ ငိမ်းချမ်းအတွက်လတ်တ်ရာစီရိုးစီ၏ ဘဝကို မွန်အာင်ကိးစားနိုင်သည့် လတ်ဘဝ၊ လတ်ေလာကတွင် လမျိ့တိင်းသည် မိမိတိ့လမျိ့၏ ဘာသာအယဝါဒကို သိိလိက်နာကျင့်သံးမသာတင်းတယ်လပေသာ မိမိဘဝ၊ မိမိလမအဖွဲရာတစ်ရပ်လံးတွင် သာယာလပေကာင်းမွန်မကို လပေေဆာင်ေရာက်သည်။ လတ်တစ်ဦးတစ်ေယာက်အဖြစ်မြေပါးလာရေသာ လိုဘဝ၊ လိုေလာကတွင် လမျိ့တိင်း၏ ဘာသာအယဝါဒများက ထိလမျိ့တိ့၏ကိယ်ကျင့်တရားကို မွန်စွာလပေေဆာင်ေရာက်မကို န်လျက်ရှိသည်။ ဗိုလ်ချင်းစိုးတိ့မှာလည်း မိမိတိ့၏ကိယ်ပိင်စိက်များက ထိ စိက်များက ဗိုလ်ချင်းသောပျိကဗျာများတွင် ဗိုလ်ချင်းစိုးကို ဖွားကြားပါစွာ ဗိုလ်ချင်းကိုထိရုပ်များသို့မဟုတ်သို့မဟုတ် ပျိကဗျာစာဆိုးများက အေက်း၊ အဆိုတော်ဆင်းကြားချင်သံးသပ်ေရာက်ရန် ဗိုလ်ချင်းကိုမိုးသောကာ မျက်စိအလင်း、ဉာဏ်အလင်း。
ဖွင့်ပြခြင်းက သည်ကို တိုင်ပါသည်။ လာကမ်းခင်း၊ လာကလ့သေဘာကို ထွင်းသိမင်ကေသာ ပဋိဘာန်ဉာထက်သန်ခင်းတို့ဖင့် ရေဖွဲ့တာမကေသာ စာဆေတာ်ကီးများ၏ ဂမီသာရပျိ၊ လာကသာရပျိ၊ နဝရတ်ပျိ၊ သဝါဒပျိ၊ လာကနီတိပျိတို့ကို အလ့လာခံအဖစ် သတ်မတ်လ့လာပါသည်။

ထိပ်များမစာဆေတာ်ကီးများ၏ လမ်းန်ချက်များသည် မြန်မာသဘာဝစိက်များအဖစ် အသက်ဝင်ပီပင်လျက်သည်ကို ဤစာတမ်းတွင် လ့လာတင်ပထားပါသည်။

ဤသိ့လ့လာတင်ပရာတွင် အခန်း(၁)တွင် ပျိုဝါဟာရင့် စိက်ဝါဟာရဖွင့်ဆိချက်ကို ဖေပ်ပပါသည်။ အခန်း(၂)တွင် ပျိစာဆိင့် ပျိအဖွဲအေကာင်းအရာအကျကို လ့လာတင်ပပါသည်။ အခန်း(၃)တွင် ပျိကဗျာ(၅)စာင်မ မြန်မာသဘာဝစိက်များထင်ဟပ်လျက်အာင်မည်သိ့လမ်းန်ဆံးမထားသည်ကို လ့လာသံးသပ်တင်ပထားပါသည်။

ြခံငံသံးသပ်ချက်တွင် ြမန်မာသဘာဝစိက်များကို ခံယကျင့် သံးလိက်နာခင်းဖင့် လ့လာသံးသပ်တင်ပထားပါသည်။

ရည်ရွယ်ချက် ြမန်မာယေကျးမှာ ပယဂ်ဖစ်သော ြမန်မာလမျိးတို့၏ သဘာဝစိက်များကို ခံယကျင့်သံးလိက်နာကျင့်သံးတတ်ကေစရန် ရည်ရွယ်ပါသည်။

၁. ပျိုဝါဟာရင့် စိက်ဝါဟာရဖွင့်ဆိချက်

"မြင်း" ပျိုဝါဟာရင့်နှင့် ပညာင်အသီးသီးတို့က အမျိးမျိုးကံဆခဲ့ကပါသည်။ ဗိုလ်ဟု ဦးချိန် ၅၂၊ ဆရာလွန်း ၅၃၊ ပပါးဦးေကျာ်ရင် ၅၄၊ ဓမစရိယဦးထွန်းေရ ၅၅ တို့က "စိတ်ကိကည်လင်စ်သက်စတတ်းသောကား ပျိမည်ကောင်း" ဖွင့်ဆိေထားကသည်ကိုလည်းကောင်း၊ ဆရာမကီး ေဒခင်ေစာက ၅၂ ြမန်မာစာအဖွဲ၊ ၁၉၉၁၊ ၅၁၊ ၅၃ ေဇယျသခယာ၊ မဟာ၊ ၁၉၆၃၊ ၃၆၊ ၅၄ ေကျာ်ရင်၊ ဦး (ပပါး)၊ ၁၂၉၈ ၊ ၄၇၄၊ ၅၅ ထွန်းေရ၊ ဦး ဓမစရိယ၊ ၁၉၇၀၊ ၃၁၅၊ ၅၆ ေဖေမာင်တင်၊ ဦး၊ ၁၉၇၁၊ ၇၆ ဟလည်းကောင်း၊ အေကာင်းအရာကို ဦးစားေပးဖွင့်ဆိေထားကပါသည်။
“အယ်ဒူးရှိ ကျေန်းစားသောစာသားများအား အယ်ဒူးရှိ အနေဖြင့် ချောင်းချင်သောစာသားများကို ဖော်ပေးခဲ့သည်”

Myanmar English Dictionary တွင် “ပျိ”- v ပျိအဓိပာယ်ကို “1. begin to appear (as in ရောင်ပျိ) 2. feel nauseated; feelsick 3. Poem of epic proportions” ဖော်ပြသည်။

ယူးယန်းတစ်စာအဖွဲ ၁၉၉၁၊ ၅၁၊ ကန်သစ်မင်းကောင်းဆရာဦး၊ ၂၂၊ အဂသမာဓိ ငွေ၊ ၁၃၂၄၊ ၆၁၊ ပေဒသရာဇာ ဝန်ကီး၊ ၂၇၆၊ တွင်းသင်းမင်းကီး၊ ၁၃၆၈၊ ၃၇၊ jrefmpmtzGJU? 1993? 95/
အသံတန်ဆာ၊ အနက်တန်ဆာတိ ဖင့် တန်ဆာဆင်လျက် လတိ စိတ်လံးကိြပည့်ဖိးခင်း၊ စ်သက်ပီဖစ်ခင်း၊ အေရာင်အဝါတိ အလံတညီးညီးထွန်းေတာက်ေစြခင်းတိ ဖစ်စသည် သေဘာအနက်တိ ေဆာင်လျက်ပါသည်။

စိက်ဟေသာေဝါဟာရသည် ပါဠိဘာသာစကား စရိတများစွာဆင်းသက်လာသည်။

ပါဠိသက်ေဝါဟာရအဘိဓာန်တွင် "များစွာဖစ်လ့ိင်သည်, အေလ့အကျင့်, အထံဝါသနာ, ထံးစံ 64 ဟုရက်ကာ, ပါဠိ-ြမန်မာအဘိဓာန်တွင် "စိက်(စရိတ)ကျင့်အပ်သည်, ေလ့ကျက်အပ်သည်, နအကျင့်, ကျင့်ခင်း, စိက် 65 ဟုရက်ကာ, ြမန်မာ-အဂလိပ်အဘိဓာန်တွင် "စိက်/ Zajaiz / n. 1. nature ; trit of character 2. way of life 67 

ပါဠို့စို့မှစွာရာအဘိဓာန်တွင် "စိက်/ Zajaiz / n. 1. nature ; trit of character 2. way of life 67

ဆရာတက်တိးကမ "ဝတရား ေရစင်င်းဆီ" တွင် "လ၏အေခခံသဘာဝတရားသည်ကား ေလာဘ, ေဒါသ, ေမာဟ, မာနစသည် အကသိလ်တရားများင့် သဒါ, သီလ, သတ, စာဂအစိသည် ကသိလ်တရားများြဖစ်သည်။

ဦး (ဒဂံ) 1968, ၄၈ ။

ဦး, 1954, 386 ။

ြမန်မာစာအဖွဲ, 2008, 94 ။

if;? 1998? 104/ 67

ေအာင်သင်း, 2009, 44 ။

64, 65, 66, 67, 68
ထင်မိေသာအမိက် ဤသိ မျိးသည်ပင်လင် ေလာဘ၊ ေဒါသ၊ ေမာဟ ြဖစ်ေပသည်။ 69
ဟ၍ လတိ စိက်ေကာင်း၊ စိက်ဆိးတိ သေဘာကိ ြပသဖွင့်ဆိထားပါသည်။

A Students Guide to literature နှင့် Colwellက “ဇာတ်ေဆာင်စိက်ကိယ်ရည်ကိယ်ေသွြဖင့် မတိင်းတာဘဲ ကိယ်ကျင့်တရားြဖင့် တိင်းတာရသည်။ ကိယ်ကျင့်တရားင့် ပတ်သက်သည့် ဆံြဖတ်ချက်အရပ်ရပ်တွင် ဇာတ်ေဆာင်၏ ေရွးချယ်တန် ့ြပန်မကိ စံြပကာ ဇာတ်ေဆာင်ဖွံ ဖိးမက တိင်းတာရမည်။” 70
ဟ၍ ဖျာပံတိက်သစ်ဆရာေတာ်အဂမဟာပိတအင် သဘာဘိဝံသ၏ သေတသနသပ်ြပအဘိဓာန်တွင် စိက်အမျိးအစား (၆)ပါးိ�ကာင်းကိ ရာဂစ ိက် - ရာဂေပါများထေြပာသ၊ ေဒါသစိက် - ေဒါသေပါများထေြပာသ၊ ေမာဟစိက် - ေမာဟေပါများထေြပာသ၊ ဝိတက်စိက် - ေတာင်ေတာင်ဤဤကံစည်များြပားသ၊ သဒါစိက် - သဒါတရားေကာင်းသ၊ ဗဒိစိက် - ဆင်ြခင်ဉာဏ်ပညာေကာင်းသ 71 ဟ၍ ခွဲြခာေဖာြပထားပါသည်။

ပညာင်အသီးသီး ထားများအရ “စိက်”ဟသည် လတိ ့၏ကိယ်၊ တ်၊ လံး ကံသံးပါး၏ အမအရာအေလ့အထပင်ြဖစ်သည်။ ေလာဘ၊ ေဒါသ၊ ေမာဟ၊ မာနစေသာ အကသိလ်တရားများ၊ သဒါ၊ သီလ၊ သတ၊ စာဂစေသာကသိလ်တရားများ၏ြပယဂ်ြဖစ်သည်။ လ၏ကိယ်ကျင့်တရားေကာင်းမွန်မ၊ ဆိးဝါးမတိ၏ယေန သည်ြဖစ်၍ ေကာင်းမွန်ေသာကိယ်ကျင့်တရား ိမသည်သာ စိက်ဖွံ ဖိးမ တစ်နည်းစိက်မန်ဟေသာ သေဘာတရားတိ သက်ဝင်ေနေပသည်။

၂။ ပျိစာဆိင့်ပျိ ဖွဲအေကာင်းအကျး ဆရာေတာ်င်မဟာရ သာရ (၈၃ဝ - ၈၉၂) သည် ြမန်မာဂဝင်စာေပကိခမ်းနားထည်ဝါေစ ခဲ့ေသာအင်းဝေခတ်စာဆေကျာ်တစ်ပါးြဖစ်သည်။ ဖခင်ဓမပါလအမတ်ကီးမာဟံသာဝတီရာဇဓိရာဇ်မင်း၏ သမီးေတာ်င်စာပမျိးိးမဆင်းသက်လာသြဖစ်သည်။ မိခင်မာရတနာပရအင်းဝေရမိေတာ်ကီးကိတည်ေထာင်ေသာ သတိးမင်းဖျား၏အွယ်ေတာ်မဆင်းသက်လာသ ြဖစ်သည်။ မင်းမျိးမင်းွယ်တစ်ဦးြဖစ်သည့်ဆရာေတာ်သည် ငယ်စကတည်းကတက်တိး ၁၉၆၅၊ ၂၀၁၂ ၊ Collwell, 1968, 11. 70
ဩဘာသဘိဝံသ၊ အင်၊ ဖျာပံတိက်သစ်ဆရာေတာ်၊ ၂၀၁၂ ၊ ၁၇၆ ။ 71 ဘေသာင်း၊ ဗိလ်မး ၊ ၂၀၀၂၊ ၆၀။

၇၂ အသားတော်တွင် ဗိုလ်အသားတွင် အောက်ပါအားဖော်ပြထားသည် ယခုအခါ ဗိုလ်အသားတွင် အတွက်သတ်မှတ်ထားသည်။ ယခုအခါ ဗိုလ်အသားတွင် သတ်မှတ်ထားသည်။ ယခုအခါ ဗိုလ်အသားတွင် အတွက်သတ်မှတ်ထားသည်။
စာေပကျမ်းဂန်အေထွေထွကိဆည်းပးခဲ့သည်။အသက်၁ဝစ်အရွယ်တွင်မဂလာေစတီေမာ်ကွန်းကိဖွဲဆိခဲ့သည်။ထိုနာက်၁၆စ်အရွယ်တွင်ပျိကဗျာတိ့၏အစြဖစ်သည်ဘရိဒတ်လကာကီးကိရွှေ့တာမခဲ့သည်။ထိ့နာက်ပျိအေစာင်ေစာင်ရတကဗျာတိကိရွှေ့ခဲ့သည်။စာဆိဆိလက်ရာပျိကဗျာတိကိရွှေ့မန်မာဂဝင်စာေပများကမည်းတင်ကရသကဲ့သိ့ရတကဗျာပံသာန်တိကိရွှေ့စီးသစ်တီထွင်သည်။အေလးမကရသလည်းဖစ်ပါသည်။

ဆရာေတာ်ဖွဲဆိသမေသာပျိတိကိရွှေ့မီး၍ဖွဲဆိခဲ့သေသာ်လည်းဂမီသာရပျိမာမကျမ်းအေစာင်ေစာင်န်းဆိေသာအဓိပာယ်ကိယ၍ကိယ်ပိင်ဉာဏ်ဖင့်မန်မာအမျိးသာ့၏"လံးတန်ဆာ"73ဖွဲ့ရေသာမခဲ့ပါသည်။ဂမီသာရပျိသည်ပိဒ်ေရ(၄၆)ပိဒ်ဖင့်ေလာကလသာ့စီးပွားေရး၊ပညာေရး、လမေရး、ဘာသာေရးအဖက်မမည်သိကံစည်ခင်း、မည်သိေြပာဆိြခင်း、မည်သိလပ်ကိင်ဖင့်ပစပန်、သံသရာကာင်းကျိးချမ်းသာအဖာြဖာရေစမည့်နည်းလမ်းေကာင်းများကိန်းထပားသည်။

ထိန်းချက်များတွင်မန်မာလမျိးတိ့၏သဘာဝစိက်တိထင်ဟပ်နသည်ကိခံစားသိမင်းရပါသည်။ကန်ေတာ်မင်းေကျာင်းဆရာေတာ်(၈ဝဝခန့်-၈၇၅ခန့်)74သည်အင်းဝေခတ်ကဝိစ်ဆဖစ်သေသာင်မဟာသီလဝံသင့်င်မဟာရဌသာရတိ့င့်ေခတ်ပိင်စာဆိေတာ်ကီးတစ်ပါးဖစ်သည်။သကရာဇ်8၄ခစ်တွင်နန်းတက်သေသာဒတိယမင်းေခါင်၏အရီးတာစစ်ကိင်းမိစားမင်းလထွတ်ကန်ေတာ်ရွာတွင်ကျာင်းေဆာက်ကွယ်ခဲ့သည်ဖစ်၍ကန်ေတာ်မင်းေကျာင်းဆရာေတာဟအမည်တွင်ခဲ့သည်ဖစ်၍ကန်ေတာ်မင်းေကျာင်းေမတာစာင့်ေလာကသာရပျိဟေသာစာေကာင်းေပမွန်တိဖင့်မန်မာဂဝင်စာေတာ်ကီးစာရင်းဝင်ခဲ့သည်ဗိုလ်မာသားဖွယ်ရာအဖာြဖာရေးဖွဲ့ထားသည်။

ပိဒ်ေရပါး5၅ပိဒ်ဖင့်ရးဖွဲ့ထားသည်ြဖင့်ေလာက်၊ဓမ၊ရာဇေရးဆိင်ရန်၊ောင်ရန်မတ်သားဖွယ်ရာအဖာြဖာရေးဖွဲ့ထားသည်။အမျိးေလးပါးတိ့အားဆံးမလမ်းန်ချက်များကိုမန်မာ့ဓေလ့စိက်အများဖစ်ထင်ားသက်ဝင်နသည်ကိခံစားသိမင်ရပါသည်။

င်ဣဂတဆရာေတာ်(၈၆ဝခန့်-၉၂၅ခန့်)75သည်အင်းဝေခတ်စာဆိေတာ်ကီးင်မဟာသီလဝံသ၏တပည့်ဖစ်သည်။နဝရတ်ပျိသည်ပညာိရေသ့ကီး(၉)ပါးကဂါထာ(၉)ခြဖင့်သမတမင်း၏အွယ်တာဖစ်သည်ြဖင့်ဖိးစိန်、ဦးဗိလ်မာ၁၂၈၉၊၁၃၄၈၊74ဘေသာင်း၊ဗိလ်မာ၂၀၀၂၊4၈၄၊75ဘေသာင်း၊ဗိလ်မာ၂၀၀၂၊8၅၄၇。
သူကြက်ဘာသာဖင့်သောနီတိကျမ်းပျို့သူကြည့်ရှုခြင်းကိုအောက်ပါအခြေအနေများဖြင့်အောက်ပါအဖြစ်ခွဲထားသည်။

(ပိဒ်)ပိဒ်နိဂံပိဒ်တို့ဖင့်တန်ဆာဆင်ဖွဲဆိုထားသည်နဝရတ်ပျိသည်မင်းကျော်မိဖရားစာ-၈ရှင်ဖွဲ့စည်းသည်မိဖုံးစာရေးအေလးကဲလေသာ့မာ့လအဖွဲအစည်းလုပ်ထမ်းသည်မိဖုံးစာလမ်းန်ထားသည်ယူသည့်ဖစ်သည်။

စာဆိေတာကီးသည်သူကြက်ရာဇ်၁၁၂၂ချက်တွင်တံတားဦးမိနယ်၊လက်ဆာဗဲတိက်ရာစာဖွားဖွားကြောင်းဖွားဖွားခဲ့သည်။

(ခန်း)အပ်ခင်းခံရချိန်အမားအတွက်ကဝိလကဏသတ်ပ်းပစခဲ့သည်။
ခစ်တွင်ပင်းယေခတ်စတရဂဗလအမတ်ကီး၏ေလာကနီတိကျမ်းကိပျိအသွင်မွမ်းမံတန်ဆာဆင်ခဲ့သည်။

လကာ(၄၈)ပိဒ်၊နိဂံးရတပိဒ်စံဃပိဒ်ြဖင့်ေရးသားထားသည်။

ထိပျိတွင်ေလာကလသားများလ ့ဘဝကိတင့်တယ်စွာေနထိင်ိင်ေရးအတွက်

လမကျင့်ဝတ်ဆိင်ရာေဆာင်ရန်၊ောင်ရန်များကိလမ်းန်ထားသည်များက

ြမန်မာ့စိက်သဘာဝများြဖစ်ခံစာေစရပါသည်။

၃၃ပျိကဗျာမများမြမန်မာ့သဘာဝစိက်များေလ့လာချက်

"စိက်"ဟေသာေလ့လာမသည်ရသစာေပြဖစ်ေသာဝတြပဇာတ်၊ကဗျာတိတွင်ပါဝင်ေသာေလ့လာမနည်းပညာတစ်ခြဖစ်သည်။

ထိေလ့လာမသည်ဝတြပဇာတ်၊ကဗျာတိတွင်ပါဝင်ေသာဇာတ်ေဆာင်တိတွင်ပါဝင်ေသာဇာတ်ေဆာင်တိ့၏ကိယ်၊

d်လာရာ၊ကံသံးပါးအမအရာတိ့ကိေလ့လာ၍ထိဇာတ်ေဆာင်သည်မည်သိေသာစိက်ိသည်။

အေကာင်း၊အဆိးစသည်ြဖင့်ေဝဖန်သံးသပ်ရြခင်းသည်သမိးကျေလ့လာမတစ်ခြဖစ်သည်။

အေလ့လာခံပျိကဗျာတိဇာတ်လမ်းိေသာပျိကဗျာလည်းမဟတ်သကဲ့သိ့ပါဝင်လပ်ားကေသာသတ်မတ်ဇာတ်ေဆာင်များလည်းမပါိကေပ။

သိ့ေသာ်ပျိစာဆိေတာ်ကီးများဆံးမသဝါဒေပးထားေသာလမ်းန်ချက်များသည်ရခဲလေသာလ့ဘဝကိတန်ဘိးိစွာအသံးချိင်ရန်၊

လသားတိ၀လပ်ရာကာကာလသံးပါးဘဝများတင့်တယ်ေကာင်းမွန်ေရးအတွက်မည်သိေသာစိက်သဘာဝများြဖစ်ေစ၊သိြမင်ေစ၊လပ်ေဆာင်ေစရာမည်သိေသာစိက်သဘာဝများသည်မေကာင်းေသာလပ်ေဆာင်၊ကံစည်、ေြပာဆိမြဖစ်သည်တိ့ကိနည်းေပးလမ်းြပထားသည်။

ေလာကအတွင်းိလသားကိဗဟိြပလျက်ိကသည်။အများကိရည်န်းလျက်ိကသည်ြဖစ်၍လသား၏ဂဏ်ြဒပ်သက်ဝင်လျက်ိကသည်။

လသား၏သေဘာသပ်င့်စပ်လျး၍ဆရာေဇာ်ေဇာ်ေအာင်ကလည်း"လသည်ဤေလာကအတွင်းမာလအြဖစ်ရပ်တည်သည်။

ထိ ့ေကာင့်သ ့ကိဟူသန်မတ်သည်။

သ ့တွင်လ၏အရည်အေသွးများ၊လကဏာရပ်များ၊ဂဏ်အဂါရပ်များိသည်။

လဟူြဖစ်ေပတည်ိလာသည်င့်သ ့မာေဆာင်ရွက်ဖွယ်အမကိစများ、

လပ်ငန်းတာဝန်များသည်သ၏လအြဖစ်ရပ်တည်ေနြခင်းအတွက်ြဖစ်တည်မသတ်မတ်ချက်ြဖစ်တည်။

"ဤေလာကထိုသူတိန်းငယ်ကြီးနှင့်နောက်ဆိုင်တော်လက်မိုးခင်းတို့ောင်းရာခိုင်ပါသည်။စိုက်ကိုလဲချင်သည်။" ပါးမျပ်းအသံးချိင်ရာလေ့ရှိုင်းချက်ခံမထွက်ခဲ့ရသောဟာြဖစ်ပါသည်။
ဗုဒ္ဓကျောင်းသားကြီးဦးလိုလိုကျောင်းသားကြီးတို့၏ ဂျိန်းကျောင်းသားကြီးဟဦးမှ သို့ဖင့် စာကြောင်းကီးများ၏ လမ်းန်ချက်များသည် လသား ဆန်သေသာ ဘဝ ြမန်မာ့လေဘာင်အဖွဲအစည်း၏ စံပထိက်သေသာ၊ အေလးထားအပ်သေသာ၊ အတယ်သင်သေသာ စိက်သဘာဝများအောက်တွေ့ရသည်။ ြမန်မာ့ဟန်၊ ြမန်မာ့အမအရာ၊ ြမန်မာ့စိတ်ထား၊ ြမန်မာ့အသံအဖစ်န်ြပလျက်ိေနပါသည်။ ထိုသေဘာတရားတိုက်ေလ့လာတင်ြပထားပါသည်။

မိမိ၏ ကိယ်၊ တ်၊ လံးကံသံးပါသေသာ အမအရာ၊ သိ့တည်းမဟတ် မိမိ၏ သဘာဝစိက်သည်လသဘာဝသည်လဘဝရြခင်း၏အေရးပါသေသာ အခန်းကဏအဖစ်ရပ်တည်လက်ိပါသည်။

ကံသံးပါသေသာအမအရာစပ်လျူ ေလာကသာရပျိဆရာတွေက "ကိယ်တ်လံး၊ ေစာင့်သံးမဲစွာ၊ သတဝါကိ၊ ေမတ ာသက်ေဝ၊ လဘိ ့ေဝ၍၊ စိတ်ေစကည်သန်" 79 ဟူ၍ ဗုဒ္ဓဘာသာစား တူစမားဖော်ပြောက်၍ တင်စားကာအသံ၏သာယာမကိျဖစ်ေစလျက်လမ်းန်ဖွဲဆိ့ထားပါသည်။ ြမန်မာတို့၏ ကိယ်၊ တ်၊ လံးကံသံးပါသေသာအမအရာတွေကကံသံးပါသေသာအမအရာစပ်လျူ ေတွဖင့်ဆက်ဆံမဖြင့် ေပးကမ်းစွန်ကဲ့သို့ကြိုးနတ်နတ်ကိ့ကို ထပ်ဆင့်၍ "ေပလင်မြပ၊ ေကာင်းရာတလက်၊ ေကာင်းမြမတ်ိး၊ ေကာင်းေအာင်ကိး၍၊ ေကာင်းကျိးကိယ်၌တည်ေစမင်း 80 ဟူ၍လမ်းန်ခဲ့ပါသည်။" ေကာင်း၊ ေကာင်း၊ ေကာင်း၊ ေကာင်းဟသည့်အသံတ၊အဓိပါယ်တစကားလံးတိုင့်အသံ၏သာယာမကိျဖစ်ေစကာလိုင်းတို့၏ကိယ်၊ စိတ်လံး၏ ဦးေဆာင်လမ်းန်မြဖင့် ေြပာဆိလပ်ကိင်ကရသည်ြဖစ်၍ မည်သိတည်းမျိးသည် ေကာင်းမွန်သည်၊ဆိးဝါးသည်မည်သိတည်းမျိးသည် စိတ်သေဘာထားသည်ကာလသံးပါးအတွက်အကျိးဖစ်ထွန်းသည်ကို န်ြပထားပါသည်။

79 မင်းသဝဏ်၊ ဆရာ ၁၃၁၇၊ ၁၀၀၁
80 မင်းသဝဏ်၊ ဆရာ ၁၃၁၇၊ ၁၀၀၁
ဗဒဘာသာမျိးတိ့၏အြမင့်ြမတ်ဆံးေသာကိးကွယ်မြဖစ်သည်ဘရား၊တရား၊သံဃာရတနာသံးပါးကိအမဲဦးထိပ်ထားေသာစိတ်လံးကိပိင်ဆိင်ကေစရန် "ေနသိ ့ထင်ား、ဘရား、တရား、သံဃာ、ရတနာထွတ်ထား、ြမတ်သံးပါးကိဦးဖျားထိပ်ထက်、အမဲရွက်၍、စံဖက်သဒါ、ကည်ေစမင်း" 81ဟ၍ဖွဲဆိလမ်းန်ထားပါသည်။ဘရား、တရား、သံဃာရတနာသံးပါးကိလအများအတွက်အလင်းေဆာင်ေပးေနမင်းင့်ပမာြပ၍လအများကိြမင်သာထင်သာဖစ်ေစခဲ့သည်။

"ြမတ်သံးပါး ဦးဖျားထိပ်ထက် စံမက်ဟေသာထိမိေသာအသံး သဒါဟေသာပါဠိသံးတိ့ ြဖင့်ရတနာြမတ်သံးပါးကိစ်သက်ြမတ်ိးယံကည်သာစိတ်တိ ့ ြဖစ်ေပေစေအာင်ဖွဲဆိထားပါသည်။

ထိဖွဲဆိမကရတနာြမတ်သံးပါးကိအမဲဦးထိပ်ထားေသာ ြမန်မာတိ ့၏ယံကည်သိြမင်ခွင့်ရ ေစပါသည်။

ထားိရမည့်ကိယ်ကျင့်တရားကိပါဏာတိပါတ်、မသတ်သသက်、ခိးဝက်မမ、မယေသစာ、အိမ်ရာမမားမသားမဆိ、ကိယ်ကိိမ့်ချ、ေစာင့်သီလင့်" 82ဟ၍လမ်းန်ပါသည်။

ငါးပါးသီလကိလံြခံစွာေစာင့်ထိန်းမ၊ကိယ်ကိိမ့်ချေသာစိတ်ထားိမတိ ့ကိသိြမင်ေစပါသည်။

ငါးပါးသီလကိလံြခံြခင်းြဖင့်ငယ်ေသာအရွယ်တွင်ေသြခင်းတရားကိ့ကီးထသက်အိ၊မယိမ်းစင်းလျင်း、ငိမ်းေစမင်း" 83ဟ၍လမ်းန်ပါသည်။

ငါးပါးသီလကိလံြခံစွာေစာင့်ထိန်းမ၊ကိယ်ကိိမ့်ချေသာစိတ်ထားိမတိ ့ကိသိြမင်ေစပါသည်။

ငါးပါးသီလကိလံြခံြခင်းြဖင့်ငယ်ေသာအရွယ်တွင်ေသြခင်းတရားကိ့ကီးထသက်အိ၊မယိမ်းစင်းလျင်း、ငိမ်းေစမင်း" 84ဟ၍လမ်းန်ပါသည်။

81 - 82 - 83 - 84

81- 82- 83- 84
ထိန်းသိမ်းခင်းသည်လည်းမာတိ့၏ကိယ်ကျင့်တရားပင်ဖစ်သည်။

ဆရာေတာ်လတိကလကဏာေရးသံပါးကိုအာက်မ့ပီးသံေဝဂတရားကရင်ထဲတွင်စွဲမဲေနေစလိသည်ကိုဖန်တလဲလဲ၊ဝဋ်ဆင်းရဲကိ၊၀မ်းထဲသံေဝ၊ထိတ်လန့်ေထွြဖင့်

"အနိစင့်ဒကအနတာ၊သံပါးလကဏာမချာေအာက်ေမ့၊တေစ့ေစ့လင်ဖန်ထဲတွင်းကိမ်းေစမင်းဖျက်၍၁၈၆ဟေသာပါဠိသံးတိ့ြဖင့်လဘဝ၏မမဲေသာတရား၊ဆင်းရဲေသာတရား၊ကိယ်မဟတ်ေသာတရားတိကိစွဲမဲလာေစသည်။

သံသရာလည်တက်သည့်သေဘာတိကိထိတ်လန့်ေသာစိတ်ြဖင့်အိး၊အသဲ၊အရည်ထိစွဲမဲေနေအာင်

"ေလာဘ၊ေဒါသ၊ေမာဟသပျက်၊ေနတိင်းဖျက်၍၊အမျက်သည်းလွန်ထးပွတ်မဆိင်း၊စိတ်ဆင်ိင်းကိ၊ထံးပိင်းမချာ、

"သပျက်ဟေသာထိမိေြပာင်ေြမာက်ေသာအသံ၊"စိတ်ဆင်ိင်းဟေသာပကအလကာတိ့ြဖင့်တန်ဆာဆင်လျက်ဆင်ိင်းကိခန်ြဖင့်ထိန်းသကဲ့သိ့ေလာဘ、ေဒါသ、ေမာဟတိ့၏ဖျက်ဆီးတတ်မေကာင့်ြဖစ်လာေသာအမျက်ေဒါသကီးထွားမတရားတိကိပညာြဖင့်ထိန်းသိသည့်သေဘာကိေပလွင်ေစပါသည်။

"ထိမိသည့်အသံြဖင့်လမ်းန်ခဲ့ပါသည်။" ေလာဘ、ေဒါသ、ေမာဟတိ့၏ဖျက်ဆီးတတ်မေကာင့်ြဖစ်လာေသာအမျက်ေဒါသကီးမကိမျက်မိေသာမာန်ေစမင်း၏

"မာန်ေထာင်ြခင်းလင်，တန်ဆာဆင်၏"စိတ်လံး၏အဆင်တန်ဆာသည်ကသိလ်ေကာင်းမင့်မေကာင်းမကိစွဲလမ်းစွာသိြခင်း

"အာသာစံမက်" "စ်သက်မးေမာ်" "ေမွေလာ်"ဟသည့်စကားပရိယာယ်တိြဖင့်အမျိးမျိးသံစွဲ၍ထင်ားေစခဲ့ပါသည်။

"့ထက်ြမတ်လိ、ငါဟ၊ေမာက်မိြမင့်မား、မာန်ေစာင်းလွားက、

"ခံးမြခင်းလင်，မယွင်းမပျက်、င်းင်းပျက်၏" 85 မင်းသဝဏ်၊ ဆရာ။

85 - ၁၃၁၇၊ ၂၀၀၈
86 - ၁၃၁၇၊ ၂၀၀၈
87 - ၁၃၁၇၊ ၂၀၀၈
88 - ၁၃၁၇၊ ၂၀၀၈
89 - ၁၃၁၇၊ ၂၀၀၈
菏泽းအကျိုးလားမှုအတွက် ၎င်းကိုလည်း သေချာစောင်း၊ ခက်ထန်ကမ်းကတ်း မေြဖာင်တန်းသေချာစောင်း၊ စိတ်ယတ်ဖျင်းသေချာစောင်းမှ ပါက မေကာင်းသတင်းလဲ ကျားစာင်ကို  
ရမက်ြပင်းဝန်ခက်ထန်ကမ်းကတ်း စိတ်ယတ်ဖျင်းသေချာစောင်း၊ မေြဖာင်းသေချာစောင်း ကို လက်ငင်းရာ၏  
90  
ပါက သတင်းလဲ ကျားစာင်ကို  
မေကာင်းသတင်းလဲ ကျားစာင်ကို  
91  
လမ်းန်ထားပါသည်။  
ြမန်မာလမျိးတိ ့၏  
စိတ်သဏဥာန်တွင် မာန်ေထာင်လွမ်းသေချာစောင်း၊ ခက်ထန်ကမ်းကတ်းသေချာစောင်း၊ ေက်းက်းသေချာစောင်း မနာလိဝန်တိ  
အကျိးစီးပွားကိ ပျက်စီးေစေကာင်း၊ သတာရာလက်ကိင်ထားပီး သတစ်ပါး၏  
ေကာင်းကျိးချမ်းသာ ကိ  
ေဆာင်ြခင်းဖင့် မိမိအတွက်လည်း ေကာင်းရာြဖစ်ေစေကာင်း  
92  
သတာရာလက်ကိင်ထား၍ သတစ်ပါး၏  
ချမ်းသာကိ  
ေဆာင်ြခင်းသည် မိမိလိရာကိလည်း ေအာင်မင်ပီး  
ေြမာက်ေစတတ်ေကာင်းကိ  
သတာရာြ  
တည်တ့◌ံထား၍  
သအားချမ်းသာ၊ ကိယ်ေတာ်မာလည်း၊ လိရာပီးေအာင်ကျိးေကာင့်ေဆာင်သည်၊  
ြမန်ေဘာင်ထင်ားတန်ခွန်လား  
93  
လမ်းန်ပါသည်။  
သတစ်ပါး၏ေကာင်းကျိးချမ်းသာြဖစ်ေစမ၊ ပရဟိတေဆာင်ရွက်ြခင်းသည်  
ြမန်မာတိ ့၏ အေလးအနက်ထားအပ်သေချာစိက်အြဖစ်  
ေတွ ိရပါသည်။  
ဂမီသာရပျိဆရာေတာ်ကလည်း  
ဟီရိသတ  ပတရား လက်ကိင်ထားကရန်ကိ  
ဟီရိ သတ  ပ်၊ ေစာင့်ကပ်မကင်း  
93  
လမ်းန်ပါသည်။  
ဟီရိ  
သတ  ပ  
ဟေသာ  
ပါဠိစကားကိ သံး၍  
ေလးနက်ေသာအသွင်ကိ  
ေဆာင်ေစကာ မေကာင်းမလပ်ရမည်ကိ  
က်တတ်ေကာ က်တတ်  
သာသေဘာကိ  
ေပလွင်ေစြပန်ပါသည်။  
ေလာကပါလတရား (၂)ပါးသည်  
ြမန်မာတိ ့သိ့။  
ထံးတမ်းစလာလပ်ကိင်ေဆာင်ရွက်ရမည့် အြပအမများကိ  
သဝါဒထးပျိစာဆိေတာ်က  
ဆံးမလမ်းန်ထားပါသည်။  
အိပ်သည့်  
ေနရာတွင် ဘရား၊ တရား၊ သံဃာရတနာြမတ်သံဃာပါးင့်  
ဆရာသမား၊ ဘိးဘွားမိဘ၊ အင်သခင်၊ အထက်လကီးဂဏ်အိန်အဝါကီးသ  
မိမိင့်အသက်ဂဏ်ရည်တသတိ ့ကိ  
90  - မည် - ၂  
91  - မည် - ၂  
92  - မည် - ၂  
93  - မည် - ၂
ဗိုလ်ချင်း ဗိုလ်ချင်း ကိုင်းဝပ်အဖြစ် ၉၄ ကြောင့် ခွဲခြားသော “ဝတ်စုံ သယ်ယူ” မြင်ကြားလာမှုအား အရောင်းပေးသော ယိုင်းကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ရောက်ရှိသော “ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ်” ၉၅ ယိုင်းကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ရောက်ရှိသော “ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ်”

စိုးကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ရောက်ရှိသော “ကိုင်းဝပ်အဖြစ်” ၉၆ ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ရောက်ရှိသော “ကိုင်းဝပ်အဖြစ်” ၉၇ ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ရောက်ရှိသော “ကိုင်းဝပ်အဖြစ်” ၉၈ ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ရောက်ရှိသော “ကိုင်းဝပ်အဖြစ်” ၉၉ ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ရောက်ရှိသော “ကိုင်းဝပ်အဖြစ်” ၀၀ ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ရောက်ရှိသော “ကိုင်းဝပ်အဖြစ်”

စိုးကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ရောက်ရှိသော “ကိုင်းဝပ်အဖြစ်” ၁၀၁ ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ရောက်ရှိသော “ကိုင်းဝပ်အဖြစ်”

94 စိုးကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ရောက်ရှိသော “ကိုင်းဝပ်အဖြစ်” ၁၉၃၈ ၇ ၄
95 စိုးကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ရောက်ရှိသော “ကိုင်းဝပ်အဖြစ်” ၁၉၃၈ ၇ ၅
96 စိုးကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ရောက်ရှိသော “ကိုင်းဝပ်အဖြစ်” ၁၉၃၈ ၇ ၆
97 စိုးကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ရောက်ရှိသော “ကိုင်းဝပ်အဖြစ်” ၁၉၃၈ ၇ ၇
98 စိုးကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ရောက်ရှိသော “ကိုင်းဝပ်အဖြစ်” ၁၉၃၈ ၇ ၈
99 စိုးကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ရောက်ရှိသော “ကိုင်းဝပ်အဖြစ်” ၁၉၃၈ ၇ ၉
100 စိုးကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ရောက်ရှိသော “ကိုင်းဝပ်အဖြစ်” ၁၉၃၈ ၇ ၁၀
101 စိုးကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ကိုင်းဝပ်အဖြစ် ရောက်ရှိသော “ကိုင်းဝပ်အဖြစ်” ၁၉၃၈ ၇ ၁၁
မိဘ၊ ဆရာသမား၊ အင်သခင်၊ ဂဏ်ကီးသ၊ အသက်မွေးသတ်မှတ်သော အကြောင်းအရာကြား ချစ်ကာကုန်ညိ၊ အိအေသြပေသာအားဖင့် ဦးတွေနေသောအမအရာ၊ ကျိးတွေနေသောအမအရာကိုတင်နေသောအကြောင်းအရာ၊ ဦးတွေနေသောအမအရာကိုတင်နေသောအကြောင်းအရာကိုချစ်ကာကုန်ညိ၊ အိအေသြပေသာအားဖင့် ဦးတွေနေသောအမအရာ၊ ကျိးတွေနေသောအမအရာကိုတင်နေသောအကြောင်းအရာကိုချစ်ကာကုန်ညိ၊ အိအေသြပေသာအားဖင့် ဦးတွေနေသောအမအရာ၊ ကျိးတွေနေသောအမအရာကိုတင်နေသောအကြောင်းအရာကိုချစ်ကာကုန်ညိ၊ အိအေသြပေသာအားဖင့် ဦးတွေနေသောအမအရာ၊ ကျိးတွေနေသောအမအရာကိုတင်နေသောအကြောင်းအရာကိုချစ်ကာကုန်ညိ၊ အိအေသြပေသာအားဖင့် ဦးတွေနေသောအမအရာ၊ ကျိးတွေနေသောအမအရာကိုတင်နေသောအကြောင်းအရာကိုချစ်ကာကုန်ညိ၊ အိအေသြပေသာအားဖင့် ဦးတွေနေသောအမအရာ၊ ကျိးတွေနေသောအမအရာကိုတင်နေသောအကြောင်းအရာကိုချစ်ကာကုန်ညိ၊ အိအေသြပေသာအားဖင့် ဦးတွေနေသောအမအရာ၊ ကျိးတွေနေသောအမအရာကိုတင်နေသောအကြောင်းအရာကိုချစ်ကာကုန်ညိ၊ အိအေသြပေသာအားဖင့် ဦးတွေနေသောအမအရာ၊ ကျိးတွေနေသောအမအရာကိုတင်နေသောအကြောင်းအရာကိုချစ်ကာကုန်ညိ၊ အိအေသြပေသာအားဖင့် ဦးတွေနေသောအမအရာ၊ ကျိးတွေနေသောအမအရာကိုတင်နေသောအကြောင်းအရာကိုချစ်ကာကုန်ညိ၊ အိအေသြပေသာအားဖင့် ဦးတွေနေသောအမအရာ၊ ကျိးတွေနေသောအမအရာကိုတင်နေသောအကြောင်းအရာကိုချစ်ကာကုန်ညိ၊ အိအေသြပေသာအားဖင့် ဦးတွေနေသောအမအရာ၊ ကျိးတွေနေသောအမအရာကိုတင်နေသောအကြောင်းအရာကိုချစ်ကာကုန်ညိ၊ အိအေသြပေသာအားဖင့် ဦးတွေနေသောအမအရာ၊ ကျိးတွေနေသောအမအရာကိုတင်နေသောအကြောင်းအရာကိုချစ်ကာကုန်ညိ၊ အိအေသြပေသာအားဖင့် ဦးတွေနေသောအမအရာ၊ ကျိးတွေနေသောအမအရာကိုတင်နေသောအကြက်အရာကိုချစ်ကာကုန်ညိ၊ အိအေသြပေသာအားဖင့် ဦးတွေနေသောအမအရာ၊ ကျိးတွေနေသောအမအရာကိုတင်နေသောအကြောင်းအရာကိုချစ်ကာကုန်ညိ၊ အိအေသြပေသာအားဖင့် ဦးတွေနေသောအမအရာ၊ ကျိးတွေနေသောအမအရာကိုတင်နေသောအကြောင်းအရာကိုချစ်ကာကုန်ညိ၊ အိအေသြပေသာအားဖင့် ဦးတွေနေသောအမအရာ၊ ကျိးတွေနေသောအမအရာကိုတင်နေသောအကြောင်းအရာကိုချစ်ကာကုန်ညိ၊ အိအေသြပေသာအားဖင့် ဦးတွေနေသောအမအရာ၊ ကျိးတွေနေသောအမအရာကိုတင်နေသောအကြောင်းအရာကိုချစ်ကာကုန်ညိ、

102 - ဇနီး - ၁
103 - ဇနီး - ၁
104 - ဇနီး - ၁
105 - ဇနီး - ၁
106 - ဇနီး - ၁
107 - ဇနီး - ၁
108 - ဇနီး - ၁
109 - ဇနီး - ၁
110 - ဇနီး - ၁
မိမိသည် ဥစာ၊ ရတနာ၊ ေရ၊ ေငွများစွာ ြပည့်စံကံလံသည့်ဘဝပင်ြဖစ်လင့်ကစား အင်သခင် မင်းစိးရာဇာများကဲ့သိ ့ မဝတ်သင့်ေကာင်းကိ "လိမယ်မတ စိတ်တိင်းကျလျက် ကယ်ဝြပည့်စံ၊ ကံလင့်ကစား စိးမင်းလားသိ ့ မဝတ်သင့်ေကာင်းကိ။အင်သခင် မင်းစိးရာဇာများကဲ့သိ ့ မဝတ်သင့်ေကာင်းကိ ဟေသာ ဥပမာအလကာြဖင့် ထင်ာေစခဲ့ပါသည်။" ဝတ်တမမ၊ ေနာက်ချင် ့၊ ကိယ်င့်အင်တန် သင့်ေအာင်ဖန်၍ "ဟ၍ အဝတ်တမတကဘဲ ကိယ့်အေနအထား၊ ကိယ့်အဆင့်အတန်းင့် လိက်ေလျာညီေထွစွာ ေနာက်ချိန်ဝတ်ဆင်ပါဟ၍ လမ်းန်ခဲ့ပါသည်။ ထးြခားဆန်းကျယ်ေသာ အဝတ်၊ ယေကျးေသာ အဝတ်စသည်ြဖင့် အေြခအေန၊ အချိန်အခါကိ လိက်၍ ဝတ်သင့်ေကာင်းကားဝါလိ၊ ဝင့်ကားလိြခင်းြဖင့် မဝတ်သင့်ေကာင်း၊ ထိသိ ့ ဝတ်ဆင်ြခင်း သည် တင့်တယ်ေသာဝတ်ဆ င်ြခင်းမျိးမဟတ်ေကာင်းကိ "ဝါဝါကားကား၊ ကားကားဝင့်ဝင့်၊ ဝတ်သြဖင့်လည်း၊ မတင့်တယ်ရာ ဟ၍ အသံတ၊ အဓိပာယ်တစကားလံးတိ ့ကိ ဖွဲဆိ၍ အသံ၏သာယာမတိ ့ြဖင့် ွတ်းဖွယ်ရာ ဖွဲဆိသိြမင်ေစခဲ့ပါသည်။ မိန်းကေလးတိ ့၏ အဆင်တန်ဆာြဖစ်ေသာ လက်ဝတ်ရတနာေရ ေငွတိ ့ကိ ဆင်ယင်ရာတွင် "ခါမဟတ်က၊ ေဖာ်ထတ်ြပြပင်၊ မဆင်ယင်င့်" ဟ၍ ေရွးချယ်ပိင်းြခားဝတ်ဆင်ရန် လမ်းန်ခဲ့ပါသည်။ ဝတ်ဆင်ရာတွင်လည်း "ကာလေဒသ၊ ေန ့ညမတ်ကိး၊ အမျိးအွယ် အရွယ်အသက်၊ ချင့်တွက်ယတ်ြမတ်၊ ဆင်ယင်တတ်မ" ဟ၍ ေရွးချယ်ပိင်းြခားဝတ်ဆင်ရန် လမ်းန်ခဲ့ပါသည်။ အစာစားရာတွင်လည်း ရာသီဥတအေနအထားကိလည်း အပ၊ အစပ်၊ အဖန်၊ အချ၊ အချိ၊ အခါးကိ စားသံးရန် န်ကားပါသည်။ စားသံးေသာ အေနအထားကိလည်း အိပ်လျက်၊ ဝပ်စင်းလျက်၊ ေြခဆင်းေပါင်ေထာင်လျက် ေဆာင့်ေကာင့်ထိင်လျက် မစားသင့်ေကာင်း၊ ေတာင်၊ ေြမာက်၊ ကည့်ြခင်း၊ ရပ်လျက် အေနအထားြဖင့် စားြခင်းတိ ့ကိ မလပ်သ င့်ေကာင်း၊ အစားကိ ဟိဘက်ပါးေစာင်ပိ ့လိက်၊ ဒီဘက်ပါးေစာင်ပိ ့လိက် မစားသင့်ေကာင်း လမ်းန်ပါသည်။ ထိ ့ြပင် 111 - ယင်း - ၁ ။ ၁၉၃၈၊ ၉၊ ၉၃၈၊ ၉။ 112 - ယင်း - ၈ ။ ၁၉၃၈၊ ၉။ 113 - ယင်း - ၈ ။ ၁၉၃၈၊ ၉။ 114 - ယင်း - ၁ ။ ၁၉၃၈၊ ၉၊ ၉၃၈၊ ၉။ 115 - ယင်း - ၈ ။ ၁၉၃၈၊ ၉။
စားသောက်သောအစားအစာသည် “သိးအပတ်လာညီဟာင်မစားရသည်” ဟု
လည်းကောင်းစားသောက်ရာတွင် “ရသေထွြပား၊မိန်းက်ညာလည်း၊စားမကးရာ” ဟု
လည်းကောင်းန်ပခဲ့သည်။

ဗုဒ္ဓကောင်းကြောင်းစပ်လျံရာတွင် “ပိးမားလာကျိ၊ြမဘိန်းထင်၊သန်စင်မကည်ရကိသည်လည်း၊ချပ်ဆည်အာသာေရကိသည်လည်း၊မေသာက်ရာ” ဟု
ပိးမား၊ေလာက်တိဖင့်ကျိရွဲနေသာရာ၊ြမတစ်မန်စာေလာက်မပင်ေနာက်ေနေသာကိုအာသာေပံမပင်မေသာက်သင့်ပါဟု
ဆံးမထားပါသည်။

ယင်းအရက်ေသာက်ြခင်း၏ဆိးကျိးကိေထာက်ြပ၍အရက်မေသာက်ရန်တာြမစ်ခဲ့ပါသည်။
ဆရာေတာ်တိဖွဲ့အေထွေထွအမာစကားတိတွင်ြမန်မာလမျိးတိတွင်ကိယ်အမအရာစိက်များထင်ဟပ်လျက်ိပါသည်။
လတစ်ဦးင့်တစ်ဦးဆက်သွယ်ေပါင်းဖက်ရာတွင်တြိးြပာစကားကိအသံြပကရသည်။
လတစ်ဦး၏ေြပာစကားသည်ထိသ၏စိတ်ကိထွင်းေဖာက်ကည့်ိင်သည်ြဖစ်၍
ထိသည်ြပာစကားသည်လည်ျထိသ၏အေကာင်း၊အဆိးစိက်ကိဖာ်န်းေနပါသည်။
တ်ချိတစ်ပါးမန်းစလိခံတွင်းလက်ေလးသစ်၊ချစ်စလိခံတွင်းလက်ေလးသစ်တ်ကာင်းလက်ေကာင်းင့်ေကဆိေသာစကားများကတြိးပာစကား၏အေရးပါမကိဖာ်န်းေနပါသည်။
သဝါဒထးပျိဆရာေတာ်ကစကားေြပာဆိရာတွင်မာမာတင်းတင်းမေြပာဆိသင့်၊ကမ်းကမ်းတမ်းတမ်းမေြပာဆိသင့်ေကာင်း၊မာတင်းကမ်းတမ်းေသာစကားဆိသကိမိတ်ေဆွမဖွဲလိေကာင်း၊မိတ်ေဆွဲဖစ်ပါကလည်းပျက်တတ်ေကာင်းကိစကားဆိလျင်း၊မမာတင်းင့်၊အတင်းကီးလစ်လျပတ်သည်ြဖစ်၏
တ်ေကာ့ကမ်း၊လယတ်သွမ်းကိ၊ကင်ကမ်းမိတ်ေဆွ၊မေတာ်ေလင့် စိုးစံများ ၏အကြောင်းအရပ်အမြင်ချောင်းအားလုံးကိုစီးပွားဥစာတိလည်းပျက်ယွင်းတတ်ပါသည်။

116 - ဂျက် - ၁Ⅰ
117 - ဂျက်ကျာ် ၁၉၃၉၊ ၂၅
118 - ဂျက် - ၁Ⅰ
119 - ဂျက် - ၁၃Ⅱ
120 - ဂျက် - ၁၃Ⅱ
121 - ဂျက် - ၁Ⅰ
ဟုလမ်းန်ပါသည်။ ကမ်းတမ်းသာစကားဆိသည် “လယတ်သွမ်း”ဟေသာကျစ်လစ်ထိမိသာစကားသာဖင့်ဖော်ဆာထားသည်။ စကားလံး၏စွမ်းအားသာ့ပ်တမ်းသာစကားဆိသည် လယတ်၊လေသာ့သွမ်း၊လရမ်းကားဟသည့်အသိကိသိမင်းလာစသည်။ ကမ်းတမ်းသာစကားင့်စပ်လျး၍ဘရားင်ကလည်း “ဖသာရဝါစာယေဝရာမဏိ” 122 နဖသံဘဏာမိ 123 ဖသာဝါစာသရိမံတီရံ 124 ဟုလမ်းန်ပါခင်ကိကမ်းတမ်းသာစကားဆိ၍ကမ်းတမ်းသာစကားကိမေြပာပါင့် “ကမ်းတမ်းသာစကားဆိသသည်သံသရာ၌နစ်မပ်တတ်သည်” ဟုလမ်းန်ချက်ကိထိလမ်းန်ချက်ကိအကျိးစီးပွားင့်ယေသာကာင်းသည် ချစ်ဖွယ်၊စ်လိဖွယ်သာစွာယေကျးစကား၊အသင့်ယတည်းမကားယကားညီစွာ၊ဉာဏ်ပညာဖင့်စိတ်ဖာခွဲဵယိင်း 125 ဟုလမ်းန်ပါသည်။ ဘရားင်ကိယ်တိင်ပင်လင် “စကားအရာအဂါေလးတန်” 126 ပင်ဖစ်သည်။ ထိလမ်းန်ချက်ကိးြပင်ဆိြခင်းသည်အမျိးတမ်းသတိအားပင်ဖစ်ေကာင်းကိ “မျိးတမ်းသသ၊လတိအားမစကားနာသာ၊ဝါစာပီယ၊မတ်ဟြဖည်းညင်း၊ေြပာဆိြခင်းသည်၊အရင်းကီးမားလတိအား” 127 ဟုလမ်းန်ပါသည်။ ဘရားင်ကိယ်တိင်ပင်လင် “စကားအရာအဂါတ ရနိကာယ၊ ၂၀၀၇၊ အံ၊ ၃၊ ၄၆၂” 122 ပကဆက သတကနိပါတပဠိ၊ ၂၀၀၇၊ အံ၊ ၂၊ ၂၂၂ 123 အဂတရနိကာယ၊ ၂၀၀၇၊ အံ၊ ၃၊ ၄၆၂ 124 ဖိးစိန်၊ ဦး ၊ ၁၂၈၉၊ ၄၀၂ 125 ပိဋကတ်သံးပံသပ်စံအဘိဓာန် ၊ ၂၀၁၂၊ ၉၉၀ 126 ဖိးစိန်၊ ဦး ၊ ၁၂၈၉၊ ၃၀၄ 127
“ကူးဖျင်တဲ့စိုးရိမ်မှာ ဗြိတိသျှမက်ထရိုတ် အားဖြင့်တွေ့နေတယ်” 129

ဗြိတိသျှသောစိုးရိမ်မှာ ဗြိတိသျှကို လက်ရှိတွေ့တယ်မှာ အားဖြင့် နားလည်မှာ အားဖြင့်တွေ့တယ်မှာ 130

ဗြိတိသျှသောစိုးရိမ်မှာ ဗြိတိသျှကို လက်ရှိတွေ့တယ်မှာ အားဖြင့် နားလည်မှာ အားဖြင့်တွေ့တယ်မှာ 131

ဗြိတိသျှသောစိုးရိမ်မှာ ဗြိတိသျှကို လက်ရှိတွေ့တယ်မှာ အားဖြင့် နားလည်မှာ အားဖြင့်တွေ့တယ်မှာ 132

ဗြိတိသျှသောစိုးရိမ်မှာ ဗြိတိသျှကို လက်ရှိတွေ့တယ်မှာ အားဖြင့် နားလည်မှာ အားဖြင့်တွေ့တယ်မှာ 133

ဗြိတိသျှသောစိုးရိမ်မှာ ဗြိတိသျှကို လက်ရှိတွေ့တယ်မှာ အားဖြင့် နားလည်မှာ အားဖြင့်တွေ့တယ်မှာ 134

ဗြိတိသျှသောစိုးရိမ်မှာ ဗြိတိသျှကို လက်ရှိတွေ့တယ်မှာ အားဖြင့် နားလည်မှာ အားဖြင့်တွေ့တယ်မှာ 135

128 ဗိုလ်မှူးမျင် ၁ လျှပ် မိုး ၄၀။
129 မိုးဦး စိုး ၁ လက်ရှိ ၄၀။
130 ဗိုလ်မှူးမျင် ၁ လျှပ် ၆၀။
131 ဗိုလ်မှူးမျင် ၁ လျှပ် ၄၀။
132 ဗိုလ်မှူးမျင် ၁ လက်ရှိ ၄၀။
133 ဗိုလ်မှူးမျင် ၁ လျှပ် ၄၀။
134 ဗိုလ်မှူးမျင် ၁ လျှပ် ၄၀။
135 ဗိုလ်မှူးမျင် ၁ လျှပ် ၄၀။
တစ်စုံစွာထားသောအချက်အလက်များကို စိတ်ကူးခြင်းနှင့် မြန်မာစိုးရိမ်များကို အထည်ဖော်နိုင်ပါသည်။

“စိတ်ကူးခြင်းသောကြောင့် ပြည်သူများ၏ မိဘတ်မိသားစီမံခန့်ခွဲမှုများ၊ များစွာတွေ့ရှိရန်” အကြောင်းရေး အစိမ်းအနှစ်များကို စိတ်ကူးခြင်းနှင့် မြန်မာစိုးရိမ်များကို အထည်ဖော်နိုင်ပါသည်။

“စိတ်ကူးခြင်းသောကြောင့် ပြည်သူများ၏ မိဘတ်မိသားစီမံခန့်ခွဲမှုများ၊ များစွာတွေ့ရှိရန်” အကြောင်းရေး အစိမ်းအနှစ်များကို စိတ်ကူးခြင်းနှင့် မြန်မာစိုးရိမ်များကို အထည်ဖော်နိုင်ပါသည်။

“စိတ်ကူးခြင်းသောကြောင့် ပြည်သူများ၏ မိဘတ်မိသားစီမံခန့်ခွဲမှုများ၊ များစွာတွေ့ရှိရန်” အကြောင်းရေး အစိမ်းအနှစ်များကို စိတ်ကူးခြင်းနှင့် မြန်မာစိုးရိမ်များကို အထည်ဖော်နိုင်ပါသည်။

“စိတ်ကူးခြင်းသောကြောင့် ပြည်သူများ၏ မိဘတ်မိသားစီမံခန့်ခွဲမှုများ၊ များစွာတွေ့ရှိရန်” အကြောင်းရေး အစိမ်းအနှစ်များကို စိတ်ကူးခြင်းနှင့် မြန်မာစိုးရိမ်များကို အထည်ဖော်နိုင်ပါသည်။

136 - ၁၃၆
137 - ၁၃၇
138 - ၁၃၈
139 - ၁၃၉
140 - ၁၄၀
လအမျိးမျိး စိတ်အေထွေထွေ တတ်သည်ြဖစ်၍ လအမျိးမျိးတိ့၏ စိတ်သေဘာများင့် ောင်သင့်၊ ေဆာင်သင့်ေသာ စကားတိ့ကိလည်း လမ်းန်ထားသည်ကိ တွ ိရပါသည်။ ဂမီသာရပျိဆရာေတာ်ကလည်း မိမိအကျိးကိလိဟန်င့် စကားေပး、 စကားငင်、 စကား သွယ်လပ်ကာ အကိက်လိက်ေြပာ၍ ဖျက်လိဖျက်ဆီးြပတတ်သည့် ကန်းတိက်စကားေြပာလာ သည်ကိ သိအာင် ြပလပ်ရန် လမ်းန်ထားသည်ကိ မာမာေမွေချာက်၊ တစ်ေယာက်တပါး၊ အယမားေအာင်、 စကားေပးငင်、 အကယ်ပင်သိ ့、 ြပစ်တင်ြပန်、 ကျိးလိဟန်င့်、 ဆန်တန်တ်ထား、 စကားသွယ်ဝိက်、 ချင်းအကိက်ြဖင့်、 ကန်းတိက်ြပသည်、 သ ့ဖျက်ရည်ကိ ရိပ်ြခည်သဇာ、 တခွန်းဟက、 ခဏချက်ြခင်းသိ စမင်း、 ဟ၍ဖွဲဆိပါသည်။ ကန်းတိက်စကားေြပာတတ်သ၏ စကားအသွား အလာသေဘာကိ သိြမင်ကာ ကန်းတိက်စကားေြပာတတ်ြခင်းကိ မစ်သက်ေသာ သဘာဝကိ တွ ိရပါသည်။ နဝရတ်ပျိတွင် ပဥမေြမာက်ရေသ့ကီးက ပျက်စီးတတ်ေသာအေကာင်းတရား (၁၂) ပါး တွင် "ေချာေထွပစ်စား、 ကျင့်သအားကား、 အများစဆက်、 မျိးကိ ဖျက်သည် ြပျင်း ပျိမ်းချာက်၊ တွင်ပျက်တတ် သား၊ သြမတ်မဟတ် သယတ်အားလည်း、 မတ်သားစိတ်မာ、 မေပါင်းရာသည်" ဟ၍ လမ်းန်ပါသည်။ မာယာြဖင့် လည့်ပတ်ေြပာတတ်ေသာ ကန်းေချာစကားေြပာတတ်သကိ "သယတ်" ဟေသာ အသံြဖ င့် အမည်ေပးလျက် သယတ်ကိ မေပါင်းရန် လမ်းန်ပါသည်။ ကန်းေချာစကားေြပာြခင်းကိ မစ်သက်ေသာစိက်ကိ ဖာ်ေဆာင်ေနပါသည်။ ထိအခါ မိမိင့် ကမ်းဝင်ြခင်းမိေသာ သစိမ်းကိ အေကာင်းထင်၍ ဆင်ြခင်မဲ့၍ မိမိ အေကာင်းကိ သတိလက်လွတ်ေြပာမိတတ်ေကာင်း၊ ထိသိ ့စ်ကိ ယ်ကား ေြပာထားေသာ စကား ကိ လပံအလယ်ေရာက်ကာမ ပျက်ရယ်ြပေြပာတတ်ပါသည်။ ထိအခါ မိမိက ခွန်းတံ ့ြပန်၍ မေြပာပါင့်၊ ရင်တွင်းစကားကိ ေြပာြပလိက်မိသည့်မိမိအြပစ်ဟ ေအာက်ေမ့ပါဟ၍ သတိေပး ေြပာကားဟန်ကိ ဆင်ြခင်မိ၊ သတိလွတ်ေထွ၊ ေြပာမိေလသား、 မေချသနား、 ကွယ်စကားကိ、 အများကားေအာင်、 ြပယ်သည့်ေယာင်သိ ့、 ပွဲေဘာင်ဆိတံ ့၊ တဖန်လံ မ မင်းသဝဏ်၊ ဆရာ ၊ ၁၃၁၇၊ ၇။ ၄၂ ဣဂတ  ၊ င် ၊ ၁၉၆၂၊ ၃၀။ ၄၃ - ယင်း- ။
တ်တာ့မလဲနှင့်ဝမ်းထဲေထွေပေးနေပြီးသည်မှာအြပစ်ဟုဖော်ပြထားသည်။

ေလာကနီတိဆရာကလည်းရန်သြဖစ်ပါကမ်းဝင်သည်အထင်င့်မိမိ၏အကာင်းစံကိုမေြပာသင့်ကာပြီးခိက်ရန်တော့ဖစ်ပါကအကန်ြပန်ေြပာတတ်ကိုခေါ်။

ထိးနာက်ပစည်ဥစာပျက်ြခင်း၊ကိယ်စိတ်လံး၊ညိးွမ်းြခင်းမယားြဖစ်သည်ကိုဖောက်ြပန်ြခင်း၊သတစ်ပါးလည့်ြဖားသည်ကိခံရြခင်း၊မထီမဲ့ြမင်ြပသည်ကိခံရြခင်းဟသည်မိမိ၏အတွင်းစကားတိကိသတစ်ပါးမေြပာအပ်ကာင်းကိလမ်းသိြမင်၊ပညာင်တိ့ြပင်လွင်စကား၊သတစ်ပါးကိမကားေစလင့်န်ချက်တိကိမိမိင့်မိမိအိမ်၏အတွင်းစကားများကိသတစ်ပါးအားမေြပာေစလိေသာသေဘာကိေတွိရပါသည်။

ယေကျးလိမာမျိးြမန်မာယေကျးမစာတမ်းများစာအပ်လီမန်မာ့ယေကျးမင့်ကျင့်ဝတ်များစာတမ်းတွင်ေမာင်အံ့(မဟာဝိဇာ-ဘံေဘ)ကလည်းြမာတင်းစကား၊မန်ကန်ေြဖာင့်မတ်သတစ်ပါးကိအြပစ်တင်စကား၊ကန်းေချာစကားတိကိမိမိအေကာင်းမိမိမိသားစ၏စီးပွားေရး၊လမေရးစသည့်ဒကအေထွေထွကိတစ်နည်းမိမိ၏အတွင်းအေရးကိစမန်သမကိမိခင်းမချန်မေြပာဆိရ။

စကားေြပာဆိကသည့်ပွဲအလယ်တွင်ြငင်းခံြခင်း၊ြပန်လန်ေြပာဆိြခင်းများကိုောင်ကရမည်ဟသည်စကားသံအရိပ်တိကိလံထွက်လျက်ပပါသည်။

144 မင်းသဝဏ်၊ဆရာ ၁၃၁၇၊၆။
145 ဦး ဦး ဦး ၊ ၁၉၄၁၊ ၁၁။
146 ဦး ဦး ၊ ၁၉၄၁၊ ၁၁။
147 ေစာမံညင်းင့်အများ၊၂၀၀၅၊၅၁။
148 ေစာမံညင်းင့်အများ၊၂၀၀၅၊၈၈။
ြမန်မာလမျိးတိ ့၏ သဘာဝစိက်များကိ တေအာင် တ၍ ပ်လံးေဖာေဆာင်မြခင်းမဟတ် ေပ။ ြမန်မာလမျိးတိ ့တွင် သဘာဝဖစ်သည်။ အမာြဖစ်သည်။ အစစ်ြဖစ်သည်။ ပံရိပ်အစစ်ြဖစ်သည်။ စာဆိေတာ်ကီးများ၏ ေဆာင်ရွက်ဖွယ်ရာအေထွေထွမာကားချက်၊ လမ်းန်ချက်များတွင် ြမန်မာလမျိးတိ ့၏ ေနမ၊ ထိင်မ၊ စားေသာက်မ၊ ဝတ်မ၊ စားမ စေသာ လမဘဝစိက်တိ ့သက်ဝင်လပ်ား လျက်ိသည်။ ထိစိက်တိ ့သည် ြမန်မာလမျိးတိ ့၏ လိက်နာဖွယ်ရာကျင့်ဝတ်၊ ထံးတမ်းဓေလ့၊ ကိယ်ပိင်အမအရာ၊ ကိယ်ပိင်ယေကျးမတိ ြဖစ်သည်။ ထိအမအရာတိ ့တွင် အသက်အရွယ်အာြဖင့် ကီသ၊ ဂဏ်အိန်အဝါကီးသတိ ့ကိ ိေသ ေသာအမအရာ၊ ကျိးွံေသာ အမအရာ၊ အေလးထားေသာ အမအရာတိ ့ထင်ကျန်ေနသည်။ ြမန်မာလမျိးတိ ့၏ တ်ေြပာ စကား၊ စိတ်အမအရာ၊ ေလာကလသားတိ ့၏ စိတ်သေဘာင့် တ် အေြပာဆိင်ရာ စိက်သဘာဝများ၏ အရင်းအြမစ်သည် ဗဒ၏ အယဝါဒ၊ ြမန်မာတိ ့၏ ဓေလ့ထံးတမ်းတိ ပင်ြဖစ်သည်။ ြမန်မာလမျိးတိ ့၏ လံးသားတွင် ဘရား၊ တရား၊ သံဃာရတနာြမတ်သံးပါး၊ အမိအဖ တိ ့ကိ ြမတ်ိးတန်ဖိးထားေသာ စိတ်၊ အမိအဖင့် အသက်အရွယ်ကားမားေသာ ေဆွမျိးများကိ ိေသစွာ လပ်ေကးြပစလိေသာစိတ်၊ ငါးပါးသီလကိ လံြခံစွာ ေစာင့်ထိန်းတတ်ေသာ ကိယ်ကျင့်တရား၊ သည်းခံြခင်းတရား၊ ေလာကပါလတရား(၂)ပါး၊ ေပးကမ်းစွန့်ကဲတတ်ေသာ သဒါတရားတိ ့ ြပည့်လမ်းေသာ စိတ်တိ ့ထင်ဟပ်လျက်ိသည်။ တစ်ပိင်နက်တည်းတွင် အနိစ၊ ဒက၊ အနတ ဟေသာ လကဏာေရး သံးပါးကိ သိလ်ေကာင်းမနှစ် မေကာင်းမတိ ့ကိ စွဲမဲစွာ သိလ်ေနပီး မာန်ေထာင်လွားေသာစိတ်၊ ခက်ထန်ကမ်းကတ်ေသာစိတ်၊ မနာလိဝန်တိစိတ်တိ သည် ကာလသံးပါးအတွက် အကျိးစီးပွားပျက်စီးေစတတ်ပီး ဒါန၊ သီလ စေသာ တရားတိ က ကာလသံးပါးအတွက် ေကာင်းကျိးချမ်းသာ အြဖာြဖာရိေစမတိ ့ကိ သိေသာ စိတ်သေဘာ တိ လည်း ိကပါသည်။
သည်ကဲောမိးေပာသာစကားနှင့်တင်ာစကားကိုမြောက်တွင်းစကားေပာဆိြခင်းတိမစ်သက်သောသဘာဝစိက်တိ့ထင့်ရန်ပါသည်။

မြန်မာလမျိးတိ၏ကိယ်၊တ်၊လံးကံသံးပါးအမအရာသဘာဝစိက်တိကိုမြန်မာလမျိးတိ၏လမဆက်ဆံေရးနည်းပညာအေတွးအေခ၊အယအဆ၊ယံကည်ကွယ်မိးရာဓံထံးစံစသည်တိ့ေပလွင်နိုင်ပါသည်။

ထိစိက်တိ့သည်ေလာကလသားတိတွင်ထားိအပ်သောကိယ်ကျင့်တရား၊ဂဏ်သိကာ၊ေဆာက်တည်ရမည့်ကျင့်ဝတ်တရား၊လ့ဘဝရြခင်း၊လသားတစ်ဦးအြဖစ်ြမင်စွာေမွာလာြခင်း၏တန်ဖိးရလဒ်အကျိးအာနိသင်များကိုဖော်ဆိေနပါသည်။

ဗဒဘာသာမြန်မာလမျိးတိ၏ကံ၊ကံ၏အကျိးတရားကိယံကည်မသည်အရင်းပဓာနကျေသာယံကည်မတစ်ရပ်ြဖစ်သည်။

ကံဆိသည်မာအလပ်ြဖစ်သည်။မိမိကာင်းမြပလပ်ပါကကာင်းကျိးခံစားရေကာင်းမြပလပ်ပါကမေကာင်းကျိးခံစားရြခင်းသည်ဗဒဘာသာမြန်မာလမျိးတိ၏အယဝါဒြဖစ်သည်။

ထိအယဝါဒကိလက်ခံကျင့်သံးလျက်ေကာင်းေသာသေဘာစိက်တိကိကျင့်ကံရောင်ကြခင်းြဖင့်အတိတ်၊ပစပန်၊အနာဂတ်ကာလသံးပါးကိုေကာင်းကျိးေဆာင်ရာရာလပ်ေစသည်။

နိဂံးပျိကဗျာများမြန်မာသဘာဝစိက်များေလ့လာချက်တွင်ြမန်မာလမအဖွဲအစည်းအတွင်းလသားတိ၏ပစပန်၊အတိတ်၊အနာဂတ်ကာလသံးပါးတွင်ချမ်းသာစွာေနထိင်ိင်ေရး၊ေကာင်းမွန်စွာေနထိင်ိင်ေရးကိုေနသည်။

ြမန်မာတိကိအဆိး၊အေကာင်းကိခွဲြခားသိြမင်ပီးအေကာင်းအမွန်ဟသမတိကိမိမိတိ၏ကိယ်၊တ်၊လံးကံသံးပါးတွင်လည့်ပတ်စီးဝင်သက်ဝင်လပ်ားေနကပံတိစာတမ်းင်ဉဏ်မီသမ

လ့လာတင်ြပထားပါသည်။

ဤစာတမ်းပါေလ့လာတင်ြပချက်များသည်စာဖတ်သ၊စာေလ့လာသတိတွက်သည်ဆိပါကစာတမ်းင်ေကျနပ်စ်သက်မိရပါမည်။

လိအပ်ချက်၊ချိယွင်းချက်များိပါကစာတမ်းင်၏ေလ့လာတင်ြပမ၊သံးသပ်ိင်မအားနည်းမေကာင့်သာြဖစ်ပါသည်။

ကျမ်းကိးစာရင်းများကန်ေတာ်မင်းေကျာင်းဆရာေတာ်။(ခစ်မပါ)

ရန်ကန်၊ဗိလ်တစ်ေထာင်စာပံိပ်တိက်။

ေကျာ်ရင်၊ဦး(ပပါး)
(၁၂၉၈)ကဝိဘာရတီကျမ်း။

PROCEEDINGS
The 2nd National and International Conference
on Humanities and Social Sciences 2019
သာသနာေရးဦးစီးဌာန။ (၂ဝဝ၇) အတွင်းရှိ သောစကိုကို ဗျာတော်များ ၊ ကြောင်းအရာများ ၊ ကြည့်ရှုရန် ပြန်လာရောက်သည်။
သာသနာေရးဦးစီးဌာန။ (၂ဝဝ၇) မိမိရဲ့ အဆုံးသတ်စေရန် အရာများ ၊ ကြည့်ရှုရန် ပြန်လာရောက်သည်။
သာသနာေရးဦးစီးဌာန။ (၂ဝဝ၇) အလယ်အလောက်မှ အောက်ပါ အရာများ ၊ ကြည့်ရှုရန် ပြန်လာရောက်သည်။
သာသနာေရးဦးစီးဌာန။ (၂ဝဝ၇) အလွန်အလောက်မှ အောက်ပါ အရာများ ၊ ကြည့်ရှုရန် ပြန်လာရောက်သည်။
သာသနာေရးဦးစီးဌာန။ (၂ဝဝ၇) အောက်ပါအရာများ ၊ ကြည့်ရှုရန် ပြန်လာရောက်သည်။
သာသနာေရးဦးစီးဌာန။ (၂ဝဝ၇) အောက်ပါအရာများ ၊ ကြည့်ရှုရန် ပြန်လာရောက်သည်။
Myanmar English dictionary/ (၁၉၉၃) ရန်ကာကွယ်၊ဖိတိလစ်သိပံိပ်တိက်။
စာတမ်းအကျး

ဤစာတမ်းသည် တတ်ြပည်သ့သမတိင်ငံ၊ ယနန်ြပည်နယ်၊ ေပါင်န်းမိ၊ လံးလင်ခိင်၊ လံမ်းမိနယ်၊ မန်းမိက်ရွာမအားချန်လမျိးတိ့၏ ဘာသာစကားင့် ြမန်မာဘာသာစကား (စကားလံးပိင်း) ကို ြမန်မာယေလ့လာချက် (စကားလံးပိင်း) ဖြစ်သည်။

ဗိုင်းအချက်:

ကျန်ရှိသော စာတမ်းပေါ်ခြင်းများသည် အားချန်လမျိးပြီးနောက် စကားလံးများကို ရိုမိန်းနိုင်သည်။ စာတမ်းအကျးများတွင် အားချန်လမျိးတိ့၏ ေြပာစကားများသည် ထိးကားသော စာတမ်းပေါ်ခြင်းဖြစ်ပါသည်။

ဗုဒ္ဓဟူး:

စာတမ်းပေါ်ခြင်း အားချန်လမျိးပြီးနောက် စာတမ်းအကျးများတွင် အားချန်လမျိးတိ့၏ ေြပာစကားများသည် ထိးကားသော စာတမ်းပေါ်ခြင်းဖြစ်ပါသည်။
တိဗက်အားချန်ဘာသာစကား (လသာမိသေလာက်ားရာတွင် တပို့မ်စီးဖက်ဟေခေသာမပါရာက်ဘဲ ဖတ်ရာတွင်) အားချန်လမျိးနှင့် ြက်ရွှေအရပ်များ၌ လွင်ပင်သိများဖစ်နေသော သန်းထွန်း၊ ဖေမာင်တင်၊ အာချန်လမျိးနှင့် အာချန်လမျိးသည် တိဗက်အားချန်ဘာသာစကားနှင့် သဒေဗဒသေကတတစ်စပါအဝင်ဖစ်ပါသည်။

အားချန်လမျိး၏ အာချန်လမျိးအားချန်လမျိးသည် သဒေဗဒသေကတတစ်စပါအဝင်ဖစ်ပါသည်။

ယန်နန်စီးပားကြောင့် အားချန်လမျိးအားချန်လမျိး၏ စကားလံးများကို ရာစတွင်မိတ်ဆက်သေဘာအဖစ်သတ်မတ်ထားပါသည်။

149 အားချန်လမျိး ဌာနတွင်အခန်းစုံစုံစွာအဖစ်ဖြစ်နေသည်။

150 ကြာသော်လည်း အခန်းစုံစွာအဖစ်ဖြစ်နေသည်။

အခန်းစုံစွာအဖစ်ဖြစ်နေသည်။
မ်းတတ်ဘာသာစကားအစိေသာဘာသာစကားများလည်းပါသည်။

အြခားလမျိးစများ၏ဘာသာစကားင့်ဝင်သခံဘာသာစကားတို့တွင်တတ်စာအရးအသားကိသာအသံြပကသည်။

အာချန်လမျိးတို့သည်ယန်နပည်နယ်သယ်တန်မ်းလမျိးတို့၏ကိယ်ပိင်အပ်ချပ်ခွင့်ရေဒသတွင်မီတင်းနထိင်ကပါသည်။

လံခမ်းခိင်ဟဆားဝင်ဒသ၊လျန်းဟားဝင်နန်းစန်ဝင်ဒသ၊ကျိးပါခိင်အာချန်ဝင်ဒသင့်အြခားဝင်ဒသများဖစ်သောလီ၊ယင်ကျန်းထိန်ချံးလံလင်ယွင်လံစသည့်ဝင်ဒသတိတွင်နထိင်ကပါသည်။

ထိ့အြပင်အိမ်နီးချင်းိင်ငံဖစ်သောမြန်မာိင်ငံ၏ဝင်ဒသများတွင်လည်းအားချန်လမျိးများနထိင်လျက်ပါသည်။

အားချန်လမျိးစတိ့၏သံထည်လပ်ငန်းဖစ်သည့်"ဟဆား"ဓါးလပ်ငန်းသည်ကမာမာနာမည်ကားလသိများဖစ်ပါသည်။

၂။ဘာသာစကားမျိးကမာတစ်ဝမ်းကဘာသာစကားမျိးကို၄ဝင်ဒသခွဲြခားထားသည်ကိုရပါသည်။

၁။ပစိဖိတ်သမဒရာ၂။ဗုဒ္ဓိုရာမင်းကို၃။အာဖရိကဝင်ဒသ၄။ဥာဏပိုတိက်ဝင်ဒသတိ့တွင်ဖစ်သည်။

ယင်းဝင်ဒသ(၄)အနက်ဥာဏပိုဝင်ဒသသည်လအမျိးမျိးတို့ဆံရာဝင်ဒသ၊ဗုဒ္ဓိုကိုချေက်လာသည့်ဗုဒ္ဓိုမများပေပါက်လာရာဝင်ဒသဖစ်သြဖင့်အေရးကီးဖစ်သောဘာသာများကိကျန်ဝင်ဒသတွင်ရသည်။

ယင်းဘာသာတိ့သည်များစွာသံးစွဲလ့ကျက်အပ်ဖင့်အဖိးတန်ဖစ်ပြီးကပါ။

ယင်းဘာသာတိ့သည်များစွာေသာဘာသာတိရွက်ကာလင့်ယခေခတ်တွင်ယေကျးမကိကမာတဝမ်းဖန်ချိေသာဘာသာများဖစ်ကေ။

ဥာဏပိုအာမျိးစွာပါဝင်ကေသာဘာသာစကားမျိးများတွင်တိဗက်တတ်မျိးအပါအဝင်ဖစ်ပါသည်။

151 Map,baidu.com/mobile
152 - များ -
153 ဒေတာတောင် ဗိုလ် ဗိုလ်
ထိတိဗက်တတ်မျိးိးမျိးြမန်မျိးြဖစ်ခွဲနေသည်အရပ်သည် ယန်စီကိယန် ြမစ်င့် ဝန်ဟိြမစ်တိ ေပါင်းဆံရာအနီာက်ပိင်းတတ်ပည်အေနာက်ပိင်း ြဖစ်ဟန်တသည် 154ပညာင်များခန်မန်းခဲ့ကသည်။ ယင်းအရပ်ေဒသမတိဗက်ြမန်မျိးသည် ေြမာက်မေတာင်သိတစ်စတစ်စေနရာယဍပည်ရွာတည်ေထာင်လာကသည်။ ထိသတ်သည်မလအရပ်မတတ်ပည်တွင်သိတစ်ရာကြည်နောက်စံကာ အိိယြပည်၊ ြမန်မာြပည်၊ ယိးဒယားြပည်၊ အာနန်ြပည်တိကိုရာက်ကရာ ြဗဟပြမစ်၊ ချင်းတွင်ြမစ်၊ ဧရာဝတီြမစ်တိကိစန်ဆင်းကာအိိယြပည်၊ ြမန်မာြပည်၊ ယိးဒယားြပည်တိကိရာက်ကည်။ ဤသိတစ်ရွာေြပာင်းကရာ ြဗဟပြမစ်ေနရာသိတစ်ရာတိကိရာက်၏။ တစ်စတစ်တိဗက်ဆန်တက်ပီးလင်တိဗက်ြပည်သိတစ်ရာတိကိရာက်၏။ ဒတိယအစသည် ယင်းြမစ်ကိ 155စန်ဆင်းရာအာသံြပည်သိတစ်ရာ။ တတိယအစကားချင်းတွင်ြမစ်တိကိစန်ဆင်း၍ြမန်မာြပည်သိတစ်ရာ၏။ 156ဟေဖာြပထားပါသည်။

ထိတိဗက်တတ်မျိးိးတွင်တိဗက်ြမန်မျိးခွဲအြဖစ်မန်ယိးချဲကရင်မျိးခွဲင့်မ်းတတ်။ ြမန်မာစို့တိ့သည်စ်ေပါင်း(၂ဝဝဝ)ကျော်အတွင်းတတ်ြပည်အေနာက်ပိင်းင့်တိဗက်တတ်မျိးိးတွင် အတန်ထိင်ခဲ့ကလသည်။ မ်းဘာသာ၌ြမန်မာဘာသာစကားအေြမာက်အြမားသကဲ့သိ့ြမန်မာဘာသာစကားတွင်လည်းမ်းစကားများသက်သိမ်းယပီးလင်ယနန်ကိဖျက်ဆီးပစ်လိက်ရာတာလီ၌မိေတာ်တည်သည်။ ယင်းကိတတ်တိကိနန်ေဆာ(သိ)နန်ေကျာင်ဟေခသည်။ အာသမ်၊ ြမန်မာ၊ ထိင်း၊ ေလာ၊ ဗီယက်နမ်ိင်ငံများတွင်ိေသာလမျိးအသီးသီးကနန်ေကျာင်ကိခစားရသည်။ 158ခရစ်စ်(၁၂၅၃)ခတွင်မွန်ဂိလ်တိကသည်တာလီကိသိမ်းယပီးလင်ယနန်ကိဖျက်ဆီးပစ်လိက်မိေဖေမာင်တင်၊ ဦး၊ ၁၉၅၈၊ ၁၄။ 155- ယင်း။ 156- ယင်း။ 157- သန်းထွန်း၊ ၁၉၆၉၊ ၂၂။ 158- သန်းထွန်း၊ ၁၉၆၉၊ ၂၃။
မိမိတိ့မာ ယိးဒယား၊ ြမန်မာပညာ၊ အင်ဒိချိင်းနားသိ ထွက်ေြပးကရေလသည်။

ခရစ်စ် (၁၃၈၁) ခတွင် "မင်" မင်းဆက် တတ်တိသည် ယနန်မမွန်ဂိလ်တိကိတ်ထတ်ခဲ့သည်။

ထွက်ေြပးလာရေသာ မ်းတိသည် (၁၄၃၈) ဝန်းကျင်တွင် ယခင်နန်ေကျာင်ိင်ငံကိ၀န်ပန်လည်ထေထာင်ရန်ကိစ္စာသာ စစ်ံးဖင့်မိညင်းနယ်င့်မ်းလပည်သိထွက်ကရေလသည်။

မိညင်းကိ (၁၄၄၉) က တတ်သိမ်းယလိက်ရာကေလး၊ ခါမီ၊ အာသံြပည်သိလည်းရာကေလသည်။

တတ်လ်ခေအိဟေခပီးတတ်လက်အာက်ခံများအဖစ်နေခဲ့ကသည်။ သိသာ အမျိးဘာသာင့် ဗဒယေကျးမတိကိဆက်လက်အသံြပကသည်။ "ပဲအိဟေခ" မ်းတိကိ ေြမာက်ပိင်းမ်း(ဝါ)တတ်မ်းခရ၍ ြမန်မာပည်မ်းတိကိမ်းကီး(ဝါ)ေတာင်ပိင်းမ်းဟကောခ ကသည်။

သိသာ တတ်ိင်ငံယနန်မယ်၊ နန်ေချာင်(ေခ)တာလီမဆင်းသက်လာသေသာ တိဗက်ြမန်မာအွယ်များကိတွရိင်ပါသည်။ တစ်ဖန်တိဗက်ြမန်မာမျိးခွဲြဖစ်သည့် အာသံြမန်မာအွယ်ြဖစ်ေသာ ြမန်မာအစသည် နန်ေချာင်မ်းတိ ထံခွဲထွက်လာသေသာ မလြမန်မာတိသည် (၉)ရာစတွင်အေနာက်ပိင်းယနန်င့်ေြမာက်ပိင်းမ်းတိကိဖတ်ကာလွင်ပင်များသိဖတ်ပီးလင်ြကျာက်ဆည်မဝင်လာပံကလည်း ဆရာကီးဦးေဖေမာင်တင်ကကံဆြပထားသည်။

ထိသိ ြမန်မာပည်သိဝင်လာကေသာ်လည်းြမြပန့်လွင်ြပင်သိ ပါမလာဘဲကျန်ရစ်သေသာ မျိးွယ်များကိလည်းဖာ်ပိပထားပါသည်။

ထိလမျိးတိသည် ြမြပန့်လွင်ြပင်သိမပါဘဲ တာင်ေပေဒသတွင်ဆက်လက်ပျံ့သည့်လမျိးများတွင်ေတာင်ိး၊ အင်းသား၊ ထားဝယ်၊ ရခိင်၊ ဓလမျိးများလည်းပါိပါသည်။

ထိလမျိးများ၏ ဘာသာစကားတွင်ြမန်မာဘာသာစကားင့်အလွန်နီးစပ်၏။ ြမာက်ဖက်၌ကျန်ရစ်သများ၏စကားမာ ြမန်မာစကားင့်တေသာ်လည်း ြခားနားေကာင်းသိသာပါသည်။

ယင်းတိသည်ြမန်မာတိင့်ကိရာစကပင်စတင်ကွဲကွာခဲ့သများဖစ်သည်ဟေဒါက်တာသန်းထွန်းကေလ့လာသံးသပ်ြပခဲ့ပါသည်။

3. တတ်ြပည်သ့သမတိင်ငံ ယနန်ြပည်နယ်၊ ေပါင်န်းမိအားချန်လမျိး ဘာသာစကားင့် ြမန်မာဘာသာစကား ိင်းယေလ့လာချက် (စကားလံးပိင်း)

159 အသုံးပြုချက်တို့၏
အဓိပာယ်ကို စကားလံးများစွာ ကိုးကွယ်သည်။ စကားလံးများအား စကားလံးပိင်းကို ဆရာက်တာတို့၏ သဒေါ်ကတာ ဖင်ဖာ်ပထားပါသည်။ စကားလံးများ အဓိပါယ်ကို စကားလံး/ဇဂလန်/န အနက်အဓိပါယ်ိေသာ စကားတစ်ခုပါဝင်ဟု ဖွင့်ဆိုထားပါသည်။

|အစားအသာက်ဝါဟာရစကားလံးများ| အဓိပာယ်ကို
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160 Phonetic
161 - ကျွန်ုပ် - ရိုးရိုး
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### ၃၄ အကြောင်းချက်များ

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### ၃၅ နာမိုးကြည့်စောအိပ်ကြည့်စော

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<td>(၇၅)လံး</td>
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(၃) အားချန်အားချန်အားချန် (၂)လံး | အားချန်အားချန်အားချန်

|
|---|---|---|
| အားချန်ဘာသာစကား | မန်မာဘာသာစကား | အဓိပာယ် |
| မြန်မာစကားလံး | (၅၃)လံး | နာမ်စကားလံး |
| ကိယာစကားလံး | (၂၂)လံး | ကိယာစကားလံး |
| စစ်ပါင်း | (၇၅)လံး | စစ်ပါင်း |
| ထိစကားလံးများ | ဆင်းယေလ့ | ဆင်းယေလ့ |
| အားချန်ဘာသာစကား | မားဘး | မိဘး |
| ဟတ်တယ် | (၁)လံး | ဟတ်တယ် |
| မဟတ်ဘး | (၁)လံး | မဟတ်ဘး |
| ိတယ် | (၁)လံး | ိတယ် |
| မိဘး | (၁)လံး | မိဘး |
| ေကာင်းတယ် | (၂)လံး | ေကာင်းတယ် |
| မေကာင်းဘး | (၁)လံး | မေကာင်းဘး |
| အားချန်အားချန်အားချန် (၂)လံး | အားချန်အားချန်အားချန် |
(၁) မိခိုင်မိဖောလာမှု အခြေစိုက်ပြုမှု အခြေခံပေးသော အချုပ်စျေး အချက် (၂)အတွင်း ကျေးဇူးတွေမှာ

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(၂) ရောဂါ နှစ်ဆိုင်မှု အခြေစိုက်ပြုမှု အခြေခံပေးသော အချုပ်စျေး အချက် (၃)အတွင်း ကျေးဇူးတွေမှာ

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(၃) နောက်ဆိုင်ရာ အခြေစိုက်ပြုမှု အခြေခံပေးသော အချုပ်စျေး အချက် (၄)အတွင်း ကျေးဇူးတွေမှာ

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(၂) အာဦလ့ရရှိများသောစာကိုလာပြီးနောင်
/ / မိုးလှိုင်
^ ^ နောင်တင်
^ ^ အက်ဒါ

ထိုအမှုက ၁၁၂ စားလျင်မှ အပါအဝင် အမျိုးအစား။

(၁) အဘိုးလိုအပ်သောစာကိုလာပြီးနောင် အခြားနောင်ပါသည်အတွက်မှု့ နောင်အပါအဝင်၊
၁၆၂ Typological classification of languages

ထိုအမှုက ၁၆၂ Typological classification of languages

စားလျင်မှ အပါအဝင် အမျိုးအစား။

ထိုအမှုက ၁၆၂ Typological classification of languages
အားချန်ဘာသာစကား (၇၅) လံးကိရာခိင်န်းဖင့် ေဖာ်ပရလင် (၈၆) ရာခိင်န်းမနာမာဘာသာစကားတည်းစစ်ရေး ခေါ်သည်။

ထိတိင်းရင်းသားဘာသာစကားများတွင်လည်းမနာမာဘာသာစကားအသံးပေသာ်လည်း တိင်းရင်းသားဘာသာစကားအများအပေါ်လည်းရပါသည်။ ထိတိင်းရင်းသားဘာသာစကားများတွင်လည်းမနာမာဘာသာစကားချင်းအများအားဖစ်ကြောင်းသည်။ ထိ့အတယချင်းလ့လာတင်ပခဲ့သောအားချန်ဘာသာစကားတွင်လည်းမနာမာဘာသာစကားတည်သည့်စကားလံးများ၊ဆင်တသည့်စကားလံးများိပါသည်။

သဒေဏနည်းအရ အမျိးအစားခွဲ၍လ့လာသံးသပ်လိပါသည်။ ထိ့အတွက် အားချန်ဘာသာစကားကိုဘာသာဗဒဆိုင်ရာပညာရပ်များဖင့်အကျယ်တဝင့်လ့လာသင့်သောဘာသာစကားတစ်ခြဖစ်ကြောင်းသည်။

နိဂံး စာတမ်းသည် အားချန်ဘာသာစကားစကားလံးပိင်းကိသာလ့လာတင်ပခဲ့ခင်း ဆက်လက်လ့လာရန်များစွာကျန်ကြောင်းပါသည်။ စာတမ်းင့်ပတ်သက်၍လိုအပ်ချက်များိပါကြယ်စားအကံြပေန်းအကံးစွာဖိတ်ခိုင်းပါသည်။

ကျမ်းကိးစာရင်းမာမာဘာသာထွန်းမင့်၊ ဦး။ (၂ဝဝ၂) ဘာသာဗဒ၊ (ဒတိယအကိမ်) ရန်ကန်တက သိလ်၊ မနာမာစာဌာန။

ဗိုလ်မာင်တင်၊ ဦး။ (၁၉၅၈) ဘာသာေလာကကျမ်း။ ရန်ကန်၊ စာပဗိမာန်ပံိပ်တိက်။

မနာမာစာအဖွဲ့။ (၁၉၉၁) မနာမာအဘိဓာန်။ ရန်ကန်၊ဖိတိလစ်သိပံိပ်တိက်။

164 Mother Language
သန်းထွန်း၊ ဗိုလ်ချုပ်ကာကွယ် (၁၉၆၉)
ဗိစ္စရပ်သားများနှင့် စိတ်ချောင်းတောင်းသော မေလး၊ မဟာဒဂံစားပေထာက်ဝေရး။

အင်တာနက်ကျမ်းကိးစာရင်း

map.baidu.com/mobile

ဗိစ္စရပ်သားများနှင့် စိတ်ချောင်းတောင်းသော မေလး၊ မဟာဒဂံစားပေထာက်ဝေရး။

အင်တာနက်ကျမ်းကိးစာရင်း

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အင်တာနက်ကျမ်းကိးစာရင်း

map.baidu.com/mobile
အချက်အလက်များ (က)

Activate Wir
Go to Settings
ပံ (၁) - ဗုဒ္ဓဟူးအားချန်လမျိးေနထိင်ရေဒသပံ

ပံ (၂) - လံလင်ခိင်အားချန်လမျိးေနထိင်ရေဒသပံ

ပံ (၃) - အားချန်လမျိးင့်ိးရာဝတ်စံပံ

ပံ (၄) - ဗုဒ္ဓဟူးအားချန်လမျိးသည့်ပဂိလ်င့်အမတ်တရ

ပံ (၅) - တိုးလွှာင်းကာရှောင်းစေးသောနိုင်ငံရေးဝန်းရာတော်
ဗန်းစကားများကို စကားလံးအသစ်များဖြင့် အသစ်တီထွင်အသံးဖြင့် လငယ်များင့် လလတ်ပိင်းအရွယ်များ၏ စကားလံးများ (ဗန်းစကားများ) ကို အဓိကထား၍ ေလ့လာတင်ပထားပါသည်။

ထိသိတင်ရာတွင် လမာသားမှောက်မ ေလ့လာ တင်ပမားဖစ်ပီး ဗမာဘာသာအတွင်း စကားလံးအသစ်များကို ဟူ၍ အပိန်း (၃) ပိုးခွဲ၍ ေလ့လာတင်ပထားပါသည်။

ဤစာတမ်းပါလ့လာချက်များသည် ဗမာစကားအတွင်း စကားလံးအသစ်သစ်များဖစ်သော ဗမာစကားများသည် ေြပာင်းလဲေလ့လာသည်ကို ေြခေြခြမစ်းစ်သိပ်စရန်ဖြင့် ဗမာဘာသာစကားကို ေလ့လာသများအတွက် အေထာက်အကြပ်စရန် ာေဖွေဖာ်ထတ်ထားခင်းဖစ်ပါသည်။
နိဒါန်း

စာတမ်းသည် ဘာသာစကား၏ ကာတစ်ရပ်ဖစ်သော မြန်မာဘာသာစကားအတွင်း ပေးလျက် တက်လာသော စကားလံးများကို လျားလာထားသည် ဘာသာစကားဆိုင်ရာ လျားလာမှုရှိသည်။ အထောက်အပံ့တစ်ရပ်ဖစ်သည်။ အထောက်အပံ့တစ်ရပ်များသည် လျားလာသည်ကို အတွက်ပါသည်။ အထောက်အပံ့တစ်ရပ်တို့သည် လည်း လျားလာသည်။ ထိပ်ဝတ်တစ်ရပ့်အတွင်း အသစ်ဖန်တီးထားသော ဘာသာစကားများလည်း လျားလာအသံးပေလာကတည်းကို ဖြရေးထတ်ထားပါသည်။ အသစ်တီထွင်အသံးပေလာက်သော ဗန်းစကားများသည် တိတိကျးကျးင့်လိရင်းကိုရာက်စပီးလင်များအကား တွင်ကျယ်စွာအသံးပေခဲ့ကိုဖော်ထွင်သည်ကို ဗန်းစကားများတွင် လင်များသာမက လလတ်ပိင်းများကလည်း လျားနားကသည်ကိုတွေ့ရပါသည်။ လင်များလျားစွဲခဲ့ကေသာ ဗန်းစကားများကိုနားလည်ပါက လင်များင့်လျားသင်းဆက်ဆံရာတွင် အဆင်လျားအသိဖော်မည်။ ထိေကာင့်လမဝန်းကျင်တွင် ကာတစ်ရပ်ဖစ်သော အသစ်တီထွင်အသံးပေနကေသာ ဗန်းစကားများ၏ လျားလာတိးတက်လာပံကိုဖြေရှင်းလျက် လျားလာသောအားဖင့် ဤစာတမ်းကိုတင်သွင်းခင်းဖစ်ပါသည်။

၁. မြန်မာဘာသာစကား၏ သေဘာသဘာဝကမာပိလတိသည် လျားစေနစေတိင်းစကားဖြင့်ဆက်သွယ်လျားကရသည်။ လတိ၏ဆက်သွယ်ရေးကားခံသည် ဘာသာစကားဖစ်သည်။ ဘာသာစကားကလည်း အသံးပေဘာသာစကားကို “စာတစ်လံး”ဟူသော်လည်း အသံးပေဘာသာစကားသည် အေရးဘာသာစကားထက်မိနားလည်ပါက ရှေးဆံးင့်အသံးအတွင်ကျယ်ဆံး

"စာတစ်လံးကိုရာက်စပီး" ကို ဖော်ပြသည်။ အေရးဘာသာစကား အေရးဘာသာစကားကို အသံးပေအေရးဘာသာစကားဖြင့် အေရးဘာသာစကားကိုဖော်ပြသည်။
ြမန်မာဘာသာစကားသည်
တိဗက်-တတ်မျိးကီးမဆင်းသက်လာေသာ
တိဗက်-ြမန်မျိးခွဲတွင်ပါဝင်ေသာ
ဘာသာစကားဖြစ်သည်။

165 ထိြပင်မွန်ဘာသာစကားသည်
ဩစထရစ်-ေခာင်ပိင်း
ဘာသာစကားမျိးကီးမဆင်းသက်လာေသာ
မွန်ခမာအွယ်ဝင်
ဘာသာစကားဖြစ်သည်။

166 ထိအတြမန်မာိင်ငံတွင်
အသံတွင်ကျယ်ေနေသာ
ပါဠိဘာသာင့်
အဂလိပ်ဘာသာတွင်ပါဝင်ေသာ
ဘာသာစကားဖြစ်သည်။

167 ြမန်မာဘာသာစကားသည်
တိဗက်-တတ်င့်
ဩစထရစ်မျိးတွင်
ဘာသာစကားများဖြစ်သည်ကိသို့ပါသည်။

168 The Scientific Study of Language. 169 (Diachronic Study)
သည် သမိုင်းဆိုင်ရာ ဘာသာရေးနည်းဖြစ်ပီး ဘာသာစကားတစ်ခု၏ သတ်မတွေ့အချိန်ကာလတစ်ခု၌ ဘာသာစကားတစ်ခု၏ အေးဂုန်တစ်ခံက ပြောင်းလဲခင်း (သတ်မတွေ့ကာလ တစ်ခု၏ ပစာပုံတည်တည် ဗုဒ္ဓမ) (Synchronic Study) ၁၇၀ မျှော်လင်းပါဝင်ဖြစ်သည်။ ထိုလျားများ ရပ်တွင် ဘာသာစကား၏ပြောင်းလဲများနှင့် တိုမှးများ ဖြစ်ပြီး တည်ဆောက်အဆက်ဆက် ပြောင်းလဲအသံ့ပြကပံများကိ သမိုင်းဘာသာရေးနည်းဖင့် ဖွံ့ဖြိုးသည်။

စ်မျိုးဖင့်လည်းလည်း လျားလည်း လျားလျက်လည်း ပညာရပ်က လမ ဘာသာရေး ဟု ခသည်။ လမ ဘာသာရေးသည် ပညာရပ်များစွာ လမ သိပ္ပံ ပညာရပ်များ၏ ဆံဆည်းရာနှင့်ဖျင်ရာဖြစ်သည်။

ထို့နောက် ပြည်သူလုပ်ကာလွန်စွာ သိရုံစွာ ဗုဒ္ဓမကဲ့သို့ အစိပ်လမ ဘာသာရေး ငါ့ကျက်မ ဘာသာရေး ဟု စ်မျိုးဖင့်လည်း လည်း လည်း လည်း ပညာရပ်က လမ ဘာသာရေးကိ လမ အဖွဲ့အစည်း၏ ဘာသာစကားက လမ ဘာသာရေးအချက်စိပ်လာခင်း ဖစ်သည်။

ဟဖွင့်ဆိုထားပီး ငါ့ကျက်လမ ဘာသာရေးကိ ဘာသာစကားကိ အသံပြလျက်သည်။ လမ အဖွဲ့အစည်းကိ လမ ဘာသာရေး၃ ယင်း - ၄ ယင်း - ၅ ယင်း - ၆ ယင်း - ၇ ယင်း
အခြေခံအတွက် အတွေးအရာအဝင်များ စိတ်ဝင်စားသော သိပ္ပံအတွက် ကြိုးစားသော သောဝါဒနည်းကို စိတ်ဝင်စားလျက် လမအဆက်အစပ် အစိုးရအပေါ် စာဘာသာစကားအတွင်း လမအဆက်အစပ် စကားလံးအသစ်များ ဖန်တီးသည်။

၂. အစိုးရအပေါ် စာဘာသာစကားတွင် စကားလံးအသစ်များ ဖန်တီးပါသည်။

စာဘာသာစကားတွင်လည်း လမကိစများကို ဖော်ပြသည်၏ စကားလံးအသစ်များ ဖော်ပြပါက်လာသည်။

ဥပမာ - စာသီးစီးအတွက် အစိုးရအပေါ် စာဘာသာစကားအတွင်း လမအဆင့်အတန်း ဖော်ပြမင့် အသိင်းအဝိင်းတစ်ခခ မဟတ် အဖွဲအစည်းတစ်ခခအတွင်း အချင်းချင်း လိက်ဝက် ဖော်ဆိမ်တိ့အတွက် အသံးဖန်ပါက်ရာမ စကားလံးအသစ်များ ဖန်တီးလျှင် ေတွရပါသည်။
ယင်းတိ့မာအြပင်ေြပာင်းလဲမ (external change) ရွေးအနီး စိန်နောင်ေြပာင်းလဲမ (internal change) 175 တွေ့စြစေတီ

စာသီးစီးကြောင့် အတွင်းေြပာင်းလဲများေကာင့် လံုးစကားများေနရာ ယလာကပါသည်။

ဗန်းစကားများဝင်ေရာက်လာြခင်းသည် ဗန်းစကားဟေခေကာင်း 177 ဟ၍လည်းေကာင်း၊ ဆရာဉီးတင်လကလည်း ဗန်းစကားများကိ ဝက်၍ြဖစ်ေစ၊ တင်စား၍ြဖစ်ေစ၊ အမျိးအစားခွဲ၍ြဖစ်ေစ

အသစ်ြဖည့်တင်းေြပာဆိသံးန်းေသာစကားလံးြဖစ်သည်။ 178 ဟ၍လည်းေကာင်း ဖွင့်ဆိထားပါသည်။

ထိ ့ြပင် ဆရာဉီးတင်လကလည်း ဗန်းစကားများသည် စာေပသံးစကားမဟတ်ေသာ အရပ်စကားများေပါက်ပွားကီးထွားလာရေကာင်း၊ ဗန်းစကားအသံးသည် အသံးတွင်ကျယ်ပီး ၁၀၁၀ ကြာမြင့်ဉီး၊ ၁၂၉၄ ၁၂၉၁၀၀၈ ၂၅၁ ခင်မင် ဗန်းစကား (ဗန်းစကား ဗန်းစကား) ၂၀၁၁ ၈၆၂၀၀၄ ၁၃၆၁၂၀၁၁ ဓြဖ ၂၀၁၀ ၁၂၉ ပါဝင်စွာဝင်စွာတွင် ၁၂၉၁၀၀၈ ၂၅၁ ဗန်းစကား (ဗန်းစကား ဗန်းစကား) ၂၀၁၁ ၈၆၂၀၀၄ ၁၃၆၁၂၀၁၁ ဓြဖ ၂၀၁၀ ၁၂၉
စာေပသံးေဝါဟာရ ြဖစ်သွားလင် ဗန်းစကားဟမေခေကာင်း 179 ဖန်တီးခဲ့ကသည်ကိုတွရပါသည်။

ထိြပင် ေကာင့် ေခတ်ကာလအေလာက်လမဝန်းကျင်တွင် စကားလံးအသစ်များကိုတီထွင်ကာေြပာဆိကြခင်းြဖင့် ြမန်မာဘာသာစကားတွင် ဗန်းစကားများေနရာယလျက်ိသည်ကိုတွရပါသည်။

၃။ ြမန်မာဘာသာစကားအတွင်းိုင်ချိုင်းတွင် စကားလံးအသစ်များကိုစိစစ်ေလ့လာြခင်းြမန်မာ့လမဝန်းကျင်၌လမကိစများကိုြပလျက် စကားလံးအသစ်များေပေပါက်လာြခင်းတွင် လငယ်များအကားြပာဆိသံးန်းကေသာ ဗန်းစကားများလည်းပါဝင်ပါသည်။

ယေန ့ေခတ်တွင်ပ်င်၊ဂီတအပညာင်များကအသစ်တီထွင်၍ေြပာဆိသံးစွဲလျက်ိသည်ကိုတွရပါသည်။

ထိြပင် ေကျာင်းသားများ၊ဝန်ထမ်းများ၊အေရာင်းအဝယ်သမားများစသည်တိ ့သည်မိမိတိ့ကျင်လည်ရာဝန်းကျင်တွင်အသံးြပခဲ့ကပါသည်။

ဗန်းစကားများသည်ရင်ေသာ၊သွက်ေသာ အေငွအသက်ိသည်။

180 ဗန်းစကားများကိုသံးန်းေြပာဆိြခင်းြဖင့်ရင်ရင်ြမးြမးသွက်သွက်လက်လက်ိလာသည်။

1 ဗန်းစကား၁၉၂၂
2 အိမ်ရိုးအဆက်၁၆၉၀
ဗန်းစကားများကိုကစစ်လ့လာတင်ပါမည်ဖစ်ပါသည်။ (၁၉၈၀) ခစ်ဝန်းကျင်မယ်ခတ်ထိဦးန်းခဲ့ကေသာစကားလံးများကိုဖျင်လဲအသံးဖင့်စကားလံးအသစ်များတိးပွားလာပံကိုလာတင်ပါမည်ဖစ်ပါသည်။

ဟိငနဲကဘယ်သားလဲ။ခလာေနတဲ့ဘဲလံကိရီးယားမင်သားေလးနဲတတယ်။ဟေသာအသံးများသည်ခတ်ကာလအေလာက်လငယ်များကားသံးစွဲခဲ့ကေသာဗန်းစကားများဖစ်ပါသည်။ (၁၉၈၀) ခစ်ဝန်းကျင်က"မိန်းမ"ကိ"မဒ"၊"မဒီ"ဟေခတွင်ခဲ့ေသာ်လည်းယေန့ေခတ်တွင်"ေစာ်"ဟေသာစကားကိတွင်တွင်ကျယ်ကျယ်သံးေနကေကာင်းတွင်တွင်ကျယ်ေနကေကာင်းတွင်တွင်ကျယ်ေနကေကာင်း

ဟေသာဇာတ်ေဆာင်ေမာင်ေသာင်းေဖ၏အေပာစကားတွင်လငယ်အချင်းချင်းသာသံးန်းရမည့်"မဒ"ဟေသာစကားကိ၏၁လတ်၊ဉီး၊၁၉၅၆၊၈၇။
ဖခင်အားေပာဆိသံးခဲ့သည်။ ဤဝတ်များသည်လငယ်အချင်းချင်းသာေပာဆိကေသာစကားများဖစ်ေသာကေတွင်သံးစွဲေလ့မိေသာ်လည်းမတ်သားဖွယ်မင်ိင်ပါသည်။ ထိြပင်ဒီကေတွစာ်ည်ဘဲေပါ ထက် ေစာ်ကပိမိက်တယ် ငါ့ ေစာ်ပိမိက်တယ်။ ဟူသောကြောင့်အပညာင်များကလည်းေတးသီချင်းများဖန်တီးခဲ့ကသည်ကိုတွေ့မင်ိင်ပါသည်။ ထိအသံးများသည်လကီးသမများေတွင်ေြပာဆိသံးန်းခဲ့ေသာေကာင့်လငယ်များနည်းတလလတ်ပိင်းများကလည်းဆက်လက်ေြပာဆိသံးန်းခဲ့ကပါသည်။ ထိအသံးများဆက်သစ်လငယ်များကလည်းေနရာမေရွာေြပာဆိသံးစွဲခဲ့ကသည်ကိုတွေ့မင်ိင်ပါသည်။ ထိ အလွန်လပေသာသကိ "မိက်" တယ်၊ "ပါ" ေြဖာင့်တယ်၊ "လန်း" တယ်၊ "မည့်" တယ် ဟလည်းေကာင်း စကားလံးအသစ်များကတီထွင်အသံးြပကသည်ကိုတွေ့ရပါသည်။ စိင်းစိင်းခမ်းလိင်ရဲ ငါရည်စားကပိက် တယ်သီချင်းကလငယ်ေတွကားရပန်းစားေနတယ်။ ဆရာမကတပည့်ကိပါနဲ့ထိန်းထားတာေလ။
ကြည့်ရှုလိုသောစာလုံးများ သင်ကြားရေးမှု့ကို ဖျင်စိုးနိုင်သည်။

၂၀၁၈ - ၁၈၃

ကြည့်ရှုလိုသောစာလုံးများ သင်ကြားရေးမှု့ကို ဖျင်စိုးနိုင်သည်။

၂၀၁၈ - ၁၈၃
အဆိုးတွင်ခဲ့သော်လည်း ယေန ့ေခတ်တွင် "အကိတ်ကီး" ဟေသာ ဗန်းစကားကိမတွင်တွင်ကျယ်ကျယ် အသံးပေနကသည်ကိုတွရပါသည်။

ပိက်ဆံုပါသည်ကို "ဝက်ေထာ"၊ "ေဘာစိ"၊ "ေရလံ" စသည့်ြဖင့် စကားလံးအသစ်များကသံးစွဲလာကပါသည်။

ဒီေန ငါ ဝက်ေထာ ေနတယ်။

ဟ (၁၉၈၀) ခစ်ဝန်းကျင်တွင်သံခဲ့သော်လည်း ယေန ့ေခတ်တွင် အသံးနည်းလာပါသည်။

စကားသံးအသစ်အြဖစ် "boss" ဟေသာ အဂလိပ်အသံးကိတ်ိက်ိက်ယကာ အဂလိပ်အသံထွက်ပီပီသသမထွက်ဘဲ "ေဘာစိ" ဟေသာ အပညာင်များက အေြပာင်အပျက်သေဘာြဖင့် ေြပာဆိကရာမ ဗန်းစကားများအြဖစ် အသံးတွင်ခဲ့ခင်းြဖစ်သည်။

တိ့ေဘာစိ လာတယ်ေဟ့ ဘာစားမလဲ ေမးပါအံး ဟေသာ ေြပာဆိသံးန်းလာကသည်။

သိ တျေသာ် ယေန ့တိင် ထိအသံးများ အသံးနည်းလာပီးလစာထတ်ရက်မိ ့ေရလံ ေနတယ်။

ဟေသာ စကားလံးအသစ်ကိတီထွင်ဖန်တီးကာ ေြပာဆိသံးန်းေနကသည်ကိတွရပါသည်။

ထိဗန်းစကားများက သ ့ကိေတာ့ ကန်ေတာ် ခိက် သွားပီ။

ချမ်းေြမ့ေမာင်ချိကိေတာ့ ေကပီဗျာ။

ဟလငယ်များကား ေြပာဆိသံးန်းခဲ့ကသည်။

ထိအသံးများသည် ယေန ့တိင် သံးစွဲေြပာဆိ လျက်သည်ကိတွရပါသည်။

သတစ်ပါးဒကေရာက်ေအာင်ေြမာက်ထိးပင့်ေကာ်လပ်ေပးသည်ကိ "အတိ ့အေထာင်"၊ "ခန်တွန်း"၊ "စ်ဖက်ခန်"၊ "သံးဖက်ခန်" ထိက်ထည့်၊ ေဆးထိး စသည်ြဖင့် ေြပာဆိ
ဗလာ်ခြင်းက ဆရာမဆီသွားပီး အတိ့အေထာင်လပ်နှေလ။
မမက လတာကိ ခန်တွန်းလပ်တတ်တယ်။
မမက စ်ဖက်ခန်ပါ။
မမက စ်ဖက်တင်မကဘး သံးဖက်ခန်လ။
ဗိုလ်လက်အတွက် ကေတာ့ ဂျင်း
ထည့်ခံလိက်ရတယ်။
ဗိုလ်လက်အတွက် ကိ ဆးထိး
လွတ်လိက်တယ်။
စသည်ဖင့် စကားလံးအသစ်များ
တီထွင်အသံးပလာကသည်။
ထိအသံးများတွင် "အတိ့အေထာင်",
"ခန်တွန်း",
"စ်ဖက်ခန်",
"သံးဖက်ခန်"
ဟေသာ ဗန်းစကားသည် ယေနတွင်
အသံနည်းလာပီး "ဂျင်းထည်",
"ဆးထိး" 
ဟေသာ ဗန်းစကားအသစ်များကိဖန်တီး
ကာ ခတ်ကာလအေလာက် ပြားအသံးြပခဲ့ကပါသည်။
အေမမသိအာင် ပိက်ဆံအိတ်ထဲက
ကစ်လာတာ။
ကန်ေတာ့ပိက်ဆံေတွကိ သ
ဘတ်သွားတယ်။
ဟေသာ ဗန်းစကားများကိ ေြပာဆိခဲ့ကပါသည်။
ထိအသံးများတွင် "ငတိ",
"ကစ်" ဟေသာ စကားသံးများ
အသံနည်းလာပီး "ဘတ်" ဟေသာအသံးကိ
အသစ်ဖန်တီးသံးခဲ့ကသည်ကိ တွရပါသည်။
သွားသည်ကို ယွန်း၊ လိမ့်၊ ဒိး၊ ဗလီစသည်ဖင့် စကားလံးအသစ်များကို ဖန်တီးစွဲလာကသည်။ 

ဟိုယခင်က ဗန်းစကားအြဖစ်သံးေသာ်လည်း ယေန့ေခတ်တွင် အသံမတွင်ေတာ့ေပ။ 

ငပလီကိုလိမ့်ပီးဗျိ။ 

ဒိးရေတာ့မယ်အချစ်ရယ်တ်ဆက်ခဲ့ပါတယ်။ 

စိင်းစိင်းခမ်းလိင်ရဲ့တာ ဗလီသီချင်းက လငယ်ေတွကားရပန်းစားေနတယ်။ 

စသည်ဖင့် သံးန်းခဲ့ကပါသည်။ 

ဒိးပား၊ ဗလီလံးတိ ပစ်လိက်လင်အေဝးသိ ့ေရာက်လိမ့်သွားတတ်သည့်သေဘာကို အကာင်းြပဍရာမထိအသံးများသည် (၁၉၈၀)ခစ်ဝန်းကျင်မယေန့တိင်သံးစွဲလျက်ိသည်ကို တွရပါသည်။ 

မိမိ၏ပံမန်ဝင်ေငွမဟတ်ဘဲ မမန်ကန်ေသာနည်းဖင့် ေငွာသည်ကို ေဘာ်ချက်၊ ေဘးေပါက်၊ ေအာက်ဆိဒ်၊ ဂွင်စသည်တိ ကို ြပာင်းလဲအသံးပလာကသည်။ 

မိခိင်ေလးက မန့်ဖိးရပီးသာကို အဘွားဆီသွားပီး ေဘာ်ချက်နေလရဲ့။ 

ဟုယခင်က သံးခဲ့ကေသာ်လည်း ယေန့တွင် အသံမတွင်ေတာ့ေပ။ 

ဗလီကေလးရေတာ့အိမ်စရိတ်ကာမိတာေပါ။

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၁ သခမိန်လိင်၊ ၁၉၉၅
"Out Side" ဗန်းစကားသည် အဂလိပ်ဘာသာစကားမှာ အခြေခံစေကြောင်း။

ဟေသာအသံးကိုအသံထွက်အတိင်းတိက်ိက်ယ၍သံးန်းထားသည်။

ဟေသာအသံးတိကိလည်းြပာင်းလဲဖန်တီးအသံခဲ့ကသည်။

"ဘိးေတာ်"၊ "ဘွားေတာ်" နှင့် "ဘီးကျဲ" စသည်ဖင့်သာလငယ်များကားအသံးပလျက်သည်ကိုတော့ပြုသည်။
ဆပသည်ဟအဓိပာယ်ရေသာ"ကွိင်"၊"ပွား"ဟေသာစကားလံးများလည်းတွရပါသည်။Coilဟေသာအဂလိပ်စကားသံးကိတိက်ိက်ယသံးထာေသာစကားသံးဖစ်သည်။လပ်စစ်မီးဖိင့်ေမာ်တာများတွင်အသံးပေသာနန်းကိးခင်းဖစ်သည်။"ကွိင်"ဟသည်ပတတ်သာသေဘာသကာစတစ်ခခအဆင်မြပေသာအခါလကီးသမတိဆပကိမ်းခင်းကိခံရပါကဆရာမကကွိင်နတယ်။ဟေြပာဆိတတ်ကသည်။ထိြပင်ေကျာင်းေြပးလိ့အဖကပွားနတယ်။ဟဗန်းစကားများဖင့်ေြပာကပါသည်။"ကွိင်"ဟေသာအသံးသည်(၁၉၈၀)ခစ်ဝန်းကျင်ကသံးစွဲခဲ့သာလည်းယေန့တိင်အသံးတွင်လျက်ပါသည်။"ပွား"ဟေသာစကားသည်ဆပကိမ်းသည်သာမကစကားများေြပာသကိေြပာလိုသာအခါများတွင်လည်းသံးလ့ပါသည်။"ိတ်"၊"ဝိက်"ဟေသာစကား၏အဓိပာယ်သည်ပိးပန်းသည်ဟဆိြခင်းဖစ်သည်။"ိတ်"ဟေသာဗန်းစကားသည်(၁၉၈၀)ခစ်ဝန်းကျင်ကသံးကေသာ်လည်းယေန့တွင်အသံးမတွင်ေပ။"ဝိက်"ဟေသာစကားလံးအသစ်ကိဖန်တီးသံးနကပါသည်။မျက်ပါးရပ်ကေကာင်မလးကိသွားိတ်တာ။ငါကိက်နတဲ့ေကာင်မလးေတာ့သများဝိက်သွားပီ။ဟေသာစကားလံးအသစ်ကိလငယ်အများစသံးန်းေနကသည်ကိေတွရပါသည်။အေနအထိင်မတတ်သကိ"ဆပ်စလး"၊"ပ်ေတး"၊"ပ်ြပာ"၊ဖလန်းဖလန်းထဟေသာဗန်းစကားများလည်းတွရပါသည်။မတည်မငိမ်ဣေြမဲ့သကိ"ဆပ်ေကာ့လပ်ေကာ့"ဟေသာအသံးဖင့်သံးန်းေြပာဆိရာမ
ထိထက်ပိ၍ မေကာင်းသေသာ သေဘာသက်ရာသေနဖ်င့် "ဆပ်စလး" ဟေသာ စကားလံးအသစ်ကဖန်တီးကာသံးစွဲကြခင်းဖစ်သည်။ ဒီဇာတ်ကားမာခိင်သင်းကည်က ဆပ်စလးကိပစ်နတာပဲ။ သကအလပ်တစ်ခလပ်ရင် ပြပာပြပာလပ်တတ်တယ်။ ဆရာကန်တပုမာတပည်တွဖလန်းဖလန်းထေနတာပဲ။ ဟ ဗန်းစကားများကဖန်တီးကာသံးန်းလာကသည်။ ထိစကားလံးများသည် လငယ်များသာမကလလတ်ပိ င်းများကလည်း ေပာဆိအသံးပကသည်ကိုတွရပါသည်။ နာပနာဆာလပ်သည်ကိ "ဂျီတိက်"၊ "ဂျီကျ"၊ "ဂျီတွန်"၊ "ဗက်ပ"စသည်ေဖင့်စကားလံးအသစ်များဖန်တီးကာ ဗန်စကားများအဖစ်သံးန်းခဲ့ကသည်။ "ဂျီတိက်"၊ "ဂျီကျ"၊ "ဂျီတွန်"ဟသံးသကဲ့သိဖြင့် "ဂဂျီဂေဂျာင်"ဟလည်း ေပာ ဆိသံးန်းကသည်။ "ဂဂျီဂေဂျာင်"သည် ဂျီကျသည်ထက်ပိ၍ ဆိးဝါသည့်အနက်အဓိပာယ်သက်ရာကြသည်။ သမီးလးကအိပ်ယာကိးလာရင် ဂျီမကျဘး။ ကေလးကေကျာင်းမသွားချင်တာေလ။ ဟသံးစွဲကသည်။ ယေန့ေခတ်တွင်မတေညာင်တတ်မည်တတ်သား အေကာင်အော်လစာမလပ်လိ့ေကာင်ပေနတာ။ ဟသံးစွဲကသည်။ ထိဗန်းစကားများသည် ယေန့ေတိင်အသံးပနိုင်သည်ကိုတွ ိင်ပါသည်။ ထိြပင် အနားယအပန်းဖသည်။ ဇိမ်ခံသည်ကိ "ငိမ့်"၊ "ပ်"စသည့်စကားလံးအသစ်များေြပာင်းလဲအသံးပလာကသည်။ ဒီေန့ေကျာင်ပိတ်ရက်မိ့တကသိလ်ဘန်းိင်ရဲ့ဝတနဲ့ ငိမ့်လိက်အံးမယ်။
အိပ်ယာကိးပါပီ
ပ်နတာလ။ ဟေသာ ဗန်းစကားများကိုခတ်ကာလအလိက်ပြပ်လဲအသံးြပခဲ့ကသည်ကိတွရပါသည်။ "ငိမ့်" ဟေသာအသံးသည် ယေနခတ်တွင်အသံးနည်းလာပီး "ပ်" ဟေသာအသံးကိသာပြပ်လဲခဲ့ကသည်။

မဟတ်မမန်သာစကားကိုပြပ်လဲခဲ့ကသည်။ "အာလးပြး"၊ "လကျယ်"၊ "လထွား"၊ "ပါက်ပါက်ဖာက်" သည်ဟေသာစကားလံးအသစ်များဖန်တီးပြပ်လဲကသည်။

အာလး...လာမေပးနဲ့လာမေပးနဲ့လာမေပးနဲ ။
မိုဘောင်ပီးစတီဒီယိသီချင်းင့်စကားလံးအသစ်များတိးပွားလာသည်ကိတွရပါသည်။

ထိြပင်ပြပ်လဲစိမ်းများကိုမီးြဖင့်ပြီးကိုအဆက်မြပတ်တတ်သည်ကိုအေကာင်းပြပ်စကားကိုအဆက်မြပတ်မရပ်မနားပြပ်တတ်သကိသည်။

သေပါက်ပါက်နာကိးနားထောင်ရတာနဲ့ပ်င်မမီဘး။

"ပဲများ"၊ "ဂိက်များ" တယ်ဟေသာအသံးသည်လငယ်များသာမကလိုပိင်းအရွယ်တိကလည်းပြပ်လဲစွဲလျက်ကသည်။

စတိင်ထတ်သည်ကိပင် "ပဲ" အထွက်များလင်းများရေသာကိက်စ်သက်ကသည်။

ပဲများသည်ဟေသာဆိကြခင်းဖစ်သည်။ ြမန်မာ့လမနယ်ပယ်တွင်ပဲအမျိးမျိးကိက်စ်သက်ကသည်။
ဗုဒ္ဓသတိ စိတ်လံးရင်ြပံးကရသည်။ စိတ်ပျားသောေကာင့် ဖီးလိမ်းြပင်ဆင်ကာ အလြပင်ကသည်ကိအေကာင်းြပ၍ ရတနာကတာပဲ အလွန်ပးတဲ့ မိန်းကလးပဲ။ ဟေသာ၊ လိသည်ထက် လွန်ကဲစွာြပမေနထိင်ကေသာသတိကိ ဆရာသာ့ကတာ ဂိက်ပးကမ်းတယ်။ ဟေသာ စကားလံးအသစ်များကိဖန်တီးက လတိ့၏အြပအမကိဖာြပေသာ ဗန်းစကားများကိ သံးန်းေြပာဆိကသည်ကိ တွမင်ကားသိိင်ပါသည်။ ဗုဒ္ဓအသံးများြဖင့် (၁၉၈၀)ခစ်ဝန်းကျင်မယ့်ထိမိ့်ကျင်လည်ရာဝန်းကျင်တွင် ေြပာဆိသံးန်းခဲ့ကသည်။ ဆရာခိင်းထားတာမပီးေသးဘး။ ငါတာဂန်ပီကွာ။ ဉီးမသိန်းေတာ့ ဒီေနမနက်ပဲ ဂန်သွားပီ။ ဉီးထွန်း ေလာသွားတာတစ်ပတ်ိပီ။ ဗုဒ္ဓစကားသံးသည် ဗုဒ္ဓကတာဟေသာ စကားသံးသည်ဟေသာ အဓိပာယ်ြဖင့်သာ သံးကသည်။ ဗုဒ္ဓဟေသာစကားသည် အမျိးသမီးတစ်ေယာက်သည် ကာမပိင်လင်ေယာကျ်ားိပါလျက် အြခားေယာကျ်ားတစ်ေယာက်င့် ေလာ်လည်ေဖာက်ြပားကျးလွန်သည် 185ကိဆိြခင်းြဖစ်သည်။ ဗျမားလိုက်၊ ဆိင်ကယ်များ၏ ဗုဒ္ဓတပ်ဆင်ထားေသာ မီးသည်လအများြမင်ိင်ေသာ အရာမဟတ်ေပ။ ယင်းကိအေကာင်းြပ၍ လမ်းသားသော့ ဗုဒ္ဓသိေအာင် ေလာ်လည်ေဖာက်ြပားသများကိ

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*စမ်းသပ်(၂၀၂၁)ကျေ்஬က်*
ထိေနာက်မီးြဖင့်တင်စားကာ "ေနာက်မီးလင်း" သည်ဟသံးန်းကြခင်းြဖစ်သည်။ "စေမာ်ဆွဲ" သည်ဟရာတွင် အဂလိပ်စကားလံးြဖစ်သော Small အသံးကိအသံထွက်အတိင်း တိက်ိက်ယပီး ဗန်းစကားအြဖစ်သော သံးခဲ့ကြခင်းြဖစ်သည်။

ယေန ့ေခတ်တွင် "ေနာက်မီးလင်း" ဟေသာအသံးနည်းလာပီး "စေမာ်ဆွဲ" သည်ဟေသာအသံးသာလငယ်များကားတွင် အသံးတွင်လျက်ိသည်ကိေတွရသည်။ ဤဗန်းစကားတိ သည်အိမ်ေထာင်ေရးေဖာက်ြပန်ေသာအမျိးသမီးများကိယခင်က "ေနာက်မီးလင်း" သည်ဟေသာ ဗန်းစကားြဖင့် ေြပာဆိသံးန်းကေသာ်လည်း ယေန ့ေခတ်တွင် "စေမာ်ဆွဲ" သည်ဟေသာ ဗန်းစကားကိသံးရာတွင် အိမ်ေထာင်ေရးေဖာက်ြပန်ေသာအမျိးသမီးများသာမက အမျိးသားများကိပါေြပာဆိ သံးန်းလာကသည်။

မိန်းမများကိများရိသဲ့သဲ့လပ်တတ်ေသာ ေယာကျ်ားများကိထိသမသိေစချင် ေသာအခါစကားဝက်၍ "ာဘး"၊ "ဖွန်ေကာင်" ဟေသာ ဗန်းစကားများသံးကာ ေြပာဆိကသည်ကိ ြမန်မာဘာသာစကားတွင် ဗျည်းသံ၊ သရသံများကိစကားသံြပအဂ ါများကထတ်လွတ်လိက်ေသာအခါခံတွင်းေပါက်မထွက်သကဲ့သိ ့ ာတွင်းေပါက်မလည်း အသံထတ်လွတ်ကသည်။ ာတွင်းေပါက်မ ေလအားများများစိက်ထတ်၍ ထွက်လာေသာအသံကိအရင်းခံလျက် လငယ်အချင်းချင်းစကားဝက်သံးကာ "ာပး"၊ "ာဘး" ဟ သံးခဲ့ကသည်ကိ ေတွရပါသည်။
ဗန်းစကားများအတွက် သံးစွဲခဲ့ကြသော စကားလံးများကို တီထွင်ကာ သံးလေ့ရာများသည်ကို မြန်မာစကားများ တိးပွားလာသည်ကို တွရပါသည်။

ယေန့်ခတ်တွင် ဗန်းစကားများကို တီထွင်ကာ သံးလေ့ရာများသည်ကို မြန်မာစကားများ တိးပွားလာသည်ကို တွရပါသည်။

ထို့နောက် ဗန်းစကားများကို တီထွင်ကာ သံးလေ့ရာများသည်ကို မြန်မာစကားများ တိးပွားလာသည်ကို တွရပါသည်။

စာပတ်ကြားတွင် အပြုသတ်ခဲ့ရာများကို ဖော်ပြထားသော စကားလံးများကို သံးစွဲခဲ့ကြသော စကားလံးများတွင် ဗန်းစကားများ တိးပွားလာသည်ကို တွရပါသည်။

စာပတ်ကြားတွင် အပြုသတ်ခဲ့ရာများကို ဖော်ပြထားသော စကားလံးများကို သံးစွဲခဲ့ကြသော စကားလံးများတွင် ဗန်းစကားများ တိးပွားလာသည်ကို တွရပါသည်။

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စာပတ်ကြားတွင် အပြုသတ်ခဲ့ရာများကို ဖော်ပြထားသော စကားလံးများကို သံးစွဲခဲ့ကြသော စကားလံးများတွင် ဗန်းစကားများ တိးပွားလာသည်ကို တွရပါသည်။
စကားလံးများလည်းပါသည်။ ထို့ဝန်းကျင်အလိက်အသစ်တီထွင်သံးန်းကေသာ ဗန်းစကားများလည်းတွရပါသည်။ ယေန့်ခတ်တွင်အမျိးသမီးများကိြမင်လင်ပိးပန်းလ့ိေသာေယာကျ်ားလ့ိကာ"ငေပွး"ဟုခေဝကသည်။ ေပွးသတ်ေထွးလိမ်ေသာတွင်းကိတးကာေနထိင်ေလ့ိသည်ကိအေကာင်းြပကာစကားလံးအသစ်ဖန်တီးခဲ့ကသည်။မိမိအလိသိပါလာအာင်ြပမြပာဆိေနထိင်သည်ကိ"ချဆီ"ထည့်သည်။ ဟသံးကပါသည်။ ဗိုလ်စကားများကိုကာည်စွာအသံြပေသာအခါတွင်လည်းေကာင်း，သံေချးတက်သာအခါ၌လည်းေကာင်းေချာမွတ်ြခင်းမိကပ်ေနတတ်သည်။ထိအခါအဆင်ေြပေချာမွတ်ပီးေချာင်ေချာင်ချိချိြဖစ်ေစရန်စက်သံးဆီထည့်ရသည်ကိအေကာင်းြပ၍စကားလံးအသစ်များေပေပါက်လာြခင်းဖစ်သည်။ အိမ်ေထာင်ကျသည်ကိ"စွန်"သည်။ စိတ်ဆိးေဒါသထွက်သည်ကိ"ေပါက်ကွဲ"သည်။ အိမ်ေထာင်မြပရေသးဘဲအပျိရည်ပျက်ေနေသာအမျိးသမီးများကိ"ဂျန်းဂျန်းကျ，မိမိေငွေကးဉ စာပစည်းများကိမသံးရက်မစားရက်ေသာသတိကိပလတ်တပ်ေခါက်，ေငွေရးေကးေရး，အလပ်အကိင်စသည်တိ့အဆင်မေြပသည်ကိ"အေြခအေနမေကာင်းဘး"ဟေသာစကားလံးအသစ်များကိဖန်တီးသံးလာကသည်။ လငယ်များသည်မိမိေြပာလိေသာအေကာင်းအရာများကိမိမိတိ့လငယ်အချင်းချင်းသာသိေစချင်ေသာအခါစကားလံးအသစ်များကိဖန်တီးသံးစွဲခဲ့ကရာမစကားလံးအသစ်များတိးပွားလာသည်ကိ。 ဗိုလ်စကားများတိးပွားလာြခင်းတွင်ဗန်းစကားများေကာင့်လည်းတိးပွားလာသည်ကိေလ့လာိရပါသည်။ ဗိုလ်စကားများသည်ေခတ်ကာလအေလာက်ေပေပါက်လာေသာေကာင့်အချိန်ကာလမကာဘဲ。
ဗန်းစကားများသည် အပညာင်များ၊ ဗုဒ္ဓသားများ၊ အလပ်သမားများစသည်အဖွဲ့အစည်း၊ အစားအပေါ်တီထွင်ဖန်တီးထား၍ စကားလံးများအောက်ရှိစွဲကြသည်။ ထိဗန်းစကားများသည် မော်လမ်းများတီထွင်ကာ မြန်မာဘာသာစကားသည် စကားလံးအသစ်များတိးပွားလာသည်ကို လ့လည်ပေပါက်လာသည်ကို လ့လည်ပေပါက်လာပါသည်။

ဗန်းစကားများမှာ မြန်မာဘာသာစကားသို့ အသစ်အသစ်ဖြင့် တင်းထားပါသည်။ ဗန်းစကားများသည် မြန်မာဘာသာစကားသို့ အသစ်ဖန်တီးထားသော စကားလံးများအောက်ရှိ၍ အသက်ဝင်လပ်ားလာပါသည်။

ဗန်းစကားများသည် မြန်မာဘာသာစကားသို့ အသစ်ဖန်တီးထားသော စကားလံးများအောက်ရှိ၍ အသက်ဝင်လပ်ားလာပါသည်။
စကားလံးအသစ်များကို စိစစ်လ့လာရာတွင် ဘာသာစကားဆိင်ရာစကားလံးများကို ဘာသာဗဒနည်းကို အေြခခံလျက် လမိုးဘာသာဗဒနည်းဖြင့် တင်ပထားသောစာတမ်းဖစ်ပါသည်။

ဆက်သွယ်မကားခံဖစ်သော ဘာသာစကားတွင် အေရးဘာသာစကားထက် အေပာဘာသာစကားဖင့် ဆက်သွယ်ခွင်သည် အထိရောက်ဆံးဖစ်သည်။ ထိသိအထိရောက်ဆံးဖစ်သည့် အေပာဘာသာစကားတွင် ဗန်းစကားများဖင့် ေခတ်ကာလအေနကိလည်း ခန့်မန်းြဖစ်သည်။

ြမန်မာဘာသာစကားအတွင်း စကားလံးအသစ်များကိုလ့လာတင်ပရာတွင် လွယ်ကြမွန်ဆန်၍ နားလည်သိိိင်ေစရန်အေြပာသံးစကားများင့် ေတးသီချင်းများကိုအကိးအကားပလျက် စိစစ်လ့လာဖော်ထတ်ထားပါသည်။ ဤစာတမ်းသည် စကားလံးအသစ်ဖစ်သော ဗန်းစကားများ၏ တိးတက်လ့လာတင်ကို ြဝင်အလိက်ဖာေဖွာေဖာ်ထတ်ထားသော ေကာင့် ြမန်မာဘာသာစကားဖြင့် စားကသေးများအတွက် တစ်ဖက်တစ်လမ်းမအကြပိင်မည် ဆိလင်စာတမ်းင်အတွက် စာတမ်းဖစ်ပစရကျိးနပ်မည်ဖင့်ပါသည်။

ကျမ်းကိးစာရင်းခင်မင်၊ေမာင် (ဓြဖ). (၁၉၉၇). စကားသမဒရာ စာသမဒရာ. ရန်ကန်၊ ြမကန်စာအပ်တိက်။
မြန်မာစာပံလာ (ဒတိယအကိမ်) ရန်ကန်, ဓဝံစာအပ်တိက်
ခင်မင်, ဗိဝါရှ (၂၀၀၄) မြန်မာစာပံလာ (ဒတိယအကိမ်) ရန်ကန်, ဓဝံစာအပ်တိက်
ခင်မင်, ဗိဝါရှ (၂၀၁၁) ရန်ကန်, စိတ်ကးချိချိစာအပ်တိက်
ေဇာ်ထွန်း, ဗိဝါရှ (၂၀၁၅) ဘာသာဗဒင့်စာပံလာ ရန်ကန်, ကာလာစံပံိပ်တိက်
တင်လ, ဉီး (၁၉၆၃) ဗန်းစကား (ြမန်မာစွယ်စံကျမ်း - ၈) ရန်ကန်, စာပံိပ်တိက်
စိတ်ကးချိချိပံိပ်တိက်။
ြမန်မာစာအဖွဲ (၂၀၀၈) ြမန်မာအဘိဓာန် (ဒတိယမကိမ်) ရန်ကန်, သခဝတီစာပံိပ်တိက်
ဗိဝါရှ, ဗိဝါရှ (၂၀၁၈) ဘာသာစကားသတ ရန်ကန်, ဓဝံပံိပ်တိက်
ဗိဝါရှ, ဗိဝါရှ (၁၉၉၁) ဘာသာဗဒ ရန်ကန်, ပညာတနဆာင်ပံိပ်တိက်
ဗိဝါရှ, ဗိဝါရှ (၂၀၀၅) ဘာသာစကားသတ ရန်ကန်, ဓဝံပံိပ်တိက်
ဗိဝါရှ, ဗိဝါရှ (၂၀၁၈) ဘာသာဗဒ ရန်ကန်, ဓဝံပံိပ်တိက်
စိင်းစိင်းခမ်းလိင်။ (၂၀၁၈)
မင်းရည်စားထက်ငါရည်စားကပိမိက်တယ်။
စိင်းစိင်းခမ်းလိင်င့်အများ။ (၁၉၉၅)
ဒိးရေတာ့မယ်အချစ်ရယ်ေကျာ်ဟိန်းင့်အများ။ (၂၀၁၈)
မည့်ဟဲေလး (၂၀၁၇)
ဟဲေလး (၂၀၁၈) ။
ဗိုလ်ချုပ်မှူးကြီး ဗင်းဗျာ နိုင်ငံတော် ဦးချင်းမင်းလိင် တွဲဖက်ပါစီ၊ လည်းမန်းစာဌာန၊ ပခက တက ၊ သိလ်။

စာတမ်းအကြောင်း

ထိုစာတမ်းကို ဗိုလ်ချုပ်မှူးကြီး ဗင်းဗျာ နိုင်ငံတော် ဦးချင်းမင်းလိင် တွဲဖက်ပါစီ လည်းမန်းစာဌာန၊ ပခက တက ၊ သိလ် ။

စာတမ်းအရာနှင့် ရပ်ဓေလ့ရွာဓေလ့များကို မေပြာကွယ်မီအချိန်မှာ ပြောပြီးတင်ရပါသည်။ ထိုသိ့လေ့လာကြားကြည့်ရှုရာတွင် လေတွေမှာ မန်းခင်းအချိန်ကို အဓိကထားသောကြည့်ရှုထားပါသည်။

ဤစာတမ်းကို ပစရာတွင် ဗိုလ်ချုပ်မှူးကြီး ဗင်းဗျာ နိုင်ငံတော် ဦးချင်းမင်းလိင် အရပ်သံးစကားလွှဲပေးသော အရပ်သံးစကားများကိုအောက်ပါသော ကိယာအသံးများကို သတ်မတ်ထားပါသည်။

ဤသိ့လေ့လာကြည့်ရှုရာတွင် ဗိုလ်ချုပ်မှူးကြီး ဗင်းဗျာ နိုင်ငံတော် ဦးချင်းမင်းလိင် အရပ်သံးစကားလွှဲပေးသော ရပ်ဓေလ့ရွာဓေလ့များကို ဆက်စပ်ပါသည်။

ဤစာတမ်းသည် ဗိုလ်ချုပ်မှူးကြီး ဗင်းဗျာ နိုင်ငံတော် ဦးချင်းမင်းလိင် အရပ်သံးစကားလွှဲပေးသော အရပ်သံးစကားများကို သိပ္ပံအောက်ပါသော။

၁. ဗိုလ်ချုပ်မှူးကြီး ဗင်းဗျာ နိုင်ငံတော် ဦးချင်းမင်းလိင် အရပ်သံးစကားများစွာပြီးတင်ရပါသည်။
ဂျီမီးထွန်း၊ ထန်းတော၊ အိးဘိဟေသာရွာ (၄) ရွာမလွယ်လင့်တကြပာဆိေလ့ိကေသာစကားများကိုဆိုလိြခင်းဖစ်ပါသည်။

အရပ်သံးစကားဟသည်ရပ်ရွာထဲတွင်လှပာဆိုနေသောစကားကိုတိက်ိက်လှပာသည့်စကားများဖစ်သည်။

ဓုလ့ဟသည် 'ထံစံ၊ အေလ့' ဖစ်သည်။ ထိ့ကြောင့်ရပ်ဓုလ့ရွာဓုလ့ဟသည်ရပ်ကွက်ရပ်ရွာများထံစံဓုလ့များအစအဆက်လိက်နာလျက်ဖစ်ပါသည်။

ယင်းကန်းမင့်လးများသည်တိုးပစာလျာများသဖွယ်ေတွရပါသည်။

ယခတိင်ပင်ယင်းတောင်သမန်ကန်းမင့်လးများသည်ရမည်မတိးသည်ဖစ်ပါ။

သမန်မက်များလည်းေပါက်ရာကသည်။

ယင်းနရာသည်တောင်သမန်ရွာ၏တောင်ဘက်ဖြစ်သည်။

ထိုစာတမ်းကိုလာရာတွင်တောင်သမန်ရပ်ဓုလ့ရွာဓုလ့များတွင့်တွရသည့်နာမ်စကားလံးများင့်ကိယာစကားလံးများဟု(၂)ပိုင်းခွဲကာလာပပါမည်။

၁၊၁၊ တောင်သမန်ရပ်ဓုလ့ရွာဓုလ့များတွင့်တွရသည့်နာမ်စကားများကိုလာပေါ်သည်အပေါ်မှားကြည်စာလောက်၊ စစ်သကီး၊ တောကာင်၊ ဖာင်ကာင်း၊ မီးနကတ်၊ ဗုဒ္ဓဂရာ၊ အမျိုးသစ်စာအဖွဲ ၂၀၁၃၊ ၃၉၄။

၂- ယင်း- ၁၊၆၅၀
နာမ်အသံများဖင့် လ့လာတင်ပပါမည်။

ယင်းငက်ေလများကိ အသံပရပါသည်။

ယင်းအသံကိ အစွဲပ၍ ငက်ေလများကိ ဂဂစ်ဟ ကပါသည်။

သာဓက -

ညေနဆည်းဆာချိန်များ ဂဂစ်ေလးစီးလိက်ရရင် သိပ်အရသာပဲ။

ဂဂစ်ကိ ငဖမ်းရာတွင် အသံပေလ့မိပါ။

တာင်သမန်အင်းတွင် ငက်ပံသာနဖင့် တည်ဆောက်ထားသည်

ယင်းငက်ေလများ လာခတ်သည့်အခါ ဂဂစ်ဟေသာအသံမည်ပါသည်။

ယင်းအသံကိ အစွဲပေးခြင်းကိ ဂဂစ်ကိ ခကပါသည်။

သာဓက -

ညေနဆည်းဆာချိန်များ ဂဂစ်ေလးစီးလိက်ရရင် သိပ်အရသာပဲ။

ဂဂစ်ကိ ယခအခါ ငက်ေလဟသာချကပါသည်။

စစ်သကီး -

စစ်သကီးဟသည် လယ်လပ်သားတိ့၏ အလပ်သမားေဆာင်ပင်ပါသည်။

သာဓက -

စစ်သကီးထံသွားပီးကြာစိက်သမ၁၀ယာက်လာက်ဖိပ်ပဲဖိ့ေြပာရပါသည်။

လယ်ရိတ်ရာတွင် စစ်သကီးအတွက် ကာက်စိက်ရာတွင် ြဖစ်ေစ၊

လိအပ်သားရိရန်အတွက် စစ်သကီးထံသွားေရာက်ပီးလိအပ်သည့်

ပမာဏင့်နရက်ကိအတိအကျ္ေြပာရပါသည်။

စစ်သကီးအတွက်ကိမ(၁၀)ဦးလင်(၁)ဦးတွက်ပိင်းစုင်ကျားသတတိုက်ဆိလိြခင်းြဖစ်သည်။

ဟေသာကျားကိက်၍ကွယ်လွန်ရေသာကာင့်'ကျား'တံဆိပ်ပါသည်ကျားဟေသာအသံကိပင်မကားလိေကာင်း

ထိ ့ကြက်လည်းကျားတံဆိပ်ေယ်မိပါကထံးတိ့ြခင်း၊

ဒေါ့ကိုးပစည်းများကိသာမကကျားဟေသာအသံကိပင်မကားလိေကာင်း

ထိ ့ေကာင့်လည်းကျားတံဆိပ်ေယ်မိပါက

ထံးတိ့ြခင်း၊

တံဆိပ်ကိ
ဖျက်ပစ်ခင်းများ ြပလပ်လ့ိကသည်။ ထိ ့ေကာင်လည်း ကျားကိ ေတာင်ဟ ေခဆိကြခင်း ဖစ်သည်။ သာဓက - "ေတာင်ကိပါတဲ့ တံဆိပ်ထံးတိ ့ထားေနာ်" ။ ေတာင်သမန်နယ်သနယ်တိ ့သည် ေရွးချယ်ခွင့်ရပါက ကျားတံဆိပ်ကိလက်ောင်ေလ့ိကသည်။ ေဖာင်ကာင်း - ေဖာင်ကာင်းဟသည် ေလကီးများ ေဖာင်များသွားရာလမ်းကာင်းဖစ်သည်။ ဦးပိန်တံတားသည် ေတာင်သမန်အင်းအေဘက်ထိပ်င့်အေနာက်ဘက်ထိပ်ကိချိတ်ဆက် ေပးထားသည့် တံတားဖစ်သည်။ ထိ ့ေကာင့်လည်း ကန်းေဘာင်ေခတ်က ဘရင့် ေလေတာ်များ၊ ေဖာင်ေတာ်များသွားလာရန်အခက်အခဲိပါသည်။ ထိ ့ေကာင့်အလွယ်တကြဖတ်၍တပ်ရသည့် တံတား(၂)ခန်းကိ(၁)ခန်းတည်းြပလပ်ထားရပါသည်။ ယင်းကိ ေဖာင်ကာင်းဟ ေခပါသည်။ ဦးပိန်တံတားကီးတည်ေဆာက်ခဖစ်သည်။ ယေနသမယတွင်မယင်းေဖာင်ေကာင်းေအာက်မကားကားငယ်များအလွယ်တကြဖတ်သန်းေနကပါသည်။ ယခအခါတွင် ဦးပိန်တံတား၌ ေဖာင်ကာင်း(၄)သာထင်ထင်ားပါသည်။ မီးေနကတ်- ယခင်က်တာင်သမန်ေဒသ၌ သား၊သမီးေမွးဖွားရာတွင်ဖွားလက်ကိသာအားကိရပါသည်။ ေမွးဖွားရာတွင်ကိယ်၀န်သည်တိသည် မိမိအိမ်တွင်သာေမွးဖွားေလ့ာကပါသည်။ ေမွးဖွားသည့်အချိန်တွင်အသံြပရန်အတွက် ၀ါးဖင့် ြပလပ်ထားသောအလားေြခာက်ေပ၊ အနံသံးေပခွဲခန်းသိေသာဝါးကမ်းဖင်(ဝါ)ဝါးကွပ်ပစ်အနိမ့်ကိတင်၍ ြပလပ်လ့ိကပါသည်။ ယင်းကွပ်ပစ်မီးေနကတ်ဟေခပါသည်။ သာဓက- "ြမြမအတွက်မီးေနကတ်ဟေဆ်ပါပြီးပါလားေအ့" ။ မီးေနကတ်ကိ ၁ပညာ၊ ကိ၊ အမရပရ၊ ၂၀၁၆၊ ၁၅။
အသံးပြပြီးသောအခါ ပေလည်းအသံးပြခင်းမျိးလည်း ရွေးနားတွင်ပစ်လ့ကျသည်။ ပါသည်။

ေြမပဲညပ်- ပျမှားသည့်အခါများ ပေလည်းအသံးပြခင်းမျိးလည်း မရင်းစိက်ပါသည်။ ပျမှားသည့်အခါများ ပျမှားသည့်အခါမျိးလည်း နောက်ထက်ရှိ တွင် ပစ်လ့ကျသည်။ အချိန်အချိန် မရင်းစိက်ပါသည်။

ေြမပဲညပ်၏အကြောင်းတွင် သို့မဟုတ် အထက်များ ပျမှားသည့်အခါမျိးလည်း သိမ်းပြီးသောအခါ အမျိးသမီးများအောက် ဟူသည်။

ဝတ်ခွက် - ဝတ်ခွက်ဟသည် ဆွမ်းဟင်းထည့်ရန်အတွက် ရွေးင့်ပြီး ေြမခွက်ငယ်းများဖြစ်ပါသည်။ ဘရားတွေ ဆွမ်းတင်သည့်ခွက် ေကာင့်ဝတ်ခွက်ဟဆိဟန်းပါသည်။

သီလဆန်- သီလဆန်အားဆွမ်းဆန်လရန်အတွက် ဥပသ်မနက်ပိင်းတွင် အလခံေလ့သည်ကိုလည်း ေတွရသည်ကိုလည်း အသံးပါသည်။
သိမ်နီ- သိမ်နီဟသည် ပိပ်နေသည့် သိမ်နီဟများပင် ဖစ်ပါသည်။ အတ်ခဲ၊ အတ်နီခဲအရာင်ကို အစွဲပြားကြခင်းဖစ်ပါသည်။ သာဓက- သိမ်နီနားကလပတ်တယ်နေဖြဲနှင့်စွာကြားကြည်းခိုက်မှ သိမ်နီများပြေပြီးဖစ်နေသောကြားသာ အစီအစဉ်များကို ပြသကြော့သည်။
ပြောပြော အတွက်အရင်အမျိးမျိးဖင့် အစစားဖန်တီးသည် ဗီယက်အတတ်ပညာ 189 ချက်ကိုလည်း လေ့ရှိသည်။ အင်းဘတ် - ဗီယက်သမန်ဘက်တွင် အင်းဒိင်ဟေခေသာ အင်းပိင်များနည်းတဝမ်းစာအတွက် အင်းအတွင်း၌ ငါးခိးဖမ်းသည့်သများလည်း ပါသည်။ အင်းဘတ် အင်းအတွင်း၌ လည့်ပတ်ကည့်ကာ ငါးခိးဖမ်းသများမိေအာင်ကာကွယ်ရသများဖစ်ပါသည်။ သာဓက - ပိက်တွ 'အြမန်တ်ထားက အင်းဘတ်လာနပီ'။ အင်းဘတ်များ အမျိးသားများသာဖစ်ပါသည်။ အများသားသတ်ဖြာ၍ ကန်းပိ့ တရားရှိသောပိက်များကိ အင်းဘတ်များကလိက်၍သိမ်းပါကသည်။ ထိုကား အင်းဘတ်များကကန်းပိ့တွင်ဖမ်းဆီးခင်းကိလက်ကသည်။ ၁၊ နောက်တစ်ခု တွေရိုးရာဓာလ့ရာဆွဲအတွက်တရားပိုက် တင်ြပရာတွင် ဗာက်ကီးတက်မရင်းတက်၊ ဗာက်လိင်းိက်၊ စပါးဗာ့၊ စာဗာ့ထ၊ ဗာ့ကိတ်၊ ဆွမ်းဗာ်ခံ၊ ဒင်းဗာ့ကီးခံ၊ ဗာ့ဖာင်ဆွဲ၊ မန်ကျီးပွဲထိး၊ မန်ကျီးရွက်သပ်၊ ဗာက်ကုန်းတက်၊ ဗာက်ကုန်သံး၊ လက်ဖက်ကမ်း၊ ဗာရည်ဗာရည်ဗာ့၊ ဝးထိး၊ အထက်ဗာရတိးဗာရတိး၊ အဏ်တက်ဟေသာကိယာအသံးများဖင့် လ့လာတင်ြပပါမည်။ ဗာက်ကီးတက်မရင်းတက် - ဗာက်ကီးတက်မရင်းတက်ဟေသာစကားကိုတင်ြပသည်။ ဗာက်ကီးစပါးကိမိးဦးတွင် စိက်ပီး၊ တပိတွဲလတွင်သိမ်းကသည်။ သာဓက - 'ဗာက်ကီးတက်ချိန်မရင်းတက်ချိန်ဆိရင် အလအတန်းပါ ဗျာ'။ ဗာက်စပါးကမိးဦးတွင်သိမ်းကသည်။ အသင့်အတင့်သိုင်းသများသာအများတွက်ဖင့် စားကသည့်ဆန်ဖစ်ပါသည်။
မရင်းစပါးကို တိုင်သမန် အင်းတွင်သာစိက်ကပါသည်။

ေတာင်သမန်အင်းရကျချိန်ဖစ်သောနတ် - ပြပာသိလင်စိက်ကပါသည်။

အလွန်သေသာအချိန်စိက်ကပီးအပလွန်ကလသာတန်ခံကဆန်တိ့တွင်ရိတ်သိမ်းရပါသည်။

ရိတ်သိမ်းချိန်တွင်မိးဦးလိုဖစ်သောကာင့်စပါးခင်းများပျက်စီးများင့်လည်းကံရပါသည်။

မရင်းတိသည် ေွမိးေဆာင်ရာသီဥတသိးပါးစလံးဒဏ်ကိခံရသည်သာမကအပျက်အဆီးပိများသောကာလအားေငွအားလွန်စွာပင်ပင်ပန်းကပါသည်။

ထိကာမရင်းတိသည် ဒကင့်ရင်းရလာသောကာက်ဖျားများကသဒါတရားထက်သန်စွာဆွမ်းလာင်းလ့ကပါသည်။

ယင်းမရင်းဆွမ်းအလကိခံယရန်ရဟန်းသံဃာတိသည်လည်းမရင်းတိထိသားမိေသာအလိ့ငာိရင်းစွဲသီလ၊သမာဓိ、ပညာတိ့ထက်ပိိ၍ြပည့်စံအာင်ကိးစားအားထတ်ပီးမအလခံေလ့ကသည်။

သားရေးသမီးရေး、လေရးတန်းများသောအခါတွင်မရင်းတက်ချိန်ေကာက်ကီးတက်ချိန်ကိုရွေးချယ်လ့ကပါသည်။

အဘယ်ကာလဆိုသာမူမရင်းစပါးေပချိန်ေကာက်ကီးစပါးေပချိန်သည်ေငွေပချိန်ဖစ်ပါသည်။

ထိအချိန်များတွင် ေတာင်သမန်ဒသ၌ယခင်ကအလအတန်းေပချိန်ပင်ဖစ်ပါသည်။

ေကာက်လိင်းိက် - ေကာက်လိင်းိက်ဟသည်ေကာက်လိင်းများကသစ်တံးေပတွင်ြဖစ်စ，ထန်းသားြဖင့်ြပလပ်ေလ့ကပါသည်။

ေကာက်လိင်းိက်ြခင်းကိအမျိးသားများသာြပလ်ေလ့ကပါသည်။

စပါးေလ့ရိတ်သိမ်းပီးစပါးများကသန်စင်ေစရန်အတွက်စပါးေလ့ရသည်လည်းပါသည်။

စပါးေလ့ြခင်းဟသည်စပါးသိမ်၊စပါးဖျင်းများင့်အသံးနည်းလာပါသည်။

စပါးေလ့ကရိက်စပါးေလ့ကရိုက်လား"။

စပါးေလ့သေည် ၃၊ ၄ေပြမင့်သောအရပ်မတ်တပ်ရပ်ကာစပါးများကသြမကီးေပသိ့ညင်းစွာချေပးရပါသည်။

ထိအခါအာင်င်သေသာစပါးများသည်အာက်သိသိ့
စာသင်ကြားချက်: အင်္ဂါး အပြည်ပြည်ဆိုင်ရာ လေးချင်း ဖျင်တွင် အလွန်စိုက် စောင့်ရှောက်နိုင်သည်။ အလွန်စိုက် စောင့်ရှောက် များသိရှိ ကျွန်တော် အလိုအလျော်အလွတ်ဖျင်သည်။

စောင့်ရှောက်ချက်- စောင့်ရှောက်ချက် သိပ်သော ပြည်သူများကို အလွန်စိုက် စောင့်ရှောက် များသိရှိသည်။
ပိင်ခွင့်သည်။ ယင်းရိုလာသည်းပေလါကူးနေရာသို့သီလပေဆရာတွေလေလ့ကြည့်ပါသည်။

dင်းဒါင်းခါက်- ဒင်းဒါင်းခါက်သမားများနှင့် ကျော်မြားသောငယ်ကအားကိုမှတစ်ဆင်းကြည့်ပါသည်။

မိမိအိမ်အတွက်သာရည်ရွယ်၍သာမန်ကျည်းထိးကပါသည်။

မန်ကျည်းရွက်သပ်- မန်ကျည်းရွက်များမရိိင်ပူ။ သို့သော်လည်း ွေွဦးရာသီထိုးအကြားမှစာင့်ိင်တယ့်

မိမိရိုတ်ဝန်- ရိုတ်ဝန်ဆိုက်မှုအတွက်သာရည်ရွယ်ကြည့်ပါသည်။
မန်ကျည်းရွက်သပ်ပီးများကိုရိေစပါသည်။
ယင်းသိပ်ေပးခင်းအဖြင့်မန်ကျည်းရွက်များကိုတွင်မန်ကျည်းပင်သည်အတွက်မန်ကျည်းရွက်သပ်ခင်းဖင့်အသက်မွာကသည်လည်းပါသည်။
မန်ကျည်းရွက်ခင်းကိုအမျိးသားများကခံကပါသည်။
ယခအခါတွင်တာင်သမန်ေဒသတွင်စီးပွားရကာင်းလာသောကြားလည်းကျွားယား၊အလပ်အကိင်များလာသောကြားလည်းမန်ကျည်းရွက်သပ်ခင်းလပ်ငန်းများယခင်ကလာက်မတွင်ကျယ်တာ့ပါ။
ေရကည်ေတာက်-တာင်သမန်ေဒသတွင်ကေလးသငယ်များသည်တာင်သမ်အင်းအတွင်း၌ေရချိးရင်းကစားကသည်လည်းဖမ်းရမည့်သကိုရွးချယ်ရာတွင်ရေပ၌လက်ညိးကိမေပတေပထားကာအားစိက်၍ရထဲသိရွြ့စိကပါသည်။
ယင်းသိခင်ကိုရွြ့စိကပါသည်။
သာဓက-ကဲကစားကရေအာင်ရွြ့စိကရေအာင်ဟ့၍။
ေရကည်သံးနေသောသကိုများကိုင့်ဖမ်းကရပါသည်။
အလင်းများကိုအတွင်းဖြင့်နေသောကြားရေးသားလာသည်။
ထိုအခါတွင်အားရေအာင်ေရချိးပီးသောအခါကမ်းစပ်ခပ်လမ်းလမ်းသိရက်သွားလာကာရွြ့စိကရေအာင်ချိးကပါသည်။
ယင်းသိခင်ကိုရွြ့စိကပါသည်။
သာဓက-ကဲြပန်ကရေအာင်ရွြ့စိကရေအာင်ဟ့၍။
ေရကည်သံးပီးသောသာနည်းပါးသည်။
ယခအခါတွင်အင်းအတွင်း၌ကစားခင်းမျိးနည်းသွားပီဖစ်သော်လည်းကွယ်ရပါ။
ထိုအခါတွင်အားရေအာင်ေရချိးကသည်ကမ်းစပ်တွင်သာရေချိးရေသာေကာင့်ေရမာကည်လင်မနည်းသကဲ့သိ့သန်မိပါ။
ထိုအခါတွင်အားရေအာင်ေရချိးပီးသောအခါကမ်းစပ်ခပ်လမ်းလမ်းသိရက်သွားလာကာရွြ့စိကရေအာင်ချိးကပါသည်။
ယင်းသိခင်ကိုရွြ့စိကပါသည်။
အားရေအာင်ေရချိးတွင်ရေးသားရပါသည်။
ထိုအခါတွင်ဂဏ်ယဖွယ်ရာပင်ဖစ်သည်။
ွား၀ယ်သည်ေနတွင်ွား၀ယ်လာသကဲ့သိ့ွား၀ယ်ိင်ြခင်းသည်ဂဏ်ယဖွယ်ရာပင်ဖစ်သည်။
ွား၀ယ်သည်ေနတွင်ွား၀ယ်လာသကဲ့သိ့}
ဗိသုကာအားဖော်ပေးသောအချက်တွင် အေကေစ့များ၊ ေရများကိထည့်ပီး ွားအား ေရလာင်း၊ ေရဖျန်းကြခင်းကိ ေရရည်ေငွရည်ေလာင်းသည်ဟု ခဆိကပါသည်။

ဗိသုကာ - ဘကီးဘိက ွားဝယ်လာပါမည်။

ဗိသုကာအားဖော်ပေးသောအချက်တွင် ေရရည်ေငွရည်ေလာင်းကြခင်းကိ တာမန်းသည်မှာ ဂဏ်ယဖွယ်ရာကိစတစ်ရပ်အြဖစ်ဝမ်းသာအားရပလပ်ကပါသည်။ ဗိသုကာအားဖော်ပေးသောအချက်တွင် ပိက်ဆံကျဲေလ့ိပါသည်။

လက်ဖက်ကမ်း - ဗိသုကာတွင် စီးလောင်းပါမည်။

ညပိင်း ဗိသုကာတွင် ဗိသုကာသံတင်ပါသည်။

အဏ်တက် - အဏ်တက်ကိ အလမ်မာမနယ်ပယ်တွင် နံနက်ခင်းအလင်းအားခင်မင်သည် စိတ်ကိ အားပါးတရစားကြခင်းကိ ဖစ်သည်။

အဏ်တက်ထမင်းကိမအလင်အားခင်မင်သည်စိတ်အားပါးတရစားသံးကြခင်းကိ ဖစ်သည်။

အဏ်တက်စားခင်းကိအလင်ကလိလိလားလားသကဲ့သိသံးသည့်သများကလည်း အားပါးတရစားကြခင်းကိဖစ်သည်။

အဏ်တက်ထမင်းစားသများသည်အကျအ၀တ်အစားကောင်းမှားရန်မလိသကဲ့သိ့အလင်အားကေငွထည့်ရန်လည်းမလိအပ်ပါ။
ဆင်းရဲသည် ချမ်းသည်မဟုတ်ပျာ်ပျာ်ရင်ရင်နတတ်ထိင်တတ်သောအများစသာအဏ်တက်ထမင်းကိုရယ်ကင်စားသေသာကြည့်မိန်းရယ်ကင်စားသောကြည့်ဖွင့်ကြည့်အထက်ရတိးအာက်ရတိး-နယန်လူန်ကျင်တွင်တာင်သမန်အင်းအတွင်း၌ရများတိးလာကပီတက်လာကပီဖစ်ပါသည်။

ဦးနှစ်ပိုင်အေဘက်နှင့်တန်းကီးမစီးဆင်းလာသေသာရများတိးလာကပီချင်းကိုရများတိးလာမိင်းကိုမားချင်းဟေသာအထက်ရတိးချင်းဟေခပါသည်။

အာက်ရတိးဟေသာမာဧရာဝတီမစ်အတွင်းမရများသည်စစ်ကိင်းမိလးလမ်းတံတားဖတံတားမြဖတ်ကာတာင်သမန်အင်းအတွင်းဝင်လာခင်းကိုရများဖွးသွာ့ပေသ့ဖေသာစကားသည်ဦးနှစ်ပိုင်ဘတ်နယ်သာ့ဝင်လာသေသာလက်သံးစကားများဖဖစ်ကပါသည်။

တာင်သမန်ရပ်ဓေလ့ရွာဓေလ့များတွင်တွရသည့်အရပ်သံးစကားများသည်စိတ်ဝင်စားဖွယ်ရာကာင်းကာင်းလ့လာိရပါသည်။

ဤစာတမ်းတွင်ရလပ်သားသံးများဖစ်သေသာအင်းဘတ်ဒင်းဦးခါက်ဝးထိးဟေသာအသံးများမရပ်ဓေလ့ရွာဓေလ့များကိုတွရပါသည်။

ဒင်းဦးခါက်ဝးထိးဟေသာဓေလ့များမာပျာက်ကွယ်သွားိင်ပါသည်။

အဘယ့်ကာင့်ဆိုသာ်ဖမ်းသည့်သများနည်းပြိးသွားသည့်တိင်အင်းကိလည့်ပတ်ကည့်နေရေသာသများကျန်ိင်ဖွယ်ဖပါသည်။

စိက်ပျိးသံးအိုဖစ်ိမပဲညပ်ကာက်လိင်းိက်စပါးလ့၊စာ့ခာက်မိရပ်ဓေလ့ရွာဓေလ့များကိုတွရပါသည်။

ိမပဲညပ်ဟေသာအသံးမာပျာက်ကွယ်သွားိင်ပါသည်။

အဘယ့်ကာင့်ဆိုသာ်တာင်လယ်သမားများသည်အချိန်မပးိင်နေသြခင်း၊လပ်သားများိင်ပါသည်။

ကာက်လိင်းိက်စပါးလ့ြခင်းဟေသာအသံးမာလည်းပျာက်ကွယ်သွားိင်ပါသည်။

အဘယ့်ကာင့်ဆိုသာ်လက်မလယ်ယာမစက်မလယ်ယာသိပေသာေကာင့်ြဖစ်ပါသည်။

ေကာက်လိင်းိက်စပါးလ့ြခင်းဟေသာအသံးမာအသံးဖမ်းသည့်သများတွင်လာိင်ပါသည်။

အဘယ့်ကာင့်ဆိုသာ်တာင်သမန်အင်းအတွင်း၌မရင်းစပါးများြဖစ်ပါသည်။
ယခင်ကကဲ့သိပင် ပင်စိက်ပျိးသေသာ အခြင်း နိုင်ခင်းကိုပင်ဖစ်ပါသည်။ အင်းကိအေခတည်၍ ဖစ်ဖောလာသေသာ စကားများအဖစ်အာက်လမ်း၊ ရကည်ဗို၊ ရကည်သံး၊ အထက်ရတိး၊ အာက်ရတိးဟေသာ စကားများကိတွေ့ဖစ်ပါသည်။ ယင်းတို့အနက် ရကည်ဗိုရကည်သံးအသံတို့မာနည်းလာပြီရလည်း ယင်းဓာလ့များလည်းဖစ်ပါသည်။ အာက်လမ်းဟေသာ စကားများကိုဖော်ကွယ်နေသေလည်း တာင်သီန်အင်းအတွင်း၌ရတို့ချိန်သည်အခါရာသီအလိက်နေသေကာင့်ဖစ်ပါသည်။

အေဆာက်အဦသံးများဖစ်သော သိမ်နီ၊ ဖာင်ကာင်း၊ ထံပ်ဇရပ် အနက်သိမ်နီဟေသာ ေဝါဟာရမာကွယ်ဖော်သွားဖစ်ပါသည်။ အဘယ့်ကာင့်ဆိုသာ် သိမ်နီများအားလံးဖေပြပင်ပြည်ဖစ်ပါသည်။ ဖာင်ကာင်းထံပ်ဇရပ်ဟေသာ အသံးများမာမလက်များ၏ ေြပာဆိသံးစွဲမာကျန်ိင်ဖွယ်ိပါသည်။ ထံပ်ဇရပ်ဟေသာအသံးတွင်ချစ်စရာဓာလ့များတည်ိနေသေကာင့်ယင်းအသံးကိထိန်းသိမ်းထားသင့်ပါသည်။

ရပ်ရွာလပ်ငန်းသံးစကားများဖစ်သော ဆးိးထ ဆးိးကိတ်၊ ၀တ်ခွက်၊ မန်ကျီးဖော်ထိး၊ မန်ကျီးရွက်သပ်တိကိတ်တွရပါသည်။ ယင်းစကားအားလံးမာကွယ်ဖော်သွားဖစ်ပါသည်။ အဘယ့်ကာင့်ဆိုသာ် တာင်သီန်ရွာထိပ်၌ရတနာပံတက သိလ်ကီးဖေပေပါက်လာသေလိုထဲဖင့်အလပ်အကိင်အခွင့်အလမ်းများဖေပါက်လာသေကာင့်ဆိိင်ပါသည်။

မန်ကျည်းရွက်သပ်သည့်ဓာလ့မာကျန်ိင်ဖွယ်ိသည်။ ေတာင်သီန်ေဒသတွင်အလာေပါင်းစံရာေနထိင်လာသည့်တိုင်ေအာင်မ်ကျားဟေသာ စကားသံးမာအသံးတွင်နေဆဲဖစ်ပါသည်။ ထိုကာင့်တာင်ကျားပတ်သက်သေသာရပ်ဓာလ့ရွာဓာလ့များမာတည်တံ့ေနသည်ဟိိင်ပါသည်။

ရပ်ရွာလ်ငန်းစကားများဖစ်ကွယ်ကွယ်ဖော်သွားဖစ်ပါသည်။ လအများသည်၌ ွားအစားစက်ပစ်ကိသာ
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ကျမ်းကိးစာရင်းပညာ၊ ကိ တာင်သမန် သမိင်းဖောင်ရာများ ၂၀၁၆. တင်သမန်လုပ်ငန်းကျင်င့်သမိင်းဖောင်ရာများ။ ရန်ကန်၊ စိတ်ကာလချိချိစာပို။ မန်မာစာအဖွဲ။ ၂၀၁၃. ခရီးဆောင်မန်မာအဘိဓာန်။ ရန်ကန်၊ မန်မာစာအဖွဲ ဦးစီးဌာန။
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စာတမ်းအကျး

ဤစာတမ်းသည် မြန်မာဘာသာစကားနယ်ပယ်လာ မြန်မာစကားပုံများကို ဘာသာစကား၏ အလပ်တာဝန်များဖြင့်လာတင်ပထားသော စာတမ်းတစိုက်ဖစ်ပါသည်။ မြန်မာစာအဖွဲ့မှ ထတ်ဝေသော မြန်မာစကားပုံများကို အလ့လာခံအဖစ် သတ်မတ်၍ အတေဗဒနည်းဖင့် လာတင်ပလိပ်ခင်းဖစ်ပါသည်။ ဤစာတမ်းကို လာတင်ပရာတွင် အတေဗဒနည်းကို အသံုးပြု၍ ဘာသာစကားဆိုင်ရာ အလပ်တာဝန်များကို ထမ်းဆောင်ပံများကို သိရာတွင်းပညာရှားသော အကျိုးကြားကရိန်း ရိမ်ဖစ်ပါသည်။

ဗိုလ်ချ်မော်

စာတမ်းအကျး

ဤစာတမ်းတွင် အခန်း(၃)ခန်းခွဲ၍ လာတင်ပထားပါသည်။ အခန်း(၁)တွင် စကားပုံဖွင့်ဆိချက်ဖစ်သည်။ အခန်း(၂)တွင် အတေဗဒဖွင့်ဆိချက်င့် ဘာသာစကား၏ အလပ်တာဝန်များကို ဖြေပြထားသည်။ အခန်း(၃)တွင် မြန်မာစကားပုံများကို ဘာသာစကား၏ အလပ်တာဝန်ကို ထမ်းဆောင်ပံ၏၅ရပ်ဖင့် လာတင်ပထားပါသည်။ ထို့နောက် လာတင်ပရာတွင် မြန်မာစာအဖွဲ့မှ ထတ်ဝေသော မြန်မာစကားပုံများစာအပ်ကို အလ့လာခံအဖစ် သတ်မတ်၍ အတေဗဒနည်းဖင့် လာတင်ပထားပါသည်။
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လမျိးတစ်မျိး၏ေနထိင်ရာေဒသအေလျာက်ယေကျးမ၊ ဓေလ့ထံးစံ အေတွးအြမင်များကိ
အေြခခံ၍ ေပေပါက်လာြခင်း
ြဖစ်ပါသည်။ ြမန်မာစကားပံများ သည် ြမန်မာတိ ့၏
အကျင့်စိက်၊ စိတ်ေနစိတ်ထားကိ ေဖာြပကသည်။ အချိ မာ ကိယ်အမအရာ၊ တ်
အမအရာ၊ အချိ မာ လ ့သgable၊ ေလာကသgableကိ ေဖာြပထား ေလသည်။

၂။ အတ ေဗဒ
င့် ဘာသာစကား၏အလပ်တာဝန်
ြဖစ်ေသာ အနက် အဓိပယ်၏ သေဘာကိ စးစမ်းခဲ ့ကသည်။ ထိသိ ့ စးစမ်းခဲ ့ကရာမပညာင်များသည် ပညာရပ်နယ်ပယ်အမျိးမျိးမအတေဗဒဆိင်ရာြပသနာများကိုဖာ်ထတ်ေဆွးေွးခဲ့ကသည်။

အတေဗဒဖွင့်ဆိမင့်ပတ်သက်၍ အတေဗဒနိဒါန်းတွင်ဆရာက်ေဒါက်တာခင်ေအးက

''အတေဗဒသည် အနက်အဓိပယ်ကိုလ့လာေသာ ပညာရပ်ြဖစ်သည်'' 195

၂ ဘာသာစကား၏ အလပ်တာဝန်များ

ဘာသာစကားဆိရာတွင် အေြပာဘာသာစကား၊ အေရးဘာသာစကားသာမက ဘာသာစကားသေဘာသက်ေရာက်ေစသည့် ကိယ်ခာလပ်ားမများ၊ မျက်ာေပးများ၊ အချက်ြပြခင်းများလည်း ပါဝင်ပါသည်။ အလပ်တာဝန်သည် ဆက်သွယ်မဆိင်ရာအေခခံချက်များေပမတည်၍ ကွဲပားသည်။ ထိသိ ့ကွဲပားရာမအတေဗဒနည်းြဖင့် ဘာသာစကား၏ အလပ်တာဝန်များထမ်းေဆာင်ပံကိုလ့လာတင်ြပမည်ြဖစ်ပါသည်။

လတစ်ဦးင့်တစ်ဦးဆက်သွယ်ရာတွင် ဆက်သွယ်မဆိင်ရာ အေခခံအချက်များကိုမတည်၍ ဘာသာစကား၏ အလပ်တာဝန်ကွဲပားသည်။

ဆက်သွယ်မဆိင်ရာ အေခခံအချက်များတွင် ေြပာသ(သိ ့)ေရးသ၊ နာသ(သိ ့)ဖတ်သ၊ ဆက်သွယ် ေရးလမ်းေကာင်း၊ အေကာင်းအရာ၊ ဘာသာစကားဟေသာ အချက်များသည် ဆက်သွယ်မဆိင်ရာ အေခခံအချက်များြဖစ်သည်။ ထိအချက်များကိမတည်၍ ဘာသာစကား၏ အလပ်တာဝန်များလည်း ကွဲပားြခားနားသွားပါသည်။ ဘာသာစကား၏ အလပ်တာဝန်များကို (၁)အသိေပးမတာဝန်

195 ပထမဦးစား ၁၀၀၈ ၁ ခင်ေအး ၊ ၂၀၀၈ ၊ ၁ အကြောင်းကြောင်း

196 Informational function
၁၄၀၀ သိရှိပါသည်။ အပေါ်ပါးသောစာကြောင်းတွင် အများကျယ်စားလှောင်သည်။ လတ်တ်တံတာဝန် အပေါ်ပါးသောစာကြောင်းတွင် အသိပေးသောကိစ္စသည် အများကျယ်စားလှောင်သည်။

၁၄၀၁ မိုးွန်မတာဝန်သည် ေြပာသေရးသတိခံစားမသေဘာထားတိုင်ကြောင်း သက်ဆိုင်သည်။ လမ်းွန်မတာဝန်သည် ေြပာသေရးသက်တွင် သက်ဆိုင်သည်။ ေလာကဝတ်တာဝန်သည် ေြပာဆိေရးသေရးလမ်းေကာင်းပွင်စွာသေစရန်အသံးဖစ်သည်။

၁၄၀၂ အလဖန်တီးမတာဝန်သည် ေြပာဆိေရးသေရးသည့်ဘာသာစကားကိုစ်သက်ဖွယ်လှောင်သည်။ မျိုးစံလုံးသောစာလင်းပွဲတွင် သက်ဆိုင်သည်။

၁၄၀၃ သို့မဟုတ် ယင်း။

၁၄၀၄ သို့မဟုတ် ယင်း။

၁၄၀၅ သို့မဟုတ် ယင်း။

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197 Expressive function  198 Directive function  199 Phatic function  200 Aesthetic function  201 ၎င်း။ ၂၀၀၈။ ၄၇ ။  202 ၎င်း။ ၂၀၀၈။ ၄၈ ။  203 ၎င်း။ ၂၀၀၈။ ၅၁ ။  204 ၎င်း။ ၂၀၀၈။ ၅၂ ။  205 ၎င်း။ ၂၀၀၈။ ၅၃ ။
၃ မိန့်မာစကားပံများလာဘာသာစကားနှင့် အလပ်တာဝန်များ

ဘာသာစကားသည် လတစ်ဦးင်တစ်ဦးဆက်သွယ်ဖြစ်သည်။ လစ်ဦးသည် ဘာသာစကားဖင့်ဆက်သွယ်သည်အခါတွင် တစ်ဦးကြားသည်ဖြစ်လင်ကျန်တစ်ဦးကနေသည်။ ဘာသာစကားဖင့်ဆက်သွယ်မြင်ဖစ်သည်။ မိန့်မာစကားပံများကိလည်း ဘာသာစကားနှင့်အလပ်တာဝန် (၅)ချို့ဖင့်ထမ်းဆောင်ပံကိုလ့လာတင်ဖစ်ပါသည်။

၃.၁ အသိပေပါ့

အသိပေပါ့မှာ လတစ်ဦးင်တစ်ဦးနေစင့်အမှား ဘာသာစကားအရံပြု ဆိုရပ်ဆက်သွယ်ရာတွင်သိစရာအခက်အလက်များကိုအသိပေပါ့ထားသည်။ မိန့်မာစကားပံများသည် မိန့်မာတိ့၏အကျင်စိက်စိတ်ထားကိုဖော်ပြကောင်းသည်။ မိန့်မာစကားပံများများသိထားလိုလားလတိ့၏ကိယ်အမအရာ၊ တ်အမအရာ၊ စိတ်ထားများ၊ အကျင်စိက်များ၊ အောက်ဆိုအေရးအသား၊ အေတွးအေခများပိုမိုပြပစ်ေချာေမွထက်ဖြစ်စိုင်းသောအသိပေမည်။

မိန့်မာစကားပံများသည် ဥာဏ်ရွင်မ၊ရင်ကျက်မ၊ အေတွးအေခကျယ်မတိ့ကိရွန်းအသိပေထားသောအသိပေမကိထမ်းဆောင်ေကာင်းလ့လာရပါသည်။

တစ်ခါဖြင့်ပျဖိးနားလည်

နာရးကိစကိတစ်ခါတွက်ရဖြင့်ပျဖိးနားလည်သည်ဆိသကဲ့သိ့စံးနစ်နာမကိကိယ်တွက်ဖြင့်ပျဖိးနားလည်သွားသည်

206 စကားပံသည် အမကီးငယ်ကပ်ဖြစ်မသာလင် အမကီးငယ်၏အတိမ်အနက်အမန်အကန်ကပ်သို့မဟုတ်၊ ထိသိ့ 206 မိန့်မာစကားပံ၊ ၁၉၉၆၊ ၉၂ ။
အချက်အလက်များကို အသိပေးထားပါသည်။ အတွ့အကံ့မသာလင်အရာရာတွင် ဗိုလ်ချုပ်ကြီး သော်လည်း အသိပေးကာ ပြောဆိုသည့်အခါ သောက်ပါသည်။ ထိစကားပံုသည် သိစရာအချက်အလက်များကို အသိပေးပါသည်။ ပစ္စည်းများနှင့် ပြည်သူများကို အသိပေးရာ တွင် အချက်အလက်အထက်ပေါ်သောအချက်အလက်များကို အသိပေးကာ ပြောဆိုသည့်အခါ သောက်ပါသည်။ စကားပံုသည် အခြေခံအတွက်လည်း သစ်ညှသည်။ အချက်အလက်များကို အသိပေးရန် အတွက် ရပါသည်။ ပစ္စည်းသည် အခြေခံအတွက်လည်း ပြည်သူများကို အသိပေးရန် အတွက် ရပါသည်။
ဤစကားပံသည် ပညာတစ်ခတ်မှာကြားအခါ ဆရာကိ ဆရာအဦညစ်သားမြပြောက်လွှာကားလင် ဒကေရာက်တတ်ကာင်း ဆိလိသည်။ မိမိ၏ ဆရာအား ေစာ်ကားရမ်းကား အနေတဖက်ပိင်းသား သကိ 'ဆရာကာြပန်အာေခါင်လံစး' ဟု ဒကေရာက်တတ်ကာင်းကိ အသိပေးရည်ွန်းထားပါသည်။ မိမိ၏ ဆရာသမားအနေတဖက် ပျက်စီး တတ်ကာင်းဖြစ်ကားေကာင်း ေပာဆိဆံးမရာတွင် သံးန်းထားသည်။ ပျက်စီးဒကေရာက်တတ်သည် ေကာင်းကိ အသိပေးထားေသာ ဘာသာစကား၏ အသိပေးမတာဝန်ကိ ေတွိရပါသည်။ ထိစကားပံသည် ဘာသာစကား၏ အသိပေးမတာဝန်င့်လမ်းွန်မတာဝန်ကိ ထမ်းေဆာင်းကား ေလ့လာေတွိရပါသည်။

၃၊ ၂၊ ေဖာ်ပမတာဝန်

ေဖာ်ပမတာဝန်သည် ေြပာသေရးသတိခံစားမ၊ သေဘာထားကိ ေဖာ်ပမင့်သက်ဆိင်ခင်းေဖာ်ပမင့်သည်။ ြမန်မာစကားပံများသည် ြမန်မာလမျိးတိ့၏ အကျင့်စိချို့များကိုဖြပေးကသည်။ စကားပံများသည် လမျိးတစ်မျိး၏ ယေကျးမ၊ ဓာလ့ထံးစံ၊ အေတွးအြမင်စသည်များကိသာမက စာေပဖွံဖိးတိးတက်လာပံကိဖာွန်းထားသည်။ လမျိးတစ်မျိး၏ ဘာသာတရားကိင်းိင်းမ၊ အေလးထားမ၊ ကျင့်ေဆာင်လိက်နာမတိ့ကိ ထင်ဟပ်ေပလွင်ေစရန် ေဖာေဆာင်ေပးသကဲ့သိ ့ ဗဟသတကယ်ဝမေတွးေခေြမာ်ြမင်ဆင်ြခင်တတ်မတိ့၏ အတိမ်အနက်တိ့ကိေဖာြပရည်ွန်း၍ လတိ့၏ ခံစားမများေသာေဖာြပထားေသာြမန်မာစကားပံများကိလည်း ေတွေရ သည်။ ြမန်မာစကားပံများတွင် စကားပံ၏

ငါ့အကျိုးကဲ့သော ကမ္ဘာ့ရာဇဝတ်ကြောင်း အထောက်အကူရာ စိနိုင်ငံသား အိန္ဒိယများယူဆ၍ စိနိုင်ငံဥပဒေတို့ကိုလိုအပ်ကြောင်း ညှို့နှင်ပေးပါသော်လည်း ကမ္ဘာ့ရာဇဝတ်ကြောင်း ရာသီ့အိုဝါကျန်စိနိုင်ငံရေးရာ ဗဟသတကယ်ဝမေတွးေခေြမာ်ြမင်ဆင်ြခင်တတ်မတိ့၏ အတိမ်အနက်တိ့ကိ ေဖာြပရည်ွန်း၍ လတိ့၏ ခံစားမများေသာေဖာြပထားေသာြမန်မာစကားပံများကိလည်း ေတွေရ သည်။
သေဘာအဓိပာယ်ကိ ထင်ားစွာ ဖြပော်ထားသော ဖြပောမတာဝန်ထမ်းဆောင်ပံများကိလည်း လ့လာတွ ိရပါသည်။ ဘးလးရာဖံဆင့် ဘးသီးဖင့် လံလံလျ်ိာတွင် ဖံသီးထပ်ဆင့်ဖစ်ပန်သည်။ မလကပင် တာဝန်လျ်ိာတွင် ဝန်ထပ်တစ်ခထပ်ဆင့် တိးဖစ်သည်။ ဤစကားပံသည် တာဝန်တစ်ခထက်ပိ၍ များဖြပောသည်ကိ ဆိလိသည်။ လပ်ငန်းများ တစ်ခပီးတစ်ခလပ်ဆောင်ရသည့်အခါ တာဝန်များဖြပောသည့်အခါ မိင်ဝန်ကိ ထမ်းရသည်ကိရည်ွန်းထားပါသည်။ တာဝန်တစ်ခထက်ကျန်တစ်ခက၍ ထပ်ဆင့်ဖစ်သည့်အခါတွင် သံးန်းဖတ်ပေသည်။ အခက်အခဲတစ်ခထက်ပိ၍ တာဝန်များဖြပောသည့်အခါတွင် စိတ်ထဲမာခံစားများဖစ်ပေသည်ကိ ဖြပော ဘာသာစကား၏ ဖြပောမတာဝန်ကိ ထမ်းေကာင်းလ့လာေတွ ိရပါသည်။

ပြီးသောနှစ်စဉ်တွင် စာအုပ်ကိ ထင်ားစွာဖြပောသည်။ လပ်ငန်းများ တစ်ခပီးတစ်ခလပ်ဆောင်ရသည့်အခါ တာဝန်များဖြပောသည့်အခါ မိင်ဝန်ကိ ထမ်းရသည်ကိရည်ွန်းထားပါသည်။ တာဝန်တစ်ခထက်ကျန်တစ်ခက၍ ထပ်ဆင့်ဖစ်သည့်အခါတွင် သံးန်းဖတ်ပေသည်။ အခက်အခဲတစ်ခထက်ပိ၍ တာဝန်များဖြပောသည့်အခါတွင် စိတ်ထဲမာခံစားများဖစ်ပေသည်ကိ ဖြပော ဘာသာစကား၏ ဖြပောမတာဝန်ကိ ထမ်းေကာင်းလ့လာေတွ ိရပါသည်။

209 မိုးမိုးသော ယင်းခါးကို သင်ကြားခြင်းဖြစ်သည်။
210 မိုးမိုးသော ယင်းခါးကို သင်ကြားခြင်းဖြစ်သည်။
မိဘဆရာသမားများကို သားသမီးတပည့်တွေက မခန်းညားကြချင်။ သံးန်းထားသည်မျက်ာလပ်တတ်သော မျက်ာိ့၊ ဂဏ်ဦးသတ်ပေးသည် မျက်ာလပ်တတ်ကို တွေ့ရပါသည်။ ညီွတ်စွာ မမတတ်လပ်ကိုဆောင်ရွက်ခင်းမိသည်ကို ဖော်ပြထားလျော်ခင်းဖစ်သဖြင့် ဘာသာစကား၏ ဖော်ပြမှု့ကို ထမ်းဆောင်ကာ လ့လာတွေ့ရပါသည်။ ကွက်အိက်များမှားစွာစားသော ဂဏ်အိန်းအဝါ့လျာနေ့သော်ကို ဆိုသည်။ အရွယ်အစားဖင့် ကျွင်းရင်းသော သမားတိ့ကို မထိမဲ့မင်းပမတတ်သည်ကိရည်းဖော်ပြထားပါသည်။ မိဘဆရာသမားများသော သားသမီးတပည့်တိ့ကို မိေသကာင်ကိဖော်ပေသော ဘာသာစကား၏ ဖော်ပြမှု့ကို ထမ်းဆောင်ကာ လ့လာတွေ့ရပါသည်။ အထက်ပါစကားပံများကို ဖော်ပြေခင်းဖင့် ဘဝအသိ၊ ဘဝလမ်းအော်နှင့် လွယ်ကစွာမတ်သားလိုက်နာကြစရန် ဖော်ပြထားပါသည်။ ဗီးယာပေလာက်တွင် စကားပံများသည် လွန်စွာအသံးဝင်ပေသည်။ စကားပံများသည် လငယ်လရွယ်များအောင် အယအဆ၊ အြပအမ၊ အေြပာဆိများ၊ အတယမမားကြစရန် ဖော်ဆောင်ချင်သော စကားပံများဖစ်သည်ကိ ဖော်ပြေချင်သည်။

ဥ ၃.၃ လမ်းနွန်မှု့ကို

211 ဖော်ဆောင်ချင်လိုတော်မှာ ကြည်ကေပြောင်း ကြည်ကေပြောင်းမြင့်ချင်သည်။
လမ်းွန်မတာဝန်သည် ေြပာသေရးသက နာသဖတ်သကိလွမ်းမိးလမ်းွန်မင့် သက်ဆိင်သည်။ ြမန်မာစကားပံများသည် လတိ ့အား ဘဝအသိ၊ ဘဝလမ်းွန်များကိ ေနာင်လာ ေနာက်သာ့တိ့လိက်နာကေစရန် ြမန်မာစကားပံများဖင လမ်းွန်ထားခင်းဖစ်ပါသည်။ ြမန်မာ စကားပံများကိ လျော့ခင်းကြက့ ဗဟသတြဖစ်ထွန်းစကား၏ အသိဥာဏ် ပညာဖွံဖိးမကိလည်းကြက်၊ အေြပာအဆိ၌ စာတစ်ကြက်တည်ခင်းဖင ထိထိမိမိပိင်ပိင်ိင် ေြပာဆိတတ်စရန်အတွက်လည်းကြက်၊ လမ်းွန်ထားခင်းဖစ်ပါသည်။

စီးတဲ့ေရဆည်တဲ့ကန်သင်း စီးဝင်လာသေရကိ လယ်ကွင်းထဲ၌တည်တံ့အာင် ကန်သင်း ဆည်၍ပိတ်ထားရသည်ကိ ဆိလိသည်။ ထိစကားပံသည်ေခတာတတ်စရန်ရည်ွန်းကာ သံးန်းလမ်းွန်ထားပါသည်။ အိမ်ေထာင်ဦးစီးဖွရိေသာ ပစည်းကိမေလမလွင်ေအာင်ထိန်းသိမ်းတတ်စရန်အတွက် ရည်ွန်းကာလမ်းွန်ထားခင်းဖစ်သည်။ မိမိ၏ဝင်ငွကိအိမ်ငွကျားချ၍ စာစု့ငေအာင် သံးစွဲဆာင်ရွက်ခင်းကိ ွန်ြပေသာကြက် ဘာသာစကား၏ လမ်းွန်မတာဝန်င့် အသိေပးမတာဝန်ကိထမ်းဆာင်ကြက် ေလ့လာတွေ့ရပါသည်။

၁၉၉၆ ့မြန်မာစကားဖွား ၅၉၆၁၂၂၁၂၃
ဤစကားပံသည် အစလိက်၊ အအပ်လိက် နေသာအခါကျာသည် တ်တရက် ဝင်ရာကိုရန် မဝံေစကာမွားများတစ်ကာင်ချင်းကွဲြပားသောအခါမ ကျာသည် အလွယ်တကကွားကိ ဆိလိသည်။ တစ်ဦးင့်တစ်ဦး စည်းလံး ညီွတ်မိပျက်ြပားသောအခါ အရာယ်ရာကို သိုးထားပါသည်။ စည်းလံးညီွတ်မပျက်ြပားသောအခါအရာယ်ရာကိုလွယ်တတ်သည်ကိ အသိပေးလမ်းွန်ကာ သံးန်းထားပါသည်။ တစ်ဦးင့်တစ်ဦး စည်းလံးညီွတ်မိပါကတစ်ပါးသဝင်ရာကိ အိင်းထက် ပမတတ်သည်ကိ သိိဳစရန်လမ်းွန်ပပီး ဘာသာစကား၏လမ်းွန်မတာဝန်ကိထမ်းဆာင်းကောင်းလ့လာေတွားရပါသည်။

နေပတန်းစပါးလန်း

နေပတန်းစပါးလန်းရသကဲ့သိ့ အေြခအေနေပးစလံ့လစိက်၍ အခွင့်အေရးကိ အသံးချသည်။

214 - ၁၀၆ - ၁၀၇ ပြောင်းလဲသည်...
လေပါင်းမမားကေစရန်လကဲခတ်တတ်ကေစရန်လိမ်းေပြာင်းကိေလ့လာေတွေြပါသည်။

3,4. လာကဝတ်တာဝန်

လာကဝတ်တာဝန်သည်လာကဝတ်ဆိမ်းသည် လာအချင်းချင်းစက်ကိုလာေတွေြပါသည်။ သငယ်ချင်းမိတ်ဆွများင့်ဆက်ဆံရာများကိုလာအသတ်မိစည်းလွတ် လွတ်သည်အထိရင်းီးချစ်ခင်များ၊ပွင့်လင်းမယံကည်စိတ်ချမမိဘဲခပ်စိမ်းစိမ်းနှင်းလင်လမဆက်ဆံေရးမေြပိင်းကိုဖာြပထားသည်။

တစ်ဦးတစ်ဦးလာကဝတ်စကားများဖင်းလာေပာဆိ့သာန်းေသာစကားပံများကိုတရား လာကဝတ်တာဝန်များထမ်းဆာင်ပံကိလည်းလ့လာေတွေြပါသည်။

ကက်တေရွးကေတာ်မယ်ေဘာ်ကကဲကဲကက်တေရွးသည်လာကဝတ်သည်စကားတတ်ေကာင်းအမမ်းတင်ရာတွင်လွန်ကဲသကဲ့သိတစ်စံတစ်ေယာက်ဂဏ်အရည်အချင်းမာေတာ်ံမသာြဖစ်ေသာ်လည်းသအားလိုလားသြအမမ်းတင်မမာလွန်ကဲလသည်သစကားပံသည်မိမိေမွးထားေသာကက်တေရွးသည်စကားတတ်ေကာင်းအမမ်းတင်ကာချီးမွမ်းေြပာဆိသည်ကိုလားသည်။

215 ကက်တေရွးစကားအမ်းတင်ကာချီးမွမ်းေြပာဆိ့သည့်အခါတွင်သားန်းထားသည်။

မိမိလိလားစ်သက်သအေပအမမ်းတင်၍ေြပာဆိသည့်အခါတွင်သံးန်းထားသည်။
မိမိခင်မင်သည့်သများအား လွန်ကဲစွာ ဂဏ်တင်ပေသာအခါ သံးန်းထား၍ ဘာသာစကား၏ ဗုဒ္ဓဝတ်တို့ထမ်းဆောင်ကာ လေ့လာသော် မရပါသည်။

အလင်းဖက်င့်လက်ဆောင်တက်အလဖိတ်ရာတွင် ကမ်းသောလက်ဖက်ထပ်ကို တစ်ပါးသောအားတစ်ဆင့်လက်ဆောင်ပြီးဆိုသော် သတစ်ပါးထံမှအလက်ရထားသော ပစည်းကိုလက်ဆောင်ပြီး မျက်ာလပ်သည်။

ဤစကားပံသည် အလင်၏ ပစည်ဖင့်တစ်ပါးသောလက်ဆောင်ပြီးဆိုသည်။ အခြေအနေသများသည် အောက်ပါသများထံမှအလက်ရထားသော ပစည်များကို သတစ်ပါးလက်ဆောင်ပြီး မျက်ာချိသွားလပ်သည်ကိုရွေးထားပါသည်။

မိမိ၏ပစည်မဟတ်သော်လည်း အောက်ပါအောက်ဆောင်ပြီးဖြင့် ခင်မင်မရိစရန်မျက်ာလပ်သည့်အခါတွင် သံးန်းထားပါသည်။

ဆက်သွယ်ရေးလမ်းကြောင့် ပွင်သစ်ပေသော ဘာသာစကား၏ ဗုဒ္ဓဝတ်တို့ကို ထမ်းဆောင်ကာလေ့လာသော် မရပါသည်။
ဖြစ်စဉ်အားဖြင့်

အခြားသော အချက်အလက်များကလည်း အမျိုးအစားနှင့် ပါဝင်သော အချက်အလက်များကို သိရှိနိုင်သည်။

ယင်းအလောက်ပါစကားပံ့များကို အောက်ပါစကားပံ့များကို ကုန်ကျင်စွာ လေ့လာနိုင်သည်။

၃.၅. အလဖန်တီးမိုင်

အလဖန်တီးမိုင်သည် အသက်ဖောင်ရာသော ဘာသာစကားကို ဆုံးဖြတ်စွာ လေ့လာနိုင်သည်။

စာဆက်တွဲများကို စာပေနှင့် စာပေအချက်အလက်များဖြင့် လေ့လာနိုင်သည်။

- ပြောင်းလဲမှု ၂၁၇
ထိထိေရာက်စကားလံးများသံး၍ လပေအာင် တန်ဆာဆင်ေရးဖွဲ ထားသြဖင ့် ဘာသာစကား၏ အလဖန်တီးမ တာဝန်ထမ်းေဆာင်ပံများကိ ေလ့လာေတွ ိရပါ သည်။

ေမးလင်ပန်၊ နံလင်ပစ် ေမးရနံ ့ကယ်စဦးေခါင်း၌ ပန်ဆင်ခဲ ့ေသာ်လည်း ရနံ ့ြပယ် သည်င့် ထိပန်းကိ စွန့်ပစ်လိကဲ့သိ ့ သစ်လွင်စတပ်မက်ေသာ်လည်း ေဟာင်းွမ်းသည်င့် စွန့်ပစ်သည်။

218 ဤစကားပံသည် ပန်းကိပံပမာြပ၍ ပန်းရနံ ့ေမွးလင်ပန်၍ ပန်းရနံ ့မိလင်ပစ်တတ်ေကာင်းဆိလိသည်။ ထိသိ ့ အသစ်ကိသာ လိချင်၍ အေဟာင်းကိ စွန့်ပစ်တတ်ေကာင်းကိ သိိ ေစလိ၍ ရည်ွန်းေဖာြပထားသည်။ လတိ ့၏ သဘာဝကိ ယ်စာြပ၍ သံးန်းေဖာြပထားပါ သည်။ ပန်း၏ရနံ ့ကိ ေမွးလင် 'ပန'၊ နံလင် 'ပစ်' စကားလံးများြဖင့် လပေအာင် စ်သက် ဖွယ်ြဖစ်ေအာင်လလပပဖန်တီးေရးဖွဲထားေသာ ဘာသာစကား၏ အလဖန်တီးမတာဝန်ကိ ထမ်းေဆာင်သည် ြဖစ်ေကာင်း ေလ့လာေတွ ိရပါသည်။

219 ရတနာိရာ ရတနာစ ရတနာိရာသိ ့ ရတနာများ စေဝးေရာက်ိ လာတတ်သကဲ့သိ ့ အေကာင်းအမွန်များိရာများရာသိ ့ အေကာင်းအမွန် ဥစာ စသည့် ထပ်၍ ေရာက်ိ လာသည်။

218 ယင်း - ၁၉၈၁ ဝက်ပါ။
219 - ၁၉၈၈ ဝက်ပါ။
လလပပဖန်တီးေရးဖွဲထားေသာေကာင့် ဘာသာစကား၏ အလဖန်တီးမတာဝန် ကို ထမ်းေဆာင်ေကာင်းေလ့လာေတွေ့ရပါသည်။

စိန်နားကပ်ေရာင်ေကာင့်ပါးေြပာင်
စိန်နားကပ် အေရာင်ဟပ်မေကာင်းေြပာင်ခင်းေဖစ်သည်။ တစ်ပါးသ၏ ဂဏ်အိန်အဝါေကာင့် လလသသေဖစ်သည်။

ဤစကားပံသည် စိန်နားကပ်၏လပမအိန်အဝါေတာက်ပမကိ မီ၍ လပေနသည်ကို ဆိလိြခင်းေဖစ်သည်။ နားကပ်၏ အိန်အဝါေတာက်ပမေကာင့် လပြခင်းကို ခံစားရသည်ကို ဖာ်ြပရည်ွန်းထားပါသည်။

စိန်င့်နားကပ်သည်လိက်ဖက်မိေသာ အသံေဖစ်၍ ဘာသာစကားကို လလပပဖန်တီးေရးဖွဲထားေသာ ဘာသာစကား၏ အလဖန်တီးမတာဝန်ကို ထမ်းေဆာင်ေကာင်းေလ့လာေတွေ့ရပါသည်။

အထက်ပါစကားပံများကို လ့လာသည့် ဘဝအသိ၊ ဘဝလမ်းွန်များကို နာင်လာနာက်သားတိုက်လွယ်ကစွာမတ်သားနာကိုစရန်ဖာ်ြပထားပါသည်။

ြမန်မာ စာပတ်ပြင် စကားပံများကို ရာသားဖံ့ရာတွင် မိမိဆိလိသည့်အဓိပာယ်ေပလွင်ေအာင် စကားလံးများကို လလပပတန်ဆာဆင်၍ ေရးသားထားေကာင်းကိလည်း ေလ့လာေတွေ့ရပါသည်။

ခံငံသံးသပ်ချက် အတွင်း အဓိပာယ်ကိသည်။ ပညာရပ်များ၏ အားလာချက်စားရာနယ်ပယ်ဖြစ်သည်။ ဘာသာစကားသည် ဆက်သွယ်မကားခံေဖစ်သည်။

တိရစာန်တို့သည် လည်းကောင်း၊ သေကတကိုပါင်းစပ်၍တစ်ေကာင်စောရေကာင် ဆက်သွယ်ကသည်။ ဘာသာစကားသည် အသံများ၌ ဆက်သွယ်ကသည်။

220 မီးစိမ်းစိမ်း လမ်း၊ ၁၉၉၆ ခုနှစ်၊ ၆၃ နှစ်၊
လတစ်ဦးင့်တစ်ဦး ဆက်သွယ်ရာတွင် ဆက်သွယ်မ ဆိင်ရာ၊ အေြခခံအချက်များကိမတည်၍ ဘာသာစကား၏အလပ်တာဝန်များကွဲြပားသည်။ ဘာသာစကား၏အလပ်တာဝန်များြဖင့် စကားပံတစ်ခစီကိ လ့လာတင်ြပထားပါသည်။ အသိေပးမတာဝန်ကိ ထမ်းေဆာင်ေသာ စကားပံများသည် လငယ်လရွယ်များအား အေတွးအေခ၊ အယအဆ၊ အြပအမ၊ အေြပာအဆိ၊ အတယမမားကေစရန် ကိယ်ကျင် ့သိကာ ေကာင်းမွန်ေရးအတွက် အသိေပးထားေသာ စကားပံများြဖစ်ေကာင်း ေလ့လာ ေတွ ိရပါသည်။ အဖာ်ပမတာဝန်ကိ ထမ်းေဆာင်ေသာ စကားပံများသည် လငယ်များ စီးပွားေရး၊ လမေရး ေကာင်းစွာေဆာင်ရွက်ိင်ပီး ကိယ်ကျင် ့တရားများ စိတ်ထားေကာင်း ။ ရည်ရွယ်ေဖာ်ြပမတာဝန်ကိ ထမ်းေဆာင်ေသာ စကားပံများသည် လငယ်လရွယ်များအား အေတွးမမား၊ အတယမမားကေစရန်င့်အဆိးင့်အေကာင်း၊ အကျိးင ့်အြပစ်ကိ ေဝဖန်ပိင်းြခားလပ်ေဆာင်သင့်ေကာင်းကိ အသိေပးလမ်းွန်ထားေသာ စကားပံများြဖစ်ေကာင်း ေလ့လာ ေတွ ိရပါသည်။ ေဖာ်ြပမတာဝန်ကိ ထမ်းေဆာင်ေသာ စကားပံများတွင် လတိ ့၏ကိယ်အမအရာ၊ တ်အမအရာ၊ စိတ်ေနစိတ်ထားများ၊ အကျင် ့စိက်များ၊ ေပါင်းသင်းဆက်ဆံေရး လ ့သဘာဝများ ကိ အထင်အားေတွ ိရသည်။ အလဖန်တီးမတာဝန်ကိ ထမ်းေဆာင်ေသာ စကားပံများ တွင် ဘာသာစကားကိ စ်သက်ဖွယ်ြဖစ်ေအာင် လလပပ သံးထားြခင်း ြဖစ်သည်။ ြမန်မာစကားပံများတွင် စကားလံးများကိ လပေအာင် တန်ဆာဆင် ေရးသားထားေသာ စကားပံများကိလည်း ေလ့လာေတွ ိရပါသည်။ ြမန်မာစာေပတွင် စကားပံများြဖင ့် ဆိလိေသာ အနက်အဓိပါယ်ကိ တိတိင ့်လိ ရင်း ထိ မိစွာ ေဖာ်ြပိင်ြခင်း၊ ကျယ်ဝန်းေသာအနက်အဓိပါယ်ကိ ေဖာိင်ြခင်းသည် ြမန်မာဘာသာ စကား၏ စွမ်းရည်တစ်ရပ်ပင်ြဖစ်သည်။ ြမန်မာစကားပံများသည်
အသက်ရှင်တို့၏ သာစည်များ လူအတွက် စိုးစံမှုကို ဆောင်ရွက်ရန် အခြေခံသော စာသီးစီးတွဲပါသည်။ အလုပ်တာဝန်အား ပြုလုပ်ရန် အခြေခံစာသီးစီးများ ကူးစားနိုင်သည်။ တာဝန်တစ်ခါကို အရှိန်း (၅)ရပ်ကို ကူးစားရန် လိုအပ်သည်။

**စာရင်းများ**

ကျွန်ုပ်တို့သည် မြန်မာစာအဖွဲ့၊ ဗုဒ္ဓဘာသာက မြန်မာဘာသာစကားကို လျင်မြန်သည်။

*ကျွန်ုပ်တို့သည် မြန်မာစာအဖွဲ့ (၁၉၉၆)*

*စကားပံုရေး ရန်ကုန်တက်သားပ်တိုက် (၁၉၇၃)*

*ဝင်းလိင်၊ ဦး (မေလး) (၂၀၀၉)*

*အဂလိပ် - မြန်မာအဘိဓာန် ရန်ကုန်၊ ကည်သာ (၂၀၀၈)*

*ဗွယ် (၁၀၀၁) ဗိဝါရီ ဗုဒ္ဓဘာသာက (၁၉၇၂)*

*ဗိဝါရီ (၁၀၀၁) ဗိဝါရီ ဗုဒ္ဓဘာသာက ဗုဒ္ဓဘာသာက (၁၉၇၂)*
မွန်လိမားများအနေဖြင့် အကြောင်းပြောချက်တစ်ခုအားလုံးကို စီစဉ်ထားသည်။ ပြောမှုငွေ့ပြောက်လျက် သို့မဟုတ် စိတ်ရှိအားအားလုံးကို ကြည့်ရှုမှုကို တတိယအဆိုပြုလျက် သက်ရှိစေသည်။

ပြောမှုငွေ့တစ်ခုဖြစ်သော စာတမ်းအကျးသားအားဖြင့် ပြောမှုငွေ့ပြောက်သော အကြောင်းပြောချက်သည် ရွေးချယ်သတ်မတ်ထားသည်။

စာတမ်းအကျးသားအားဖြင့် ပြောမှုငွေ့ပြောက်သော အကြောင်းပြောချက်သည် ရွေးချယ်သတ်မတ်ထားသည်။
လိမာယေက်းကပီး တိးတက်ေကာင်းမွန်ေသာ ိင်ငံေတာ်၏ယေက်းမအေဆာက်အဦးကိ တည်ေဆာက်ိင်ရန် အတွက် ေမာ်ကိးထားသည်။ စကားေြပအပဒ်တိင်း၌ လငယ်အားလံး ိင်းစိင်းရက်စက်ကမ်းကတ်မ ဒစိက်ကိ ောင်၍ ယေကျးသိမ် ေမွလိမာေသာ သစိက်များေဆာင်ရန် လမ်းန်ထားသည်။ မည်သည့့်အမအရာအေလ့အထသည် ယေကျးမဆိသည်ကိ သိနားလည်ရန်လိအပ်သည်။

ယေကျးမသေဘာကိ လံေလာက်ံေဖာြပထားပါသည်။ ယေကျးမကိ တိင်းရန်စံတစ်ရပ်လိအပ်ပါသည်။

ကမ်းကတ်ရက်စက်မ၊ ိင်းစိင်းမ၊ ကိယ်ချင်းမစာမ၊ တာဝန်မသိတာဝန်မယမ၊ ေလာဘေဒါသမာနတရားတိ ့င့်ဆန့်ကျင်ေသာအရည်အေသွးများကိ စံအြဖစ်ထားအပ်ပါသည်။

ဤစာတမ်းတွင် ယေကျးမသေဘာကိ လံေလာက်ံေဖာြပထားပါသည်။

ယေကျးမကိ တိင်းတာရန်စံတစ်ရပ်လိအပ်ပါသည်။ ကမ်းကတ်ရက်စက်မ၊ ိင်းစိင်းမ၊ ကိယ်ချင်းမစာမ၊ တာဝန်မသိတာဝန်မယမ၊ ေလာဘေဒါသမာနတရားတိ ့င့်ဆန့်ကျင်ေသာအရည်အေသွးများကိ စံအြဖစ်ထားအပ်ပါသည်။

ထိြပကွက်များ၏ပဲ့ြပင်မေကာင့်လိမာယေက်းေသာ လငယ်များ ေပထွက်လာေပမည်။

တစ်စတစ်စင့် ယေကျးမြမင့်မားေသာ တိင်းရင်းသားများကိ စမိလာ ေစမည်။

တိင်းရင်းသားအားလံးယေကျးမြမင့်မာြခင်းသည် ိင်ငံေတာ်အတွက်ရလဒ်ေကာင်း ြဖစ်သည်။

မိမိတိင်းြပည်င့်ယ ေကျးမြမင့်မားေအာင်ကာက်ပီးမ စာတမ်းင့် သင့်ေလျာ်သည့်စံကိ ထားိပါသည်။

ယေကျးမစံင့်ကိက်ညီေသာစာပိဒ်၊ စာအဖွဲများကိ ယေကျးမြပကွက်များဟ၍ သတ်မတ်ပါသည်။

ထိြပကွက်များ၏ပဲ့ြပင်မေကာင့်လိမာယေက်းေသာ လငယ်များ ေပထွက်လာေပမည်။

တစ်စတစ်စင့် ယေကျးမြမင့်မားေသာ တိင်းရင်းသားများကိ စမိလာ ေစမည်။

တိင်းရင်းသားအားလံးယေကျးမြမင့်မာြခင်းသည် ိင်ငံေတာ်အတွက်ရလဒ်ေကာင်း ြဖစ်သည်။

မိမိတိင်းြပည်င့်ယ ေကျးမြမင့်မားေအာင်ကာက်ပီးမ စာတမ်းင့် သင့်ေလျာ်သည့်စံကိ ထားိပါသည်။

ဦးလေဖဝင်း (စေဆာင်းသ) (၁၂၆၂-၁၃၄၄) ၂၂၁

ဦးလေဖဝင်း (စေဆာင်းသ) (၁၂၆၂-၁၃၄၄) ၂၂၁

ယေက်းမမိဘစ်ပါးမာ ဦးရန်ဝင်း၊ ေဒမိမိတိ့ြဖစ်သည်။ ၁၉၁၇ခစ်တွင် ေမာ်လမိင်မိ အစိးရအထက်တန်းေကျာင်းမဆယ်တန်းေအာင်ြမင်ပီး ရန်ကန်ေကာလိပ်၌ပညာဆည်းပးခဲ့သည်။ ၁၉၂၃ခစ်တွင် ရန်ကန်တကသိလ်သိ့ြပန်လည်ဝင်ေရာက်ပီး ဝိဇာတန်းကိပါဠိ၊ အဂလိပ်၊ ဓာတေဗဒဘာသာများတွင်ဂဏ်ထးများရိေအာင်ြမင်ခဲ့သည်။

ဥပဒေဦး (စေတီတော်) (၁၂၆၂-၁၃၄၄) ၂၂၁
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ထမ်းဆောင်ခဲ့ပီး ၁၉၂၅ ခုနှစ်၊ ဇွန်လ ၁၅ ရက်နေ့တွင် မေလးဥပစာေကာလိပ်၌ အတိင်း ဘာသာရပ်များ ဆိင်ရာ ကထိကအြဖစ်ခန့်အပ်ခင်ခံရသည်။ ၁၉၂၇ ခုနှစ်၊ ဇွန်လ ၁ ရက်နေ့တွင် ရန်ကန် တကရိုးသိပ်သိပ်းရပီး ဗီးပါဠိဘာသာနှင့် ဂဏ်ထးတန်းအထိကပ်မတ်ပိုးချေပးရသည်။ ၁၉၂၈ ခုနှစ်တွင် ကာလကတားတကရိုးသိပ်သိပ်းသွားရပီး အလွတ်ပညာသင်အြဖစ်ပါဠိဘာသာကို ြဖဆိရာဂဏ်ထးတန်းပထမဆင့်တွင် ပထမရလျက် ဂဏ်ထးေဆာင်ရတံဆိပ်ချီးြမင့်ခံရသည်။ ကာလကတားတကရိုးသိပ်သိပ်းမဟာဝိဇာဘွဲ့ရိသည်။

ဦးလေဖဝင်းသည် ၁၉၃၆ ခုနှစ်မှ ၁၉၅၇ ခုနှစ်အထိ ဗီးပါဠိဘာသာနှင့် ဗီးပါဠိဘာသာသင်ကားေရးစေသာ စာအပ်များ ရွှေ့သားပစခဲ့သည်။ ၁၉၄၉ ခုနှစ်တွင် ိုင်ငံ့တားအစိုးရက ချီးြမင့်ျသာ သီရိပျံချီဘွဲ့ကိရိသည်။ ၁၉၅၇ ခုနှစ်တွင် ဗီးပါဠိသေတသနဌာနန်ကားေရးဝန်အြဖစ်မအငိမ်းစားယသည်။

ဆရာကီးသည် ဗီးပါဠိစာစီစာကံးကျမ်း၊ ဗီးပါဠိစာစီစာကံးအေြခြပကျမ်း၊ ဗီးပါဠိဘာသာ သင်ကားေရး၊ ပါဠိဘာသာသင်ကားေရးစေသာ စာအပ်များ ရွှေ့သားပစခဲ့သည်။ ဗုဒ္ဓပကာသနီ ကျမ်းကိလည်း တည်းဖတ်ခဲ့သည်။ ဗီးပါဠိသေတသနဌာနအသင်းအတွက် ရာမရကန်ပထမတွဲ၊ ဒတိယတွဲတိ့ကိတည်းဖတ်ပးခဲ့သည်။ ထိပ်မဝမဂဇင်း၊ ဗဝတီမဂဇင်းတိ့၌ ဘာသာစာေပယေကြားမဆိင်ရာဆိုင်ရာများစွာ ရွှေ့သားခဲ့သည်။ ၁၉၈၀ ပည့်စ်တွင် ဦးလေဖဝင်းကို ဗီးပါဠိေကာင်စီကို ဗီးပါဠိေကာင်စီကို ပထမဆင့်ချီးြမင့်ခဲ့သည်။

ဦးလေဖဝင်းသည် အဂလိပ်ဘာသာဖင့် ဗဒစာေပများ ပစေနဆဲ ၁၃၄၄ ခုနှစ်၊ နယန်လန်ယန်း ၉ ရက်နေ့ (၁၉၈၂ ခုနှစ်၊ မေလ ၃၁ ရက်)တွင် ကွယ်လွန်အနိစားရက်သည်။
မြန်မာစိုက်ပ်စာ

မြန်မာစိုက်ပ်စာများကို အပေါ်ကြားရောက်သောစာမျက်နှာပါတီအဝင်များ ဖော်ထားသော စာအုပ်များ၏ ပြုစုမှုများ ဖော်ပြထားသည်။ ရုပ်ပေါင်းချက်များ၏ အစိုးရးများကို ဖော်ပြထားသည်။
"စိတ်ေနသေဘာထားအပါအဝင် ကိယ်အမအရာ သိမ်ိေမွ ြခင်း၊ းညံ့ြခင်းတိ ့င့် တွဲဝင်ယက်စပ်လျက်ိေသာ ယေကျြခင်းပင် ြဖစ်သည်။

ကိယ်အမအရာ သိမ်ေမွ းညံ့ရန်အတွက် စိတ်သေဘာထားသိမ်ေမွ းညံ့ေအာင် ဦးစွာ ေလ့ကျင့် ထားရမည်။

မာအဘိဓာန်၌ "ယေကျြန ဝိ (၁) သိမ်ိေမွေသာအမအရာိေသာ၊ ေြပြပစ်ေသာ (၂) စ်သက်ဖွယ်ြဖစ်ေသာ (၃) တိးတက်ေသာလေနမအဆင့်အတန်းေရာက်ေသာ ယေကျြန န (၁) သိမ်ိေမွေြပြပစ်ေသာတတ်သိလိမ် (၂) တိးတက်ထွန်းကားလာေသာ လမအဆင့်အတန်း (၃)အစအလာအားြဖင့် ထိန်းသိမ်းတည်ိလာေသာ ဓေလ့ထံးတမ်းများ" ဟ၍ ဖွင့်ဆိထားသည်။

ယေကျြစာတမ်းများ၌ Oxford Advanced Learners အဘိဓာန်မကား၍ (၁) ယေကျြတိးတက်ေသာ၊ ြမင့်မာေသာ၊ လသားတိ ့စွမ်းပကား၊ လသားတိ ့၏သပ်၊ စိတ်ဝိဉာတိ ့ကိေလ့ကျင့်ြခင်း၊ အေတွအကံြပြခင်းနည်းအားြဖင့် တိးတက်ဖွံ ဖိးေစြခင်း (၂) လမအဖွဲအစည်းတစ်ခ၏ အပညာ၊ ဝိဇာ၊ သိပံဘာသာရပ်များ၏ ဖွံ ဖိးမြပယဂ်တရား (၃) ြပည်သလထ၏ အသိ ဉာဏ်ကိ တိးတက်ဖွံ ဖိးမ ဟဖွင့်ဆိသည်။

"ယေကျြနာမွန်း၊ ေဒ၊ ၂၀၀၅၊ ၃၁၄။

224 စကားသို့ စကားလေ့လာခံ၍
225 အဘိဓာန် ၁၉၆၆ ဒိုင်၏ ၂၀၁၁
226 culture: Advanced development of the human powers developmented of body mind and script by training and experience.
227 Evidence of intellectual development of arts and Science in human society
228 State of intellectual development among people
229 နာမွန်း၊ ေဒ၊ ၂၀၀၅၊ ၃၁၄။"
အဂလိပ်ဘာသာတွင် civilization ကို culture ဖြင့် အမှန်နှင့်အားလုံးခွဲခြားသော်လည်း မြန်မာဘာသာတွင်ယေကျးမဟသာသံးစွဲကပါသည်။

ဒဂန်ဦးလေဘက–“ယေကျးမဆိတာယေကျးမပဲ။ အဲဒီစကားလားခွဲစွဲခွဲမာအဓိပာယ်အေပည်ပါပါသားပဲ။အင်းဆံးဆိရလင်ယေကျးမဆိတာမိင်းစိင်းဖစ်တယ်။ ိင်းစိင်းဖစ်တယ်ယေကျးမရဲဆန်ကျင်ဘက်စကားဖစ်တယ်။”

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ယေကျးမသည်ကမာေြမမျက်ာပင်င့်အေပည်ိိသမလဟသမတရွရွလပ်းမင်းဆက်စပ်နေလသည်။

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သိဖစ်ပါ၍လသားတွေလပ်ားသမဖစ်ပျက်ပ်သာန်းတွေခံယသမစိတ်သာန်အားလံးင့်ပတ်သက်ရာများအေပမာယေကျးမိက်က်တ်ရမည်။

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(က) ထတ်လပ်သံးစွဲသေသည်ပစည်းများ

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(ခ) ကိယ်တ်ဟန်ပန်အမအရာ

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(ဂ) တန်ဖိးထားပံစနစ်တွင်ရဲစွမ်းသတိခင်းကိချီးကျော်ခင်း၊ ငိမ်းချမ်းရေရာကလိလာခင်း၊ သည်းခံလင်ကိက်လင်းကိချီးကျော်ခင်း၊ ကိယ်ချင်းစာတရားထားလင်ကိချီးကျော်ခင်း၊ စေပါင်းဆောင်ရွက်သစာစာင့်သိလေခင်းစသည်တိ့အေပလိက်၍ကိယ်တ်ဟန်အမအရာ၎င်းဖစ်ပျက်ပျက်လာမည်။

နာမွန်း၊ ဗိ၊ ၂၀၀၅၊ ၃၁၅။

ဉာဏဝံသ၊အင်(ဗိန်း၊)၊ ၂၀၁၁၊ ၂၂၅။

Products

Behavior

Value System
"အေမာင်င့်အလင်း၊ အပင့်အေအးဆိေသာ ဒွန်တွဲစကားများကဲ့သိ့ အိင်းင့် အယသည် အစဒွန်တွဲေနသည်။ အေမာင်မဟတ်လင် အလင်း၊ အလင်းမဟတ်လင် အေမာင်ဖစ်သကဲ့သိ့ လတိ့အဖိ့မာလည်း အိင်းင့်အယ မကင်းေသာသေဘာတိ ့သည် တစ်ခခသာလင်ိရမည်မာ သဘာဝဇာတိြဖစ်ေလေသာေကာင့် လအများသည် ိင်းစိင်းမ သဘာဝများ ဝင်လာြခင်းကိ သတိြပောင်ရမည်။ ိင်းစိင်းမသေဘာ ကပရကတိသဘာဝအတိင်း ိင်းစိင်းလိမ့်မည်။ ယေကျးမသေဘာမာမလသဘာဝိရင်းတရားမဟတ်။ လံ ့လပေယာဂြဖင့် ြပြပင်ထားေသာ (NATURE) လံ ့လပေယာဂြဖင့် ြပြပင်ထားေသာ (CULTURE) စ်မျိးကိခွဲြခားသိရမည်။ ြမန်မာစကားင့်ပီြပင်စွာေြပာရလင် ယေကျးမသည် အသိအလိမာသာဖစ်သည်။ 235
(ကုန်းဘ်း ပင်) စိုက် အရာကို ကူကောင်းကြည့်တွင် ကြာသော့လိုသော့ကြည့် ကြည့်ပြီးသားသော့ကြည့် အခွင့်တီးထားသော့ကြည့် သို့ကည့်အိမ်သော့ကြည့် ဖြစ်သည်။

“သီလမာအားလုံးဖျင့်ပြချင်းဖစ်သည်။ တိရစ္ဆာန်အေလ့အကျင့်ြဖစ်ေအာင် ပြလာသည်ကို အထက်ပါ ဆက်သွယ်မကိ ဤသိကည့်အိက်သည်။”

သီလဟေခသည်။ မြဖစ်ေသးသည်ကိြဖစ်လာေအာင် အထပ်ထပ်လ့ကျင့်မကိသီလဟေခ ိင်သကဲ့သိ လပ်နကျ၊ ြဖစ်ေနကျအြပအမည်စ်ချက်ရပ်စဲသွားေအာင် ြဖစ်ေပမလာေအာင် ေလ့ကျင့်မကိ လည်း သီလဟေခသည်။

“သီလင့်ကိယ်ကျင့်တရားသည် ေကာင်းကျိးဆက်ေနသည်။ အေထာက်အကျင့်ပျက်ြပားေနတဲ့ ေကျာင်းသားတစ်ေယာက်ဟာ ပညာတတ်ဖိ ့ဘွဲေတွ၊ ဒီဂရီေတွရဖိ ့မလွယ်ပါ။ သနဲ ့ထိက်တန်သေလာက်အကျင့်စာရိတ ြပည့်စံပါမပညာတတ်ြဖစ်ိ င်တယ်။ ေကျာင်းသားဘဝမာမးယစ်ေသာက်စားေလာင်းကစားေနမယ်ဆိရင်သက်ဆိင်ရာပညာရပ်ေတွကိတတ်ကမ်းဖိ့မြဖစ်ိင်ပါဘး။ အြပန်အလန်သေဘာအရ ဘွဲရပီးတဲ့ ပညာတတ်တစ်ေယာက်ဟာ သာမန်လမ်းေပကလလိေတွကရာမဟတ်တယတ်ေတွမလပ်ရဲပါဘး။ မိမိဂဏ်ကိထိန်းပီးခိးဝက်မစတဲ့ ဒစိက်မမျိး၊ ေမာင်ခိလပ်ငန်းမျိးကိ 236 အားလုံး မဟာဝိဇာ၊ ဘံေဘ၃၂၂၊ ၁၉၄။

236 စိုက် အရာကို ကူကောင်းကြည့်တွင် ကြာသော့လိုသော့ကြည့် ကြည့်ပြီးသားသော့ကြည့် အခွင့်တီးထားသော့ကြည့် သို့ကည့်အိမ်သော့ကြည့် ဖြစ်သည်။
များသောအားဖင့်ပါဝင်မလပ်ရဲကပါဘး။

d  သိလ်ပညာတတ်အချင်းချင်းရန်ငါးစိမ်းသည်ေတွလိန်ရင်းတဲ့စကားမျိုးပြာပီးအာ်ကီးဟစ်ကျယ်ရန်မြဖစ်ရဲကဘး။

ဆိလိတာဖဿဝါစာမြပာရဲကဘး။

d ပညာဟာသီလစင်ကယ်ေအာင်အေထာက်အပံ့ေပးပံြဖစ်ပါတယ်။

ပညာသည်သီလင့်နီးစပ်ေအာင်ချးကပ်ေပးိင်သကဲ့သိ့ပညာထက်ြမက်လာခင်းိမည်ကိုတွေ့င်သည်။

ပညာထက်ြမက်မအမန်အမားကိုကာင်စွာသိပီးမတမကိတည်ေဆာက်ကာယေကျးမကိုဖာေဆာင်မည်။

လငယ်များသည်ေနာင်အနာဂတ်တွင်ယေကျးမကိတည်ေဆာက်မည့်သများဖစ်သည်။

ထိသများသည်ကသိလ်သီလကိလက်ဝယ်အမဲဆပ်ကိင်ထားလျက်ေနထိင်သွားရမည်။

ထိ့ေကာင့်ကိယ်ကျင့်တရားယေကျးမကိုမွးြမေလ့ကျင့်သွန်သင်လမ်းန်ရန်အေြခအေနင့်ပတ်ဝန်းကျင်ဖန်တီးေပးရာတွင်စာေပသည်အလွန်ထိေရာက်သည်။

နည်းပညာတိးတက်ေသာေခတ်မေရာက်မီကမွန်တိသည်မွန်အစာေပကိုထည်းပီးလငယ်များလိမာယေကျးထက်ြမက်ေအာင်ေမွးြမဖျင့်ကေပမည်။

ယေကျးမြပအဖွဲများစာေပသည်လတိ့၏အြမေတရတနာ၊လတိ့၏အဆီအစ်သဇာ၊လတိ့အြမတ်တိးသိမ်းဆည်းထားသာသည်အဖိးထိက်ေကျာက်မျက်ရတနာ၊လတိ့၏အထးထးအေထွေထွသံးေဆာင်ရာဘာတိကီးင့်တလ၏။

237 မိမိတိ့၏ထီးနန်းဟန်စိးစံအပ်ချပ်သိမ်းြမန်းပိက်ထတ်ပံအဆင့်အတန်း၊မးမတ်ပညာိတိ့၏အဆင့်အတန်း၊သေဌးသကယ်တိ့၏အဆင့်အတန်း၊ြပည်သလထဆင်းရဲသာ့၏အဆင့်အတန်း၊အဆင့်အတန်းနိမ့်ြမင့်ပံ၊ကိးကွယ်သည့်ဘာသာတရာ့ထွန်းကားအံ၊ေမာင်(မဟာဝိဇာ၊ဘံေဘ)၊၁၉၈၂၊၈၈–၈၉။

238 လေဖဝင်း၊ဉီး၊၁၉၅၈၊စကားန်း။
ရွေးတော်တို့ ပေါက်လိုသက်ယူနေသော သိမ်းပို့မှုများ အောက် အလျောက်လိုက်သူကြီး အဖြစ် ပြောပြပါဦး ကျော်ကြားထားသည်မှာ စိက်သေဘာ, အေြခအေန ဘဝသပ်ကို ထိလမျိးတိ့၏ အစားပြဖင့်သာ ဗျဖန်ပိင်းဖတ် အကဲခတ်ိင်ကကန်၏ ။

မွန်လမျိးတိ ယေကျးမသည် မွန်အစားပြ တွင် မွန်လမျိးတိ့ယေကျာင်းကို ပါဝင်သည်။ ဗဒဘာသာ သာသနာင့် ေွာပမ်းရင့်မာခဲ့ပါသည်။ ဗဒဘာသာကိ ယံကည် သက်ဝင်ကိးကွယ်မ ေကာင့် ဗဒဘာသာ၏ သွန်သင်ဆံးမမကိခံယခွင့်ရခဲ့သည်။

“ဘာသာတရားေကာင့် လ့အဖွဲအစည်း၊ ယေကျးတိးတက်လာခဲ့ကိ သမိင်းဆရာကီးများအားလွန် ဟာကားဆံးမမေကာင့် လတိ ကသည် ယဇ်ပေဇာ်မကိ စွန်ခဲ့ကသည်။ လ၊ နတ်၊ ြဗဟာ၊ သတ ဝါအားလွန် ေမတာကဏာစေသာ ြဗဟစိရ်တရားထွန်းကားေသာကာလျဖစ်သည်။”

ထို့နောက် ဗဒ၏လမ်းန်သဝါဒများ ဗဒ၏ဘဝေတာ်စ၅၅၀ ဇာတ်ေတာ်ကီးများတွင် သာသနာင့် အေြခခံသည့်စကားေြပများစွာပါဝင်သည်။ ထိ့ကြား မွန်အစားပြယေကျးမြပကွက်များသည် မွန်တိ၏ ယေကျးမကိြပေနသလိတစ်ဖက်မလည်း မွန်တိ ယေကျးလာေအာင် ြပြပင်သွန်သင်ေပးရာလည်း ြဖစ်သည်။

239 -မာစ္ေ- II
240 မိုး နိုင် (မိုးတော် ဝိဇာ) ဗိုလ် စာရင်း
ဤအရာသည် ယေကျးမြပကွက်များဖစ်သည်ဟူန် ယေကျးမတန်ဖိးဖတ်ပံစနစ်တစ်ရပ်ထားအပ်ပါသည်။

ယေကျးမတန်ဖိးဖတ်ပံစနစ်တစ်ရပ်ကို ပါသည်။
ကန်ပစည်းပိင်းကို ချန်လပ်ပါသည်။

အမအယာ၊ ကိယ်ကျင့်တရားခံယချက်အပိင်းင့်ထိအေကာင်းစ်ချက်အပောပောြခင်းတည်ေသာေဆာင်ရွက်ချက်များအပောနိုင်ငံထားသည်။

ယေကျးမတန်ဖိးဖတ်ပံ စနစ်တစ်ရပ်မာ
(၁) ရဲစွမ်းသတ ိိြခင်း
(၂) ရက်ေရာမ၊ ဧည့်ဝတေကျပွန်မ
(၃) ငိမ်းချမ်းေရာမူ
(၄) သနားကင်နာမ
(၅) သည်းခွင့်လတ်မ
(၆) ေကျးဇာတရားသိမ
(၇) တာဝန်ဝတရားေကျပွန်မ
(၈) ဟီရိသတ ပတရားေစာင့်ထိန်းမ
(၉) ကိယ်ချင်းစာတရားိမ
(၁၀) စေပါင်းေဆာင်ရွက်မ

241 ယေကျာ်ဝင်း (မဿ–), ၂၀၀၅, ၂၅။
(၃) ဗညာ၏ စောင်သောက်မောင်စာမျက်နှာတွင်သည်:

မြန်မာဘာသာစာမျက်နှာသံးပါးအေပ်ယံကည်းခင်း

ယေကျးမကိ ဗညာဘာသာ၏အဆံးအမင့် ေမာ်ကွန်းစတင်ခဲ့သည့်
မဟာသက  ရာဇ် ၁၀၃ ခုစီ တေပါတေဗာ (တဖဿ၊ ဘလ် ိက)
ကန်သည်ညီေနာင်ကိေအကာင်းြပ၍ သိဂတ  ရကန်းေပ၌ေရတိဂံေစတီကိတည်ပီး
သာသနာ့ေအာင်လံစိက်ခဲ့သည်။

d) တေပါတေဗာင့် ေရတိဂံ ဘရားအေကာင်းစကားေြပ၌
“တေပါတေဗာညီေနာင်တိ ့သည် ဆံပင်ဓာတ်ေတာ်ကိရိက၍ ကတ်ြဖင့်
ထည့်ပီး မိမိတိ ့ေနရာ လြပန်ယသွားပီး သိဂတ  ရကန်းေတာ်၌ ေစတီတည်ပီး
မွန်ဘာသာြဖင့် ကျိက်လဂံ (တိဂံ)
ဘရားဟ အမည်တွင်၏။

မွန် လမျိးတိ ့သည် မိမိကိယ်မိမိ လွန်စွာဂဏ်ယကေသာ
အေကာင်းအရာတစ်ရပ် မာေဂါတမြမတ်စွာ ဘရားကိ ဦးဦးဖျားဖျား
ဖျားခဲ့ရသည့်လမျိးြဖစ်သည်အြပင် ေလးဆဓါတ်ပံ ေရတိဂံေစတီေတာ်ြမတ်ကီးကိမားမားမတ်မတ်
ကားကားဝင့်ဝင့် ဂဏ်ယေလးြမတ်ဖွယ်ရာ
တည်ေဆာက်ထားိင်ြခင်း ြဖစ်သည်။

242 ပည်ေထာင်စ၏ကျက်သေရေဆာင် အထွတ်အြမတ် ေစတီတစ်ဆမာ
ြမန်မာြပည်ေထာင်စ၏ ယေကျးမအေဆာက် အဦပင်တည်း။

ထိအရပ်၌ ထက်ဝယ်ဖွဲေခွေနေတာ်မကာ အဘိဓမာခနစ်ကျမ်းကိသံး
သပ်ဆင်ြခင်၍ ပာန်းကျမ်းြမတ်ခင်မိချိန်၌ –

၂၄၂ အမှန်တကယ် သင်ကြားချက်၊ သင်ကြားမတ်တမ်းမတ်ရာ ြဖစ်သည်။
မွန်ဘရင်မင်ေစာပင့် ဗညာဦးတိ လည်း ေရတိဂံ ဘရားြပြပင်မွမ်းမံမများ
ြပခဲ့သည်။ သာသနာ့ ယေကျးမြပကွက် ြဖစ်သည်။

ြမတ်စွာ ဘရားြဖစ်သည်။
ကန်၏ ဝဲယာကန် ့လန်ေဖင့်အရပ်ေလးမျက်ာ၊ အရပ်စ်မျက်ာအနစကာဝဠာသိကွန်ြမးေြပးသွားကကန်၏။

အထက်ပါတန်ခိးြပကွက်များလတိ့မျက်ြမင်ဒိ့ြမင်ေတွရေသာအေကာင်းသည်။ ဘရားင်သည်လသားဧကန်ြဖစ်သည်။ သိ့ေသာ့ေသာလသားတိမတတ်စွမ်းိင်သည်ေသာ့ေသာအံ့မခန်းသည့်အမများကိစွမ်းိင်သည်။ လသားတိစိတ်ကိလမ်းမိးိင်သြဖစ်လာသြဖင့် ဗဒ၏သဝါဒကိလည်းလိက်နာလာကသည်။ ကည်ညိသဒါတရားပွားများသည်ေကာင့်သာသနိကအေဆာက်အဦများြပြပင်မွမ်းမံမများ၊ သာသနာမေပျာက်ပျက်ေအာင်အားထတ်မများ ိလာသည်။ သာသနာအသက်ဝင်နမ ဒစိက်လွင့်စင်ကာငိမ်းချမ်းမည်။ ထိသိ ေသာဖြာ်ြပချက်များသည်သာသနာရးဆိင်ရာယေကျးမြပကွက်များြဖစ်သည်။

ဓမေစတီမင်းအေကာင်း၌ဓမေစတီမင်းကိနန်းတင်ခဲ့သမာင်စာပြဖစ်သည်။ ဓမေစတီမင်းငယ်စကတည်းကရဟန်းဝတ်ခဲ့သည်။ ဘရင်မျိးိးမဟတ်သည်ေကာင့်မးမတ်ေသနာပတိများသေဘာတမရရန်ခဲယးစွာအားထတ်ခဲ့ရသည်။ သာသနာမင်းြဖစ်ေသာေကာင့်အဖိးထိက်တန်ေသာအကျိးအြမတ်ိခဲ့သည်။

"ထိမင်းလက်ထက်၌ သာသနာအလွန်စင်ကယ်၏။ မွန်မင်းဆက်တိ့တွင် ဓမေစတီမင်းက�့သိ ့သာသနာကိကည်ညိသမိပါ။" ဓမေစတီမင်းသာသနာိေသကိင်းိင်းသက်ဝင်ယံကည်မကိေဖာြပသည်။

သီဟိဠ်ကန်းကလျာဏီြမစ်၌ ရဟန်းသစ်ခံယေသာရဟန်းေတာ်တိ့သမတ်အပ်ေသာသိမ်ကိကလျာဏီသိမ်ဟေခသည်။ ကျိက်ပွန်ဘရားကိတည်သည်။ ဝါရီဓမသတ်ကိ ဘာသာြပန်ေစသည်။ ဓမေစတီမင်းအဆံးအြဖတ်ကိလည်းေရးသားခဲ့သည်။

"ဓမေစတီမင်းလက်ထက်ထက်ေစာပီးေရးသားေသာသာသနာဝင်ကျမ်းသည်မွန်၌လည်းေကာင်း၊ မိေသးပါ။ . . . ဓမေစတီသံးပါးင့် ဗဒအေပိေသကိင်းိင်းြခင်းသည်ယေကျးမြပကွက်ြဖစ်သည်။"
(၂) စည်လံးညီွတ်စွာေဆာင်ရွက်ြခင်း

စည်လံးညီွတ်စွာေဆာင်ရွက်ြခင်း ဂဏ်ကျးဇးအေကာင်း စကားေြပ ကဓမဇာတ် အဲကျ်းစကားေြပ (ကဓမဇာတ်)

ကက ိပင် နတ်သား ဘရာေလာင်းကအြခားနတ်သားငယ်များအားအပင်ကျိးတိးကျဲတဲိရာမေနက အပင်ကီး အရိပ်ေကာင်း အပ်စကီးရာကို

ေရွးချယ်ေနထိင်ရန်မာကား၏ သိမ ေလမန် တိင်းအရာယ်ကို တာင့်ခံိင်မည့်အေကာင်း င်းြပသည့်စကား၌ "ေလြပင်းမန်တိင်းကျေလေသာ် ရွာထဲလယ်ထဲသစ်ပင်တစ်ပင်စ်ပင်တိသည်မာကား အပင်အရွက်တိကလည်း ထထဲအပ်ဆိင်း၊ ြခံွယ်တိကလည်း အချင်းချင်းဆွဲငင်ချည်ောင်ထားကကာ တစ်ပင်င့်တစ်ပင်အမီသဟဲိကသြဖင့် တစ်ပင်မကျိးြပတ်လဲပိသွာြခင်းမိပါ။" တစ်ပင်င့်တစ်ပင်ချည်ောင်၍ ြခံွယ်ကီးများင့် သစ်ပင်ကီးများ၊ ေတာအပ်ကီးများအကာအကွယ်ေကာင့် အင်အားစကီးြဖစ်ကာ ေလြပင်းဒဏ်မကင်းေဝးကသည်။ ညီွတ်ြခင်းရလဒ်ြဖစ်သည်။ ညီွတ်ြခင်းတရားသည် မိမိတိ တွင် အားထတ်ြခင်း၌လည်း လံြခံမေပးသည်။ ညီွတ်ြခင်းိေသာအရာကိ အားထားမီခိြခင်းသည်လည်း လံြခံမရယိင်သည်။ အချင်းချင်းမသင့်တင့်၍ ပျက်စီးရြခင်းအေကာင်း (သေမာဒမာနဇာတ်) စကားေြပ ၎င်းတိကမဆိးက ကွန်ပစ်၍ဖမ်းယ၏။ ဘရားေလာင်းငံးမင်းကငယ်သားများအားစည်းလံးညီွတ်မခိင်မဲကလင်အသက်ေဘးကလွတ်မည့်နည်းလမ်းကို ေြပာြပသည်။ လိက်နာကသြဖင့် အသက်ေဘးကလွတ်ခဲ့ကသည်။ ဘရားေလာင်းေပးေသာ နည်းလမ်းအတိင်း ငံးများ၏ ညီွတ်စွာ ေဆာင်ရွက်ြခင်းသည် ယေကျးမြဖစ်သည်။ လ ့ပတ်ဝန်းကျင်အသွင်င့် ထင်ဟပ်ကည့်လင်အချင်းချင်းတွဲလက်ညီွတ်ခိင်မဲကလ မည်သည့် ေဘးရန်မျိးမဆိကံကံခံရင်ဆိင်ိင်သည်။ ြမန်မာိင်ငံလွတ်လပ်ေရးသည်လည်း တိင်းရင်းသားလမျိးများစည်းလံးညီွတ်မကိအေြခခံပီး ရခဲ့သည်။ ြမန်မာ့တိင်းရင်းသားလမျိးများ၏ အကီးမားဆံး ယေကျးမြပအဖွဲ ြဖစ်သည်။
၃ကိယ်ကျိးမင်းေဆာင်ခင်းသတစ်ပါးကိင်းညာြခင်းအကာင်း (အမဇာတ်)
စကားေြပ၌ေွရာသီပြပင်းလွန်းေသာေကာင့်ေရခမ်းေြခာက်ကန်သြဖင့်တိရစာန်အေပါင်းေသာက်ေရမရြဖစ်ကားနှင့်တိရစာန်တိ့၏ခင်းဆင်းရဲကိြမင်၍သနားြခင်းကဏာြဖစ်ရကားသစ်ပင်တစ်ပင်ကိလည်းမမ။
ေသာက်ေရြဖည့်ေပးေန၏အာဟာရနည်းသြဖင့်ရေသ့လည်းပင်ပန်းေလ၏။
ရေသ့ေကာင့်ေရေသာက်ရေသာေကျးငက်တိရစာန်အေပါင်းတိသည်ရေသ့အတွက်သစ်ဥကီးငယ်ကိြပ်ပါးကြခင်းြဖင့်ေကျးဇးဆပ်၏။ရေသ့အားလားအတွက်ပါးလာက်ငသြဖင့်အားလံးတရားအားထတ်ိင်၏။
“သနားြခင်းေကာင့်ချမ်းသာသခကိရေစသည်။ေကာက်ရွံထိတ်လန့်ဆင်းရဲဒကိုစိင်းမကေပးပီးချမ်းသာသခကိယေကျးမထံမရိသည်။ထိ့ေကာင့်သနားညာတာြခင်းအမများသည်ယေကျးမြပအဖွဲများြဖစ်သည်။အများအကျိးကိေဆာင်လိုသာဆအားေစ့ေဆာ်သည်။”

ငယ်သားအကျိးေဆာင်ေသာေမျာက်မင်းအကာင်းဂဂါြမစ်ထဲေမျာသွားေသာသရက်သီးမည့်ကိေြခရာခံပီးေရာက်လာကသည့်ဘရင့်တပ်မေတာ်ရဲမက်များင့်မဆိးအေပါင်းလက်တွင်းမအသက်လွတ်ရာလွတ်ေကာင်းကိကံေဆာင်ေသာေမျာက်မင်း၏ေဆာင်ရွက်ချက်မာစံြပြဖစ်သည်။

ေမျာက်မင်း၏ခံယချက်ကိ–
“မင်းကီးသတဝါတိ့ကိကယ်တင်လိုက်ငါမင်းြပသည်။သတစ်ပါးကိကယ်ဆယ်ရ၊
သတစ်ပါးအကျိးစီးပွားကိေဆာင်ရ၊
သတစ်ပါးအတွက်အသက်စွန့်ရံမင့်ငါ၏အလိဆမြပည့်ဝေသးပါ။
မတင်းတိမ်ိင်းသးပါ။
မင်းြပြခင်းသည်သတဝါတိ့ကိဒကေပးဖိအတွက်မဟတ်ပါ။
သတဝါတိ့၏အကျိးစီးပွားေဆာင်ရန်အတွက်ြဖစ်သည်။”
၅) စာချက်အမှတ်ချက်ခြင်း

စာချက်အမှတ်ချက်ခြင်း စာချက်အမှတ်ချက်ခြင်းတွင် မိမိအသိအမှတ်သစ်အခြေခံအတွက် အသိအမှတ်ချက်ခြင်းဖြစ်သည်။

စာချက်အမှတ်ချက်ခြင်းကို စာချက်အမှတ်ချက်ခြင်းအဖြစ် စာချက်အမှတ်ချက်ခြင်းတွင် မိမိအသိအမှတ်သစ်အခြေခံအတွက် အသိအမှတ်ချက်ခြင်းဖြစ်သည်။

"စာချက်အမှတ်ချက်ခြင်းကို စာချက်အမှတ်ချက်ခြင်းအဖြစ် စာချက်အမှတ်ချက်ခြင်းတွင် မိမိအသိအမှတ်သစ်အခြေခံအတွက် အသိအမှတ်ချက်ခြင်းဖြစ်သည်။

စာချက်အမှတ်ချက်ခြင်းကို စာချက်အမှတ်ချက်ခြင်းအဖြစ် စာချက်အမှတ်ချက်ခြင်းတွင် မိမိအသိအမှတ်သစ်အခြေခံအတွက် အသိအမှတ်ချက်ခြင်းဖြစ်သည်။

စာချက်အမှတ်ချက်ခြင်းကို စာချက်အမှတ်ချက်ခြင်းအဖြစ် စာချက်အမှတ်ချက်ခြင်းတွင် မိမိအသိအမှတ်သစ်အခြေခံအတွက် အသိအမှတ်ချက်ခြင်းဖြစ်သည်။
(၅) ပညာိသေတာ်ေကာင်းင့်ေပါင်းြခင်း၊ အတယြခင်း ပညာိလည်းကန်သည်ေခါင်းေဆာင်ပညာမဲ့လည်းကန်သည် ေခါင်းေဆာင်အေကာင်း ဘီလးတိပရိယာယ်ကိသိေသာေခါင်းေဆာင်တပည့်အေပါင်းအသက်မလွတ်ပီးပညာမဲ့ ေခါင်းေဆာင်တပည့်အများဘီလးအစားခံ၍အသက်ဆံးရသည်။ ပညာိလည်းကန်သည်က “ဘရာေလာင်းသည် ြမင်လင်ြမင်ချင်း ဘီလးမန်းသိသည်။ ဤကာရ၌ ေရမိ။ နိဒကကာရမည်၏။ ဤသသည်အ ေကာက်အလန် ့မိ၊မျက်ေထာက်နီသည်။ အရိပ်လည်းမထင်။”ဟ ဘီလးဧကန်စင်စစ်ြဖစ်ေသာခန့်မန်းသိသည်ပညာကိ တွရသမိမိင့်တကွတပည့်အားလံးအသက်င်ခွင့်ရခဲ့သည်။ ပညာိေခါင်းေဆာင်ကား ငယ်သားများအတွက်လံြခံေအးချမ်းမကိုပးိင်သည်။ မဟာဇနကမင်းအေကာင်း၌သေဘာပျက်ချိန်တွင်သများနည်းတငိေက်ရင်းအချိန်မကန်ေစဘဲနတ်ပေဇာြခင်းထက်ေထာပတ်သစ်ကိသကားင့်နယ်၊ ဝစွာစား၊ ခိင်ခန့်ေသာ ပဆိးစ်ထည်ကိ ဆီဆွတ်၊ မဲစွာဝတ်ရာလင်းယတိင်ထိပ်မခန်ချသည်။ ေနညမြပတ်ဇွဲြဖင့်ကးခတ်သည်။ ေနညလွဲညစာောင်ပီးဥပသ်ေစာင့်သည်။ မဟာဇနက၏လံ ့လ၊ သီလင့်ဉာဏ်ပညာယတွဲမိေသာကာလမိမိအသက်ကိအကျးအကပ်ထဲမိပောင်ခဲ့သည်။ ပညာိြခင်း၊ ပညာိင့်ေပါင်းေဖာ်ြခင်း၊ ပညာိအာင်အားထတ်ြခင်းတိသည်အကျိးစီးပွားကိသာြဖစ်ေစေသာေကာင့်ယေကျးမြပအဖွဲြဖစ်သည်။
(လ)အ缅甸အစည်းအဝင်တွင် အတူတူ

သို့သော် သုံးနှုန်းရာတွင် ဗျည်းထူးခြင်း အာနီးစားချက်များ ကျင်သည်။ အရေအလာများသို့ သော ကျင်သူများသည် အခြေခံချက်များ ရွေးချယ်သည်။ ချင်းချင်း ချင်းချင်းသော လူများအတွက် သုတေသနအတွက် မိမိစားရန်အလိုင် သစ်သီးချိန်ကိမင်း၊ အစိုးရစာမစားရသေဖ်းပင်ပန်းနပ်ပါလျက် တိရစာန်တိုက်အတွက် ရေသ့ခင်ကိသာလပ်သည်။ တိရစာန်တိုက်ေဖာ်က်ငေသာသစ်သီးပြပြီး ဗျည်းဆပ်သေဖ်းထားပါလျက် အစိုးရစာမပရဘဲ ရေသ့ချင်းအေပါင်းတရားဘာဝနာအလပ်လပ်ိင်ကေလသည်။ တိရစာန်ေဖာ်က်ငေသာ သို့သော် သို့သော် ဆပ်သေကာင်းကိြပိင်ေသးလင်လတ်ဖြစ်သည်။

ဂတိလေစာင်းသမားစကားဖြင့် ဆရာစားမချန်ပညာကန်ဖြစ်သာ ဆရာကိတပည့်ကပိုင်ရန်စိမ်းချသည်။ ခွန်အားကြီးရွယ်ေသာတပည့်အား ံးမည်ကိက်သေဖ်း ဆရာကိေကာင်းကံသည်။ နတ်တိ့ကဆရာဘက်ကညီသေဖ်း အိင်ရခဲ့သည်။ ဗျည်းဆရာကိနတ်တိ့ကမစ်သက်ေကာင်း၊ ဗျည်းကျာန်ဒကိရ်ေဖာ်သည်။ ဆရာကိပိင်ေသာတပည့်စကားဖြင့် ဆင်အတတ်ကိုင်အစင်သင်ဖြစ်သည်။ ဆရာ့အဖိတ်တပည့်အားအိင်ယရန် သင်ခန်းစာအသစ်ကိုညတွင်းချင်းေပ်ပိုင်ဆင်၍ပိုင်ပွဲဝင်ရသည်။ အိင်ရခဲ့သည်။ မင်းသားမ်းခိးစားခင်းအေကာင်းစကားေြပ၌ မိမိ၏ဆရာကိရန်းငိးဖွဲေသာ မင်းသားဘရင်ေဖစ်လာေသာအခါ ဆရာအားသတ်ေစဟရန်းဖွဲေလသည်။

“မင်းကီးအားက်ပ်သာမဆံးမခဲ့ပါက ယခကဲ့သိ့ေသာစည်းစိမ်ရိင်ပါအံ့နည်း။” အနဂိဏ်းဝင်ဆရာများ၏ဗျည်းကိသာအေကာင်းစကားေြပာဆိြခင်းတစ်ေယာက်စကားတစ်ေယာက်နားမာမခါးရေအာင်သတိေဆာင်၍ ဗျပြာင်တိကျာသိ ချိလေစဟပေတ ာဝါဒဆံးမစာ၌ညတွင်းချင်းေတွရသည်။ ယေကျးလိမာရန် လငယ်တိ့အား ဆိံးမေသာစကားဖစ်သည်။

(လာ)အခြွန်အခြွန်တွင် သုတေသန

သို့သော် သုံးနှုန်းရာတွင် သောကြောင့် ဆိုလျော်သောနှုန်းများ သို့သော် သော ကျင်သူများသည် အခြေခံချက်များ ရွေးချယ်သည်။ ချင်းချင်း ချင်းချင်းသော လူများအတွက် သုတေသနအတွက် မိမိစားရန်အလိုင် သစ်သီးချိန်ကိမင်း၊ အစိုးရစာမစားရသေဖ်းပင်ပန်းနပ်ပါလျက် တိရစာန်တိုက်အတွက် ရေသ့ခင်ကိသာလပ်သည်။ တိရစာန်တိုက်ေဖာ်က်ငေသာသစ်သီးပြပြီး ဗျည်းဆပ်သေဖ်းထားပါလျက် အစိုးရစာမပရဘဲ ရေသ့ချင်းအေပါင်းတရားဘာဝနာအလပ်လပ်ိင်ကေလသည်။
သူကိုကူးကိုချောင်းကိုးကောင်း၌ ွားလိမာအေကာင်း၌ ွားငယ်ကိုငယ်စကတည်းက ယာဂုံကိုမွးခဲ့သောပဏား၏ေက်စီကိုဆူလိုဖင့် တစ်စကားထားသောလည်းတစ်ရာကိုဆွဲိင်းေကာင်းေလာင်းေကးထပ်သည်။ေလာင်းေသာေန၌ပဏားက –
‘ေက်က်ကျစ်သောွားသွားေလာ့၊ ေက်က်ကျစ်သောွားဝန်ကိုဆာင်ေလာ့’
ဟူသောအသံပေး၏။ ထိစကားကိကားသောွားကမကိုက်သြဖင့် ဝန်မိုးေဆာင်၊ လည်းမဆွဲေန၏။
ပဏားးး၏။ ေနာက်တစ်ကိမ်ပိင်ပွဲ၌ပဏားက –
‘ငါတွေ့သောွားသွားပါေလာ့’
ဟူသော် ွားသည် တဟန်ထိးေြပး၏။ သာယာချငံစွာေြပာဆိြခင်းကိလတင်မဟတ်၊ ွားပါစ်သက်သည်။
လ့ေဘာင်ေလာကအတွက်အေရးကီးေသာကိစရပ်ဟိဖစ်သည်။
ေလာဘရမက်ကီးေသာရွဲကန်သည်အေကာင်း၌ ေက်က်ကျစ်သင့်ိးေြဖာင့်သတိကိုဆေတိုက်သည်။ စကားေြပာဟန်ကွဲသည်။ ေက်က်ကျစ်သကမိမိရွဲကိလည်းမပးလိုမိုးေပးလိုက်လည်း မေပးလိုက်ရလိေသာမတရားေလာဘေကာင့်ခိမ်းေြခာက်သံြဖာင်၏။ မိးေြဖာင့်သောရွဲကန်သည်ကမမန်ကန်ေသာစကားကိချိသာစွာဆိကာေဒါသကင်းေသာအမအယာြပမ၏။ ေဒါသ၊ ေလာဘ၊ ေမာဟိုကိုကါးကိုသည်ကံသံးပါးအမအယာသည်က မ်းတမ်းိင်းစိင်းရွှေ့စိတ်ေကာင့်သည်သာယာချငံယေကျးသိမ်ေမွ မသည်ယေကျးမကိုသိသည်။
ယေကျးေသာလငယ်များကိုမွာထတ်ပဲ့ြပင်ရာတွင်–
‘ဒစိက်ောင်သစိက်ေဆာင်၍ လိမာယေကျးေအာင်ပဲ့ြပင်ဆံးမရမည်။’
ပဲ့ြပင်ဆံးမမေကာင့်အသိကယ်လာေသာ်လည်း–
‘အသိသည် အသိသာ၊ ကိယ်ကျင့်မဟတ်။ သိတိင်းမကျင့်လင်းသိေနံြဖင့်အကျိးမရ’
243 နေုင်ညာအခါတိုင်း ဌာန ၁၄၃၃
မည်သည့်အရာသည် ဒစိက်၊ မည်သည့်အရာသည် သစိက်ဟကွဲြပားစွာသိထားရန်၊ ဘာသာရေရးအသိအလိမာိထားလင်ပိေကာင်း၏ကေလးဘဝကတည်းကထိအသိကိသွတ်သွင်းေပးေပါင်လင်ပိေကာင်း၏။

"လတစ်ေယာက်၏ပထမခနစ်စ်ကငါတိ့အားေပးပါ။ခနစ်စ်အရွယ်ထိဘာသာရေရးအသိတရားေတွကိသင်ကားဆံးမပီးရင်အနာဂတ်အတွက်ငါတိ့ဘာမမစိးရိမ်ေတာ့ဘး" 244

ဟာဘာသာရေဆရာများကဆိမိန်ဖဦသည်။ထိ့ေကာင့်၅၅၀ဇာတ်ကိလငယ်များင့်ရင်းေစသင့်သည်။

ဗဒဘရားင်၏သွန်သင်ေပးသည့်ဆံးမသဝါဒများသည်သစိက်ေကာင်းများေပးေပါင်သည်ဟဆရာကီးေမာင်ခင်မင်က–

"ကိယ်တိင်ကျင့်ကံအားထတ်လိစိတ်ေပရန်၅၅၀ဇာတ်တိ့င့်နီးစပ်ေစရမည်" ဟဆိသည်။

အထက်ပါယေကျးမစံများ၌ေလ့ကျင့်ေနထိင်သွားပါကငိမ်းချမ်းေရးကိေတွရမည်။ြမန်မာ့ပည်ေထာင်စသားများသည်ငိမ်းချမ်းေရးလိလာကသည်။

သီဟာသနပလင်အနီးတွင်ထားေသာေလာကနတ်ပ်ကသက်ေသြဖစ်သည်။

ေလာကနတ်ပ်သည်ငိမ်းချမ်းေရးအတွက်အေစာင့်အောက်ြဖစ်သည်။

တိမ်ွန်တိမ်လာတိ့ကိအစာအလိငာလစားရင်းခိက်ရန်ြဖစ်ပွားကေသာဆင်ပျံင့်ြခေသ့ပျံတိ့ကိေလာကနတ်ကကိယ်စားအသံြပသည်။

ငိမ်းချမ်းသဖစ်လၷေဘာင်ေလာကကိပိင်ဆိင်ရန်ယေကျးမစံများင့်အညီေနထိင်သွားကရန်လိအပ်သည်။

ြခံငံသံးသပ်ချက်ဆရာကီးဦးလေဖဝင်းစေဆာင်း၍င်ဝါယမတည်းြဖတ်ထားေသာမွန်လမျိးတိ၏"မွန်အစာေပွန့်ေပါင်း"မာမွန်ဘာသာြဖင့်ိေနပါသည်။

ြမန်မာဘာသာြပန်ဆိယေသာအခါမွန်ဝါကျဖွဲထံးင့်ြမန်မာဝါကျဖွဲထံးတိ၏သဘာဝြခားနားမေကာင့်အခက်ကံရသည်။

စာေပမင်းတင်မွန်၊ ဗျာဒ်တာ၊ ၁၉၆၉၊ ၅။

244 သာဟောင်းကျောင်းဦးလေး အချက် ၃၄၉
အေကာင်းအရာအေနင့် လငယ်များ အကျင်သီလ ေကာင်းလာအေအာင် ဆံးမြခင်းသာ ဖစ်ပါ သည်။ မည်သည့်အရာ ဒစိက်၊ မည်သည့်အရာ သစိက်ဟကိဲပားသိထားရန်အတွက် ဘာသာရေးအသိအလိမာိ့ထားလင်အလွန် ေကာင်းသည်။ ဘာသာရေးအသိအလိမာများကိ ဂဒစိုပြဖစ်သည်၏ ၅၅၀ ဇာတ်တွင်သည်။ မွန်အစာပမစကားေပအများစမာ ၅၅၀ ဇာတ်ကိအေခခခံသည်။ စာခေရည်ယ်ချက်များမာလငယ်များယေကျးလိမာရန် အကျိးမာသည်ကိေတွရသည်။ ယေကျးမအနက်သေဘာင့် ယသည်ေကာင််ယေကျးမစနစ်ဖြင့်တိင်းတာြဖစ်ခင်းဖစ်သည်။ သမိင်းမတင်မီေခတ်မစ၍ ယေန ပိင်အဆင့်ဆင့်မှုးမည်မားလာေသာ ယေကျးမမတ်တိင်များကိကုန်ခင်းဖင့်လသားတိင်းသည်မိမိတိ့လမျိးယေကျးမြမင့်မားရန်အေရးကိစကိအားထတ်ေနကသည်။ ေရးသားပစေသာစာပများတွင်အအလရသအလကာတန်ဆာဖင့်ပည့်ဝေနသည်။ သာဓကအကိးအကားအေနဖင့်ထတ်ဖင့်အဖွဲအချိသည် စာယများဟခံစားကည့်ိင်ေသးသြဖင့် စာပယ်ယေကျးမမတ်တိင်ဟလည်းဆိိင်သည်။ အနာဂတ်ဆာလငယ်လရွယ်များ ယေကျာလ့ေဘာင်ကိတည်ေဆာက်ိင်ရန်ေလ့ကျင့်ေပးရန်လိအပ်သည့်အေကာင်းအရင်းမာလင်တိင်း၏လ့စွမ်းအားအရင်းအြမစ်ဖွံဖိးမသည် ယေကျာမေဖာြပသာခဲ့ပါ။ မွန်လမျိးဟသည် ယေကျာဟူသောလက်ဆပ်လက်ကိင်ဖင့် စရာိေအာင်ကိးစားသောလမျိးဖစ်ကြားကိမီ "မွန်အစာပမွန် ့ေပါင်း"မယေကျာမ ြပကွက်များကအေထာက်အထားခိင်မာစသည်။
နိဂံးမွန်လမျိးတို့သည်မိမိတို့မျိုးဆက်သစ်များလိမာယေကျေအာင်လမ်းွန်ြပရာတွင်ဂဒ၏အမာအကားကိလက်ဆင့်ကမ်းလျက်စာေပြဖင့်ယေကျေစသည်။စာေပအရးအသားအဆင့်အတန်းမင့်၍ေြပာင်ြမာက်သာအရးအဖွဲများအကာင်းကိစကားမဆံမကံ၍မတင်ြပသာပါ။သတိထုထမ်းခံယမအဆင့်မင်းကိတွေထွက်လာသေသာစာေပအဆင့်အတန်းအလွန်မင်းသည်ကိတစ်ပါတည်းလ့လာတွလိက်ရပါသည်။မည်သိစိတ်ဓာတ်ခံယမအဆင့်မင်းကိတွေထွေဖွားမွန်လမျိုးများ၏ေလးစားဖွယ်ယေကျေစမကတစ်စိတ်တစ်ပိင်းကိဖာ်ထတ်ိင်ခဲ့ပါသည်။

ကျမ်းကိးစာရင်းမြန်မာဘာသာဝင်း(မဿ)-၂၀ဝ၅မြန်မာ့ယေကျာမတန်ဖိးထားပံစနစ်များစာတမ်း၊ယေကျာလိမာမျိုးမြန်မာ(ပထမအကိမ်)ရန်ကန်၊ယမင်းစာေပ။ဇနကာဘိဝံသ၊အင်။၂၀ဝ၆ကိယ်ကျင့်အဘိဓမာ(သတရသမအကိမ်)အမရပရ၊နယားဘားမားပိဋကတ်။ဉာဏဝံသ၊အင်(ဗိန်း)။၂၀၁၁မွန်လမျိုးစာေပယေကျာမင့်ဘာသာစကား၊ရန်ကန်၊ကမာေအး။နာမွန်း၊ဒ။၂၀ဝ၅မြန်မာနယ်ပယ်အတွင်းသပ်ပျက်ယေကျာမများထိုဖာက်ဝင်ရာက်လာမင်းကးစက်ပျံမအေပသံးသပ်ချက်စာတမ်း၊ယေကျာလိမာမျိုးမြန်မာ။ရန်ကန်၊ယေကျာမဝန်ကီးဌာန။မင်းတင်မွန်၊ဒ။၁၉၆၅လိမာယေကျာရင်းသွာ။

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မှားစွာ (အိန္ဒိယ) မှားစွာ ပေးထားသောစာလုံးကို ကြားမိုးဖို့ဆိုရင် ဗျားနှင့် ကြည့်ရှုလျှသောစာလုံးကို
အဖွဲ့အစည်းဖြင့်

collection

လုပ်ငန်းပြုခြင်း

ဗိုလ်ချုပ်မှူးကြီး

(သော်လိုအဖွင့် ဝါဒိုး)

ညီလောင်း အမွေအနှစ်

သူမှာ ဗိုလ်ချုပ်မှူးကြီး နောင်လောင်း

(သော်လိုအဖွင့် ဝါဒိုး)

ညီလောင်း အမွေအနှစ်
သို့မဟုတ်မီးသားများအား အနောက်ဖွဲ့စည်းပြီး အပြုလောင်စာ သတ်မှတ်ပေးသော တိုင်းပြည်နယ် ဗုဒ္ဓဟူးအဆောက်အဦးများ ၏ အစိုးရပါအားလုံးအား ဖော်ပြပေးသည်။

ဗုဒ္ဓဟူးအဆောက်အဦးများသည် ဗုဒ္ဓဟူးအဆောက်အဦးများအတွက် မြန်မာဘာသာပြန်လည်ပိုင်း ချုပ်ရှင်များကို ဖော်ပြသည်။

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င်ြပမဂလာပွဲများကိကျင်းပေစလိေသာဆြဖင့် ဤစာတမ်းကိရးသား ြပစအပ်ပါသည်။

နိဒါန်းြမန်မာ့ေရးရာယေကျးမနယ်ပယ်တွင် ဘာသာေရးင့်ပတ်သက်ေသာ ပွဲေတာ်များစွာ ိပါသည်။ ကဆန်ေညာင်ေရသွန်းပွဲ၊ ဝါဆိပွဲ၊ ဝါကတ်ပွဲ၊ ကထိန်ပွဲစသည့် ြဖင့် ရာသီအလိက်ပွဲေတာ်များစွာ ိသည့်အနက် င်ြပမဂလာပွဲသည် အေရးပါဆံးင့် အတွင်ကျယ်ဆံး ပွဲေတာ်တစ်ခ ြဖစ်ပါသည်။

ဘရားင်လက်ထက်တွင် သားေတာ်ရာဟလာမစတင်ခဲ့ေသာ င်နပွဲသည် အေသာကမင်းလက်ထက်တွင် တွင်ကျယ်လာခဲ့ပီးယေန ့ေခတ်တွင်ကား သားေယာက်ျားေလး ေမွးဖွားလာသည့် မိဘတိင်းအတွက်မြဖစ်မေနြပလပ်လာကေသာ ပွဲတစ်ခ ြဖစ်လာခဲ့ပါသည်။

ြမန်မာ့ေဘာင်တွင် သားေယာက်ျားေလးေမွးဖွားလာပါက မိမိတိ့သားအား င်သာမေဏြပ၍ သာသနာ့ဒါယကာအြဖစ်ခံယလိေသာကီးမားသည့် ဆသည် မိဘတိင်းတွင် ဖစ်ေပေလ့ိကပါသည်။

ထိ့ေကာင့် မိမိတိ့ကိးစားာေဖွရိသမတိ့ကိ မိမိသားအားင်ြပေပးရန်အတွက် ကိတင်စေဆာင်း ြပင်ဆင်ေလ့ိ ကပါသည်။

ယခင်ေးကာလကဆိလင် မိဘတိ သည် သားေယာကျ်ားေလးများကိ င်ြပေပးံမသာမက ရဟန်းခံေပးပီးမသာ မိဘဝတရား ရားြပည့်စံေကျပွန်သည်ဟယဆခဲ့ကပါသည်။

ရဟန်းြပမေပးရေသးေသာ သားေယာက်ျားေလးကိ အိမ်ေထာင်ြပခွင့်မေပးပဲ ရဟန်းခံပီးမသာ အိမ်ေထာင်ချေပးေလ့ိကျပါသည်။
ထိုများဦးစွာင်းြပထားပါ၍

၁. ဘရားလက်ထက်င်ြပခင်းစတင်ပေပါက်လာပံင့်ပတ်သက်၍ င်ြပြခင်းဟအဓိပါယ်ရသည့်ပဗဇာဟေသာပါဠိေဝါဟာရ၏အနက်ကိေးဦးစွာင်းြပ၍ င်ြပြခင်းစတင်ပေပါက်ခဲ့သောရာဟလာဝတကိကိကားတင်ြပထားပါသည်။

ထိုးနာက်တွင်ရာဟလာဝတမအကျယ်ဖွင်းလင်းရမည့်အချက်များကိတစ်ချက်ြခင်းဖွင့်ဆိသံးသပ်လ့ိပါသည်။

၁.၁ ပဗဇာဟေသာပါဠိေဝါဟာရ ဗဒသာသနာေတာ်တွင်သာသနာ့ေဘာင်သိဝင်ေရာက်ရာ၌ပဗဇာင့်ဥပသမဒါဟ၍အဆင့်စ်ဆင့်ပါသည်။

ပဗဇာဟသည့်င်သာမြပြခင်းကိအသက်၂ဝမြပည့်ေသာသများြပလပ်ေလ့ိပါသည်။

ပဗဇာဟသည့်ရဟန်းြဖစ်၍အသက်၂ဝြပည်မသာရဟန်းြဖစ်၍ရပါသည်။

ပဗဇာ၏အနက်ရင်းသည်'သွားြခင်း'ဟအဓိပါယ်ရ၍အိမ်ယာတည်ေထာင်လိ ့ေဘာင်မအိမ်ယာမတည်ေထာင်ေသာရဟန်းဘဝသိသွားြခင်းဟအနက်ဖွင့်ဆိိင်ပါသည်။

ပဗဇာဟေသာ ေဝါဟာရကိပါဠိြမန်မာအဘိဓါန်၌င်အဖွင့်၊ရဟန်းအဖွင့်၊င်ရဟန်းြပြခင်းဟဖွင့်ဆိထားပါသည်။

ကစည်းသဒါကီး၌မကားပဗဇာဟသည်တရားအားမထတ်ခင်(ေးဦးအလင်ကပ်ေရာက်ထိက်ေသာ)

ပါဠိ၁၄၄၂

၂၄၅ မှာ အများကြီးဗူး ဒီ။
ဝဇ်ကိကာိက်ကိယာယုပစည်းပါကြားချောင်းပါသည်။အချပ်အားဖင့်ဆိရေသာ်ပဗဇာဟေသာေဝါဟာရသည်သာမေဏရပဗဇာကိကိယ်စားပြီးတစ်စ်အကာ၌ကပိလဝတ်ပည်သိကိုနိေြဂာဓါံကြက်တိက်သီတင်းသုကာဉ်ကောင်းတွင်သီတင်းသာများရပါသည်။

င်သာမေဏြပြခင်းဟအစရာဟလာကွာရာင်သည်ဘရားဖစ်ပီးတစ်စ်အကာ၌ကပိလဝတ်ပည်သိကိုနိေြဂာဓါံကြက်တိက်သီတင်းသာများရပါသည်။

သီတင်းသံးျနံပါးကောင်းတွင်သီတင်းသာများရပါသည်။

ဘရားအေလာင်းဘဝကကင်ရာတာဖစ်ခဲ့သာဟေသာဓရာေဒဝီသည်သားေတာ်ရာဟလာအား"ဤရဟန်းသည်သင်၏ဖခင်ဖစ်၏အေမွေတာင်းချေလာ့ဟခိင်းျစ်ျရာမိန်းေေသာ်ျမှင်းပါေလာ့ဟဆိလျက်ဘရားင်၏ေနာက်မထပ်ချပ်မကွာလိက်၏။

ထိအခါဘရားင်သည်ေနရာမထုကေတာ်မေသာအခါရာဟလာမင်းသားသည်"က်ပ်အားအေမွေပးပါေလာ့ဟဆိလျက်ဘရားင်၏ေနာက်မထပ်ချပ်မကွာလိက်၏။

င်သာရိပတရာက'အဘယ်ကဲ့သို့င်းပေပးရမည်နည်းဟေမးေလာက်၏။

ထိအခါဘရားင်သည်သရဏဂံသံးပါးဖင့်င်သာရိပတရာကမိန်းေတာ်မခဲ့ပါသည်။
၄။ ရဟန်းတိချေပးသည့်အတိင်း သရဏဂံ သံပါကိ

ဌာနကိဏ်းကျကျ ပီပီသသသံးကိမ်တိင်တိင်ရွတ်ဆိရမည်။ ေနာက်ဆံးအပိင်းသည် င်ြပြခင်း၏အဓိကအကျဆံးင့်အေရးပါဆံးအပိင်းဖစ်သည်။ ထိသိရာဟလာကိင်ြပေပးလိက်ေသာအခါ သေဒါဒနမင်းကီးေရာက်လာပီးေနာက် ဘရားင်အားိေသစွာိခိး၍ ဆတစ်ခေတာင်းလိေကာင်းေလာက်ထားသည်။ ဘရားင်က "ဘရားင်တိမည်သည်ဆေပးင်းမလွန်မာကန်၏" ဟမိန်ကားခဲ့၏။ ထိအခါ မင်းကီးကတပည်ေတာ် ေတာင်းလိေသာဆမာသင့်ေလျာ်ေသာ၊ အြပစ်ကင်းေသာဆြဖစ်ေကာင်းေလာက်ထားသည်။ ထိအခါ ဘရားင်ကမင်းေလာက်ခွင့်ြပခဲ့ရာ မင်းသည် ေးဦးစွာ 'ဘရားင်ရဟန်းြပေသာအခါ အတိင်းမသိေသာ ဆင်းရဲြဖစ်ခဲ့ရပါသည်။ နမင်းသားရဟန်းြပေသာအခါ၌လည်း အတိင်းမသိေသာ ဆင်းရဲြဖစ်ခဲ့ရပါသည်။ ရာဟလာမင်းသားရဟန်းြပေသာအခါ၌ကားထိထက်ပိလွန်ေသာ ဆင်းရဲြဖစ်ရပါသည်။' ဟေလာက်ထားပီးေနာက် 'သား၌ြဖစ်ေသာချစ်ငင်းသည် အေရပါး၊ အေရထ၊ အသား၊ အေကာ၊ အိးတိကိဖတ်၍ ိးတွင်းချ ဆီကိထိ၍ တည်ိပါ၏' ဟေလာက်ထားပီးေနာက် 'မိဘခွင့်မြပေသာသားကိင်ြပမေပးရန် ေတာင်းပန်းလိေဆာခဲ့သည်။ ထိ ့ေနာက် 'သား၌ြဖစ်ေသာချစ်ငင်းသည် အေရပါး၊ အေရထ၊ အသား၊ အေကာ၊ အိးတိကိဖတ်၍ ိးတွင်းချ ဆီကိထိ၍ တည်ိပါ၏'

246 အီးနီချစ် = အီးနီ + ချစ်
ဗိဒါယာတစ်ယောက်က ပိုလွဲပညာရေးသားသူတစ်ဦးကို သင့်တွင်အားလုံးသာသွင်းပေပါရန် လွှဲထား၏။

ထိုအခါ ပိုလွဲပညာသားသူတစ်ဦးကို ယူဆက်ထားသော်လည်း ဘရားင်အားလွန်လာ၊ စွမ်းရည်၍ ရဟန်းတစ်ပါးက ပြည့်သင်္ဘောသားများသောအခါမှာ ရဟန်းပြုခွင့်ရှိသည်။

247 မိမိဆံးမသွန်သင့်တာအတွက်ကို ရဟန်းပြုခွင့်နှင့်ဟမိန်းထားသည်။

248 အံမိုး၊ ၁၊ ၁၇၁ ။
ထို့ကြောင့် စိုးစံသည် ဘရားင်သည် ဘရားင်ဖစ်ပီး တစ်စ်ကာမသာ ဇာတိဖစ်သည်

ကပြိလဝတ်ပည်သိ့ကေရာက်ခဲ့ခင်းဖစ်ပါသည်။

ယေသာဓရာသည် ဘရားင်အားဖြမင်ရေသာအခါ သားတာရာဟလာအားအမွေတာင်းခိင်းရြခင်းအကာင်းင့်ပတ်သက်၍ လ့လာသံးသပ်တင်ပရေသာ ဘရားင်၏ဖွားဖက်တာခနစ်ပါး ိရာယင်းတိ ့မာ ယေသာဓရာ၊ အာနာမင်းသား၊ ဆအမတ်၊ ကာဠဒါယီ၊ ကကြမင်း၊ ဗာဓိပင်င့်ရာအိးကီးလံးတိ ့ဖစ်ကပါသည်။

249 ထိနစ်ပါးအနက် ဗာ့ပါးဘေဏာသည် ဘရားင်ဖွားတာမေသာအချိန်တွင် နန်းတာအတွင်းအလိအေလာက်ပေပါက်လာ၍ ဘရားင် ေတာထွက်တာမေသာအခါ အလိအေလာက် ေပျာက်ကွယ်သွားပါသည်။

250 ထိရွအိးကီးလံးတိ ကမြေဘရားင်ဖွားတာမေသာအချိန်တွင် ဘရားေလာင်းင့်အတပါသွားသည်ဟမတ်ယဟန်ပါသည်။

251 ထိနစ်ပါးအနက် ဗာ့ပါးဘေဏာသည် ဘရားင်ဖွားတာမေသာအချိန်တွင် နန်းတာအတွင်းအလိအေလာက်ပေပါက်လာ၍ ဘရားင် ေတာထွက်တာမေသာအခါ အလိအေလာက် ေပျာက်ကွယ်သွားပါသည်။

249 စာစုတစ်ခု၏ ပြောချက်နှစ်ခု
250 စာစုတစ်ခု၏ ပြောချက်နှစ်ခု
251 စာစုတစ်ခု၏ ပြောချက်နှစ်ခု
အားလုံးထူးမှုဖြစ်သည်ဟုမျှော့်ကြားရာ၌ မဟာဗဒဝင်တိုက်ပံ့ (၁၈) အခန်းတွင် ဖြားပါသည်

ထိကိုရင်းအပ်ပါသည်။ သံုးကိုကိုကို သိလိုသေသာဆိဟန်တပါသည်။ လတ္တိများသည်အချင်းအချင်း၊ ဥစာအစိုးရသံုးကိုကိုဖတ်ကြသော်လည်း သားသမီးထဲကို ထားပါသည်ကြည့်ကြည့်လည်း သံုးကိုကိုကိုမျက်ရည်ကျခဲ့ရွေးသည်။

ဘရာဦးလာမှာသားစားဟလာအပ်မှုထဲကို ဖြေရှင်းထားသည်။ ဘရာဦးသည် သားစားကိုကိုထိမ်းထားေရာက်ကည့်ပါသည်ကြည့်ကြည့်လည်း သံုးကိုကိုကိုမျက်ရည်ကျခဲ့ရွေးသည်။

ဘရာဦးစီးတော်မင်းသား၏ အနေဖြေကို ပြုလုပ်ချက်ခဲ့ပါသည်။

ဘိုးစီးတော်သိဒါဒနမင်းကို 'ရာဟလာ' မှ 'ရာဟအသရိမ်င့်'တော်တွင် ဖြေရှင်းထားခဲ့ပါသည်။

ရာဟလာလည်း ဘရာဦးသည် သားစားအစိုးရကိုကို ဖြေရှင်းထားသည်။
ယေဘုယ်လိုအောင်မှန်ကန်သောစိုးရိမ်၊ ၎င်းကိုသတ်မှတ်ထားသောအခွှင့်များကို စိတ်ခံစားချက်များကိုဖော်ပြသည်။ သို့သော်လည်း အပိုင်းအစိတ်စာရင်းတွင် ဖော်ပြချက်မှာမဟုတ်ပေ။ သို့သော်လည်း ကောင်းမှုကန်ကို ရှာဖွေပါသည်။ သို့သော်လည်း ကောင်းမှုကို ဖော်ပြပါသည်။

မိမိနိုင်ငံသားများကို စိတ်ခံစားချက်များကို ဖော်ပြသည်။ အခြေခံချက်တွင် ရှင်းလင်းစေချင်သည်။ ထို့ကြောင့် ရာဟလာအား ရဟန်းပေပီပြသည်။ ထို့ကြောင့် မည်သိ့မြပန်လည်မိန်းခင်းမိဘဲျက်းသောကြားသည်။

မိမိပိုင်ဆိုင်သောသာသနာများကို ဖော်ပြသည်။ ထို့ကြောင့် ရာဟလာအား ရဟန်းပေပီပြသည်။ ထို့ကြောင့် မည်သိ့မြပလပ်ရမည်ကိုဖော်ပြသည်။

မိမိပိုင်ဆိုင်သောသာသနာများကို ဖော်ပြသည်။ ထို့ကြောင့် ရာဟလာအား ရဟန်းပေပီပြသည်။ ထို့ကြောင့် မည်သိ့မြပလပ်ရမည်ကိုဖော်ပြသည်။
လံးဝမိေသးေကာင်းထင်
ားပါသည်။

ထိ ့ေကာင့် 'င်ြပြခင်းအစ
ရာဟလာက ဟ ေြပာစမတ်ြပကပါသည်။

င်ြပပံအဆင့်ဆင့်တွင်ေနာက်ဆံး
အပိင်းြဖစ်ေသာ
သရဏဂံသံးပါကိ
န်ကိဏ်းကျကျ
ပီပီသသသံးကိမ်ရွတ်ဆိြခင်းသည်
အေရးကီးဆံး
အဓိကအပိင်းဟဆိထားေသာေကာင့်
သရဏဂံသံးပါးကိပီသစွာမရွတ်ဆိ
င်ေသးပါက င်သာမေဏြပ၍
မရေကာင်းမတ်သားရပါသည်။

ရာဟလာအား
င်သာမေဏြပေပးလိက်ေသာအခါ
ဖခင်ေပးလိက်ေသာအေမွများြဖင့်
ြပန်လာမည့်
ရာဟလာကိေစာင့်ေမာ်ေနေသာ
သေဒါဒနမင်းကီးမာ
ပရိေဒဝမီး
ကီးစွာေလာင်ခဲ့ဟန်
တပါသည်။

ထိ ့ေကာင့် ဘရားင်ထံသိ ့ချက်ချင်းေရာ
က်ိလာပီး
ဆတစ်ခ
ေတာင်းလိေကာင်း
ေလာက်ထားခဲ့ရာ
ဗဒဘရားင်တိ ့သည်
ဆေပးြခင်းမအလွန်ေြမာက်ကန်၏ဟ
မိန် ့ကားခဲ့ြခင်းသည်
ဗဒဘာသာ၏အေြခခံအစ်သာရြဖစ်ေသာ
ကမဝါဒကိေပလွင်ထင်ား
ေစပါသည်။

င်ြပာစမတ်ြပကပါသည်။

ရာဟလာအား င်သာမေဏြပေပးလိက်ေသာအခါ
ဖခင်ေပးလိက်ေသာအေမွများြဖင့်
ြပန်လာမည့်
ရာဟလာကိေစာင့်ေမာ်ေနေသာ
သေဒါဒနမင်းကီးမာ
ပရိေဒဝမီး
ကီးစွာေလာင်ခဲ့ဟန်
တပါသည်။

ထိ ့ေကာင့် ဘရားင်ထံသိ ့ချက်ချင်းေရာ
က်ိလာပီး
ဆတစ်ခ
ေတာင်းလိေကာင်း
ေလာက်ထားခဲ့ရာ
ဗဒဘရားင်တိ ့သည်
ဆေပးြခင်းမအလွန်ေြမာက်ကန်၏ဟ
မိန် ့ကားခဲ့ြခင်းသည်
ဗဒဘာသာ၏အေြခခံအစ်သာရြဖစ်ေသာ
ကမဝါဒပင်ြဖစ်ပါသည်။
သေဒါဒနမင်းကီးသည် ဘရားင်အားမိမိေတာင်းလိေသာဆကိ ဦးစွာမေတာင်းဆိဘဲ သို့ခဲ့ပြီး သေဒါဒနမင်းကီးသည် သားေတာ်နမင်းသားရဟန်းြပေသာအခါ ကီးစွာေသာေသာကပရိေဒဝေတာက်ေလာင်ခံစားခဲ့ပြီး နမင်းသားင့်ပတ်သက်၍ အချိကားနမင်းသားကိ င်အာနာဖြင့် လွဲမားတတ်ကပါသည်။ နမင်းသားသည် သေဒါဒနမင်းကီးင့်မိေထွးေတာ်ေဂါတမီတိ ဖွားမင်ခဲ့သော ဘရားင်၏ညီအရင်းဖစ်သည်။ ဘရားင်ဖွားေတာ်မပီးသည်င့် သီက်အကာတွင် ဖွားေတာ်မခဲ့ပါသည်။ ပဇာပတိေဂါတမီသည် သားရင်းနမင်းသားကိအထိန်းေတာ်တိ အပ်င်း၍ ဘရားေလာင်းကိကိယ်တိင်ြပစေကးေမွးခဲ့ပါသည်။ င်အာနာသည်ကား သေဒါဒနမင်းကီး၏ညီေတာ်အမိေတာဒနမင်းကီး၏သားေတာ်ြဖစ်၍ ဘရားေလာင်းင့်ညီအကိတစ်ဝမ်းကွဲေတာ်စပ်ပါသည်။ နမင်းသားင့်ဇနပဒကလျာဏီမင်းသမီးတိ ထိမ်းြမားမဂလာဆင်ွဲေသာေန ့၌ပင်လင် ဘရားင်ကေရာက်လာပီး နမင်းသားအားမိမိ၏သပိတ်ကိကိင်ေဆာင်၍ ေနာက်မလိက် လာေစပီး ေကျာင်းေတာ်သိ ့ေရာက်ေသာ် နမင်းသားအားရဟန်းြပေစ၏။ နမင်းသားသည်လည်း ဘရားင်အား အလွန်ိေသေလးစားေသာေကာင့် ရဟန်းြပရန်ဆမိေသာ်လည်း ေနာင်ေတာ်ဘရားင်၏ဆအတိင်းရဟန်းြပခဲ့သည်။

258 ဂဒဝင်၊၃၊၁၂၉။
259 ဝိ၊၄၊၃၃၈။
ပိမိြပင်းထန်ေသာ ကပရိေဒဝမီးေတာက်ေလာင်ခဲ့သည်ဟောက်ထားသည်ကို ထောက်ခင်းအားဖင် သားများထက်မြေမှားကိပိ၍ချစ်ခင်တွယ်တာတတ်သေသာအဖိးတိ့၏ချစ်မတ်း ပလွင်စပါသည်။ ထောက်ပါအေကာင် သားအချစ်ြမ်းအစ်ဟေသာြမန်မာဆိိးစကားိခဲ့ပါသည်။ ထောက်ပါအေကာင် သေဒါဒနမင်းကီးသည် သားသမီးတိ့အေပထားိေသာမိဘမတ်သည် အေပယံပါ ပလွင်စရန် 'အေရထ၊ အေရပါး၊ အသား၊ အေကာ၊ အိးတိ့ကိြဖတ်၍ ိးတွင်းချဆီတိင်ေအာင်တည်ပါသည်' ဟုဉပစာဂဏ်ြမာက်စွာဖွဲ့ကားတိ့ကိြဖတ်၍ ိးက်ထားခဲ့ပါသည်။ သေဒါဒနမင်းကီးသည်မိမိလိရာဆကိတိက်ိက်မေတာင်းဘဲ သလိေသာဆိကိေဘရားင် ပဲလိေသာဆြဖစ်ေပလာစရန်မိဘတိ့၏ေသာကင့်မိဘတိ့၏ချစ်မတ်းတိ့ကိ းဦးစွာ ပလွင်ထင်ားေအာင်ေလာက်ထားပီးမသာသလိချင်ေသာဆကိေတာင်းခံခဲ့င်းအားဖင် မင်းကီး၏စကားပရိယာယ်ကယ်ဝပံကိေတွေြမင်ပါသည်။ ဘရားင်သည်မင်းကီး၏ေလာက်ထားပံေကာင်းမွန်ခင်းေကာင့်မိဘတိ့၏ေသာကင့်ချစ်မတ်းတိ့ကိ ညာတာေသာအားဖင့် မင်းခွင့်မြပေသာ သားကိင်ြပမေပးရဟေသာဝိနည်းကိချမတ်ေတာ်မခဲ့ပါသည်။ ထောက်ပါအေကာင်စိတ်ေသာကခံစားရမည်ဆိပါက မေကာင်းမမဆိထားင့်အလွန်မတ်ေသာင်ြပြခင်းအမကိပင်မြပလပ်သင့်ေကာင်း သင်ခန်းစာရိစပါသည်။
သာဝတ ိပည်သိမ်သေရာက်သောအခါ ဒါယကာတစ်ဦး၏ တာင်ပန်မကာင့် င်သာရိပတ်ရာ သည် ဘရားင်အား ရာဟလာအြပင် ေနာက်ထပ်တစ်ဦးထပ်မံ၍ င်ပေပးခွင့် ဖိမိုလောက်ထားခဲ့ခင်းကိကည့်ခင်းအားဖင် င်သာရိပတ်ရာ၏ တပည့်ကာင်းပီသပံ၊ ဆရာဖစ်သ ဘရားင်၏ခွင့်ပါချက်မိဘဲမည်သည့်အမကိမ်မြပလပ်တတ်သြဖစ်ကိလည်း ကည်ညိဖွယ်ရပါသည်။

၂. အေသာကမင်းကီးလက်ထက်င် ြပြခင်း၏အေရးပါပံ အေသာကမင်းကီးသည် ဘရားင်ပရိနိဗာန်စံပီး (၂၁၈) စ်အကာ၌ မင်းြပခဲ့သြဖစ်၍ ဘွဲ့တာ်အြပည့်အစံမာသိရိဓမာေသာကမင်းဖစ်ပါသည်။ အေသာကမင်းကီးသည် မင်းဖစ်စတွင် အလွန်ကမ်းတမ်းသားဖစ်ခဲ့၏။ မိမိင့်မိခင်တေသာ ညီအရင်းတိဿတစ်ပါးတည်းကိ သာချန်ထားပီ ညီ(၁ဝဝ)ကိသတ်ေစခဲ့သြဖစ်သည်။

မိမိ၏ိင်ငံသဇာကီးမားေရးအတွက် စစ်ပွဲေပါင်းများစွာကိဆင်ွဲေစခဲ့သြဖစ်ေသာေကာင့် စာေသာကမင်းဟ၍ပင်အမည်တွင်ခဲ့ပါသည်။ ထိအေသာကမင်းကီးသည် ကလိဂစစ်ပွဲအပီးတွင် လများစွာသေသကပျက်စီးခဲ့ကေသာ အနိားကိြမင်၍ သံဝဂရကာသာသနာြပမင်းတစ်ပါးအြဖစ် ေြပာင်းလဲလာခဲ့ပါသည်။

အေသာကမင်းကီးသည် အေသာကာရာမကျာင်းကိ ေဆာက်လပ်လဒါန်းခဲ့ပီး ေခာက်သေသာင်းသီရိဓမာေသာကမင်းတိ ့အား ေနသစပစည်းေလးပါး ေထာက်ပံ့လဒါန်းခဲ့ပါသည်။

ဂဒေဟာကားခဲ့သေသာ ဓမခာေပါင်း၈၄ဝဝဝကိ ရည်စးပေဇာေသာအားဖင့် ေကျာင်းေပါင်း၈၄ဝဝဝ၊ ေစတီေပါင်း၈၄ဝဝဝ၊ ပိဋကတ်ေတာ်အစံေပါင်း၈၄ဝဝဝ၊ ေရတွင်းေပါင်း၈၄ဝဝဝ င့် ေရကန်ေပါင်း၈၄ဝဝဝစသည့်တိက တည်ေဆာက်ေတာ်မခဲ့ပါသည်။
မြန်မာစာအမှတ် ၁၄၅၃ ပါးစပ်ရာဇဝင်တွင်မဲ့ရတွင်ဖြစ်းစွာရှိထားကားပါသည်။ ထိပို့ကမင်းကီး၏ထင်ားသမိင်းမတ်တိင်ကီးတစ်ခမာတတိယသဂါယနာတင်ပွဲကီး၏ဒါယကာအြဖစ်ဖြစ်ပါသည်။ သဂါယနာတင်ပွဲအပီးတွင်ကိးတိင်းကိးဌာနသိ့သာသနာပေစလွတ်ခဲ့သောကိုသာသနာအိိယြပည်၏ပေပမိင်ငံများသိသားေရအားလုံးစွာေဆာင်ရွက်ခဲ့ခင်းဖစ်ပါသည်။ အေသာကမင်းကီးသည်ထိသိကီးများကိြပလပ်ပီးဖြစ်သောအခါင်မဟာေမာဂလိပတတိဿမေထရ်အား 'တပည့်တာသည် ဤမကီးကျယ်ဖြစ်သောအလဒါနများကိြပခဲ့ပါသည်းမိန်းလား'ဟူချို့မိုးေလာက်ထားခဲ့ပါသည်။ ထိအခါင်မဟာေမာဂလိပတတိဿမေထရ်ကပစည်းများကိမည်မပင်လဒါန်းသော်လည်းပစယဒါယကာဖစ်ရာြဖစ်၍သာဦ့နာ့ဒါယကာအြဖစ်မခံယထိက်မိမိ၏ရင်၌ဖစ်သောသားကိေသာ်လည်းေကာင်း၊ကိတ ိမသား(သိ့မဟတ်)သတစ်ပါး၏သားကိေသာ်လည်းေကာင်းင်သာမေဏြပေပးမသာလင်သာသနာ့ဒါယကာအြဖစ်ခံယထိက်၏ဟုကားခဲ့ပါသည်။ ထိအခါအေသာကမင်းကီးသည်သားေတာ်မဟိင့်သမီးေတာ်သံဃမိတိ့အားရဟန်းဖြပေပါသည်။ ထိအခါသားေတာ်င့်သမီးေတာ်တိ့ကရဟန်းဖြပေက၏ေလာက်ထားကိုရှိသည်။ ဤသိဖင့်သားေတာ်မဟိသည်မဟာေရဝတမေထရ်ကိုဥပဇာယ်ဖြစ်ရာမိန်းကားခဲ့ပါသည်။
သမီးသားသံမိတသည်လည်းဓမပါလိေထရီကိုပြောသောအတွင်းသိ့ဝင်ရောက်ခဲ့သည်။

အထက်ပါကဲ့သိ့အေသာကမင်းကီးသည်မိမိ၏သားင့်သမီးကိင်ြပေစြခင်းဖင့်သာသနာ့ဒါယကာဘွဲ့အဖစ်ခံယခဲ့ခင်းကိုအားကျအတယကာမန်မိဘတိ့သည်မိမိတိ့၏သားများ၊သတစ်ပါးတိ့၏သားများကိုသာသနာ့ေဘာင်အတွင်းသွင်း၍သာသနာ့ဒါယကာအဖစ်ခံယခဲ့ကပါသည်။

ထိကဲ့သိ့င်ြပေပးရာ၌သားယာက်ျားေလးများကိသာမကသမီးမိန်းကေလးများအတွက်နားထွင်းမဂလာကိပါယတွဲ၍ကျင်းပကြခင်းသည်လည်းအေသာကမင်းကီးကစံနမနာြပလပ်ခဲ့သည့်အတိင်းအတယြပလပ်ကြခင်းပင်ဖစ်ပါသည်။

ထိကဲ့သိ့ဘရားင်လက်ထက်တွင်အစြပခဲ့သေသာငင်သာမော်လာခင်းသည်အေသာကမင်းကီးေကာင့်ပိမိတွင်ကျယ်ထင်ားလာခဲ့သည်ဟဆိလင်မားိင်ဖွယ်မိပါ။

ယေန့ခတ်င်ြပမဂလာပွဲကျင်းပပံယခေခတ်ဗဒဘာသာြမန်မိသည်သားသမီးများဖွားြမင်ပီးေနာက်င်ြပနားသမဂလာကိမြဖစ်မေနမြဖစ်မေနပါယတွဲကသည်ကိြမန်မိင်ငံအံ့အြပားတွင်ေတွိိင်ပါသည်။

ေနရာေဒသကွဲြပားခင်းတိင်းရင်းသားလမျိးကွဲြပားခင်း၊ေငွေကးတတ်ိင်မကွဲြပားခင်းတိ့ေကာင့်ြပလပ်ပံြပလပ်နည်းများကွဲြပားမည်ဖစ်သာလည်းမိမိတိ့၏သားသမီးများကိ၏၂၆၀ဝင်၉ဝင်၊၂၊၈၂၈။
ဗဒသာသနာေတာ်အတွင်းသွတ်သွင်းခင်းဟေသာအစ်သာရကားအတတပင်ဖစ်ပါသည်။

အလေပလပ်ပံတွင်မိပြအလင်ကြက်ခွဲချင်းိင်ပါသည်။

မိပြအလများတွင်လည်းကားချမ်းသာခင်း၊ဆင်းရဲခင်းကြက်အေကးအေမွး၊အတီးအမတ်များကွာချင်းသည်မလွဲ၍ြပလပ်ပံမကြားေပါ်တတ်ကပါ။

မိပြမဥစာဓနကယ်ဝသများသည်ကားင်ြပနာသမဂလာကိယခအခါသိန်းထားရှင်းကြားချင်းအကန်အကျခံ၍ြပလပ်တတ်ကပါသည်။

ဗုဒ္ဓပြစားးေဆီးဇော်ကာပြကွာေသာဇာတ်များအားပင်ဖိတ်၍အလတရားပွဲများြပလပ်တတ်ကပါသည်။

ထိအလတရားပွဲများမတိင်မီရက်တွင်အချိအလများခမ်းနားကီးကျယ်၍မီးေရာင်စံများဖင့်အလဆင်ထားသောမပ်ကီးများကိေဆာက်လပ်ပီးထိမပ်တွင်သံဃာေတာ်များအားလမည့်အလပစည်းများကိမိင်ဆိင်စွာခင်းကျင်းြပသထားပါသည်။

ဗုဒ္ဓပြအလများတွင်တညီသောအချက်များကားအလဝင်နတ်တွင်အလလည်းခင်း၊အလဝင်ညဆိင်းဝိင်းဖင့်ဧည့်ခံခင်း၊အလနံနက်ခင်းတွင်ေကဴေမွးဧည့်ခံခင်း၊ဘိသိက်ပွဲကျင်းပြခင်းင့်င်ြပြခင်းတို့ပင်ဖစ်ကပါသည်။
ဗင်ကျမားစွာအကန်ကျခံကာလပလပ်လ့ိကပါသည်။ အလလည်း၏ဗိုလ်တွင်ကန်တားပွဲကားထားပါသည်။ ထိန်းတွင်မပန်း၊ ပါက်ပါက်၊ ပိက်ဆံကဲသာအမျိးသမီး၊ ဆိင်းဘတ်ကိုစ်ဦး၊ တံခွန်ကကိုးကိုအမျိးသားများအစိုးရာပါရပါမည်။ ထိအမျိးသမီးများဗိုလ်တွင်လပသည်ဟယဆရေသာအမျိးသမီးများကိုရွာချယ်ထားသားပိဋကသံးပံးကိုင်၊ ဗိုလ်ကန်၊ သကန်းကီးကိုင်၊ ဗင်ဖလားကိုင်အမျိးသမီးများကလပစွာြပင်ဆင်ကာလည့်လည်ကပါသည်။ ထိအမျိးသမီးများဗိုလ်တွင်လဘွယ်ဝတွေငွများကိုယပ်တာင်တွင်သီ၍ကိုင်းဆာင်ထားသားအမျိးသမီးများလိက်ကရပါသည်။ ထိအမျိးသမီးများဗိုလ်တွင်ကားပ်ရည်လပံမသာမကမိစံဖစံိြခင်း၊ မိဘများကလည်းတစ်လင်တစ်မယားြဖစ်ြခင်း၊ အေနအထိင်ပိရိလိမာြခင်း၊ ကာဣေြ◌္ဒင့်ပတ်သက်၍ြပစ်ချက်မိြခင်း၊ မျိးိးြမင့်ြမတ်ြခင်းစသည့်အရည်အချင်းတိ့င့်ြပည့်စံေသာဖက်စိမ်းကွမ်းဗိုလ်ကိုင်အမျိးသမီးများက 261 က နေရာကိုးရာသီ၍ကိရိယာကိုင်းတန်းစီ၍လည်းကပါသည်။ ထိကွမ်းဗိုလ်ကိုင်များဗိုလ်တွင်မသာအလဒါယကာသည်သပိတ်လွယ်ရာရှိရာကားလည်းကားမသည်းငွဖလားကိုင်ရာလည်းကားလိက်ပါကရပါသည်။ အလဒကာင့်အလာအမေနာက်တွင်ဗိုလ်ရင်းဆာင်ဟေသာဇနီးဗိုလ်းအတွဲများတန်းစီ၍လိက်ကပါသည်။ ထိေမာင်ရင်းဆာင်များသည်များဗိုလ်ထားအားဖင့်အလင်တိ့၏ဗိုလ်ရင်းများဗိုလ်ဖစ်ကပါသည်။ ထိေမာင်ရင်းဆာင်အတွဲများဗိုလ်တွင်င်းများသံးရန်သံသတ်သတ်အိပ်ယာလိပ်များရွက်ထားသားခင်ခင်ထး၊ မအိမ်ကံ။
သက်လတ်အရွယ်အမျိးသမီးများလိက်ကပါသည်။

ထိအမျိးသမီးများေနာက်တွင် ြမင်းစီးပီး ေရထီးေဆာင်းထားေသာ
ေမာင်ရင်ေလာင်းများင့် နားထွင်းများစီးလည်းေသာယာများကတန်းစီလိက်ကပါသည်။

ဤသည်ကား သာမန်အလတစ်ခ၏စီတန်းလည့်လည်သည့် အစီအစြဖစ်၏။

အလွန်ချမ်းသာ ကယ်ဝေသာ သတိ ့သည်ကား ထိအစီအစ၏ေတွင်မင်းညီမင်းသား ဝတ်စံများင့် ေဝင်းကိလည်းေကာင်း၊ ေနာက်တွင်ေနာက်ဝင်းကိလည်းေကာင်းထည့်သွင်းလည့်လည်တတ်ကသည်။

ထိေဝင်းေနာက်ဝင်းတွင် ဘရင်င့်မိဖရား၊ မင်းညီမင်းသားများ၊ အပျိေတာ်များ၊ အိမ်ေစံမင်းသားင့် အိမ်ေစံမင်းသမီးတိ ကြားထည့်သွင်းလည့်လည်တတ်ကသည်။

ထို့အြပင် ပဂံအဝတ်အစားများဝတ်ဆင်ထားေသာ ပဂံဝင်းဟ၍လည်း ထည့်သွင်းတတ်ကပါသည်။

အလင်၏သားများကိ၁မင်း င့်မတင်ဘဲ ဆင်များကိ၁အခေကးေငွကီးစွာေပး၍ ငားရမ်းစီးနင်း ေစတတ်ကသည်လည်း ပါသည်။

ထို့အြပင် ယခအခါ နားထွင်းများစီးေသာ လည်း ယာများသည် သာမန်လည်း ယာမဟတ်ဘဲ ေရပိန်းချ၍ အလဆင်ထားေသာ ေရွလည်း များကိလည်း ငားရမ်းလာကသည်ကိေတွရပါသည်။

ထို့အြပင် ပဂံအဝတ်အစားများ ိးရာေဗျာအဖွဲများ၊ အဆိအကများကိလည်း ကားေပတွင်တင်၍ လည့်လည်တတ်ကပါသည်။

ထိအလလည်း များတွင် ဆင်ြမင်းငားခ၊ ေရလည်း ငားခ၊ ေဝင်း၊ ေနာက်ဝင်း ဝတ်စံများငားရမ်ခ...
နာချောင်းများကို ဆိုင်းဝိင်းတွင် ဆိင်းဝိင်းကျွန်းများကို ပျက်လံးများပျက်ခင်း၊ ဆိင်းဝိင်းခါင်းဆာင်ကလ်စွမ်းပတီးလံးများခြင်း၊ ဆိင်းအဆိုးကဖျားသီချင်းများဖြင့် ဖျားဖြခင်းတို့အလည်ကျမင်းငွရေအာင်ဆံ့ခံပါသည်။ သို့သော် နာမည်ကို ဆိင်းဝိင်းကျွန်းများကို ရရန်မာလေပါင်းများစွာကိတင်စရံပြပြုကရပါသည်။ ရေခါက်ဘန်းဆိုင်းများ၊ ဗဒင်ဆရာများရွေးချယ်ပြသာ ရက်ကျွန်းရက်များတွင် အလမ်လပ်ိင်ဘဲ ဆိင်းဝိင်းအားလပ်သောရက်တွင် အလမ်ရသည်များလည်းတတ်ပါသည်။
၃၊၃၊ အလေန ့နံနက်ခင်းတွင်ေကးေမွးဧည့်ခင်း အလကီးေန ့ဟေခေဝ ကေသာ အလေန ့နံနက်ခင်းတွင်မကေရာက်လာသမ ဧည့်သည်များအားထမင်း၊ ဟင်း၊ အချိပွဲ၊ လက်ဘက်စသည့်တိ ြဖင့်တည်ခင်းဧည့်ခံကပါသည်။

ကေရာက်လာသေသာဧည့်သည်များကအလအတွက်အကေငွများထည့်ဝင်လဒါန်းကပီးအလင်များကလည်းယပ်ေတာင်၊ ေဆးလိပ်အစိသည်တိ ြပန်ကမ်းပစည်းအြဖစ်လက်ေဆာင်ေပးကေလ့ိပါသည်။

ဧည့်သည်များထမင်းစားပီးနာေက်အချိပွဲသံးေဆာင်ေနချိန်တွင်လည်းဆိင်းဝိင်းကတီးခတ်သီဆိေဖျာေြဖေလ့ိပါသည်။

3,4. ဘိသိက်ပွဲကျင်းပြခင်း အလေန ့ နာရီခန် မမွန်းလွဲ (၂) နာရီခန်ထိ ဘိသိက်ပွဲကိြပလပ်ကပါသည်။

ဘိသိက်သွန်းေလာင်းြခင်းသည် ဗဒဘာသာယေကျးမမဟ်ေပ ဟိဘာသာမဆင်းသက်လာေသာ ယေကျးမထံးစံတစ်ခြဖစ်ပါသည်။

ဟိဘာသာဝင်သည် ၎င်းတိကေရစင်ေရြမတ်ဟသတ်မတ်ထားေသာဂဂါေရြဖင် သွန်းေလာင်းြခင်း၊ ေသာက်သံးြခင်း၊ ေရချိးြခင်းတိပပပါကေဘးရန်ကင်းေဝး၍ငိမ်းေအးချမ်းသာသည်ဟယဆကပါသည်။

ထိဂဂါေရြဖင် သွန်းေလာင်းြခင်းကိ ဘိသိတ်သွန်းသည်ဟဆိကသည်။

262 ပါဠိြမန်မာအဘိဓာန်၊ ၁၁၆။
ထိဟိဘာသာအယဝါဒမကးစက်လာသေသာဘိသိက်သွန်းေလာင်းြခင်းကိုထိန်းမာမင်းများလက်ထက်ကအိမ်စံမင်းသားများကိုဘရင်အြဖစ်စတင်ခန့်အပ်ရာ၌ဘိသိက်မဂလာအခမ်းအနားတွင်ရပါသည်။

ယခဗဒဘာသာငြပြခင်းအလများတွင်ဟိဝါဒဆန်သေသာဘိသိက်သွန်းေလာင်းြခင်းအခမ်းအနားပါဝင်ေနသည်မာအံ့သဖွယ်ပင်ဖစ်ပါသည်။

ငြပပွဲများတွင်ထည့်သွင်းြပလပ်သေသာဘိသိက်မဂလာအခမ်းအနားများတွင်အစီအစီအေနြဖင့်(၁၄)ခန်းပါဝင်သည်ဟေလ့လာေတွိရပါသည်။

ယင်းတိ့မာ၁။ဘိသိက်ဖွင့်ခန်း၂။ကန်ေတာ့ခန်း၃။စားေတာ်တိက်ခန်း၄။နတ်ပင့်ခန်း၅။နတ်ဆိးင်ခန်း၆။ေြခမန်းကွင်းစွပ်ခန်း၇။ထမင်းခွံခန်း၈။နားထွင်းခန်း၉။ပဏ ားခန်း၁ဝ။လမိင်းနတ်ထွက်ခန်း၁၁။ဘိသိတ်ေရစင်သွန်းခန်း၁၂။လက်ဖွဲစာတိက်ခန်း၁၃။င်ေလာင်းသွင်းခန်း၁၄။ဘိသိတ်ပွဲသိမ်းခန်းတိ့ြဖစ်ကပါသည်။

ဘိသိက်ဆရာများကိငားရမ်းရာ၌လည်းဆိင်းဝိင်းများနည်းတပင်နာမည်ကီးပါကငားရမ်းခေစျးကီးသကဲ့သိ့ကိတင်ငားရမ်း၍သာ
ရိိင်မည်ြဖစ်သည်။ ဘိသိက်ကန်ေတာ့ခန်း၌မိဘေဆွမျိးများကိကန်ေတာ့ရာတွင်ဘိသိက်ဆရာအေြပာအေဟာေကာင်းပါကမျက်ရည်ပင်ကျကရသည်ထိခံစားကရသည်လည်းိတတ်သည်။

ဟိဘာသာမကးစက်လာေသာဓေလ့ထံးစံတစ်ခြဖစ်ေသာ်လည်းကျမ်းဂန်ံ ့စပ်၍ေြပာတတ်ေဟာတတ်ေသာဘိသိက်ဆရာများ၏ေြပာေဟာမများကိနားေထာင်ရမည်ဆိပါကဘာသာေရးဆိင်ရာယေကျးမဆိင်ရာမိိးဖလာဆိင်ရာဗဟသတသိမတ်ဖွယ်ရာများကိေလ့လာမတ်သားရိင်မည်ြဖစ်ပါသည်။

3.5. ယေန ့ေခတ်င်ြပပံဘိသိပွဲကီးပီးေသာအခါတွင်ကားအလမဂလာပွဲကီးေအာင်ပါပီဆိကာေဗျာစည်တီး၍ဧည့်ပရိတ်သတ်များလည်းြပန်ကကန်၏။

ထိအချိန်ကျမသာအစ်သာရစစ်စစ်ြဖစ်ေသာင်ြပြခင်းကားစတင်ေပေတာ့၏။ ေးဦးစွာေမာင်ရင်ေလာင်းအားရဟန်းတစ်ပါးကဆံချေပး၏။မိဘစ်ပါးတိ ့ကအဝတ်ြဖစတစ်စကိတစ်ဖက်စီမကိင်ကာသားေမာင်ရင်ေလာင်း၏ဆံပင်တိ ့ကိခံယရ၏။

ခံယရ်လိ့ဆံချေနစတစပကကမာန်းကိမတ်ရာ၏။တစပကကမဌာန်းဟသည်လ ့ခာကိယ်၌ိေသာ၃၂ေကာာသအနက်ဆံအေမွး၊ေြခသည်း၊လက်သည်း၊သွား၊အေရဟေသာငါးခေြမာက်ေကာာသတိ ့၏မမဲြခင်းအနိစသေဘာကိဆင်ြခင်ြခင်းြဖစ်၏။

သီလင်ဝတ်ရန်ဆံချေနစအခါ၌ကားထိ၃၂ေကာာသကိသီလင်များကဝိင်းဝန်းရွတ်ဆိေလ့ကသည်။

ဆံချပီးပါကေမာင်ရင်ေလာင်းသည်ေကျာင်းထိင်ဆရာေတာ်ြဖစ်ေစ၊

ဆရာေတာ်က
တာဝန်းပြားထားသောရဟန်းကိုဖေစခြင်း ဦးခေါင်းသကန်းကပ်ရာ၏။ ထိသိကပ်ရာ၌ 'သံသရာမလွတ်မာက်ခင်းအကျိးငာတပည်းကိသနားသောအားဖင့်တပည်း၏လက်မသကန်းကိုပါလိုက်ဆိရာ၏။ ဗိသုကာအကျိးအားဖင့်အင်ဘရား၏လက်မသကန်းကိုပါလိုက်လိုက်ရာတွင် ဗိသုကာကိုပါလိုက်ရမည်ဖစ်သည်။ မိမိကိယ်တိင်မဆိတတ်ပါကရဟန်းများပါလိုသည်အတိင်းလိက်ဆိရာ၏။ မိဘများသည်မိမိတိ့သားကိင်းပမည်ဆိပါက(၃)လခန်းကိတင်၍ဘန်းကီးထံအပ်ံကာသကန်းကပ်၊သကန်းေတာင်းများကိတင်ကျက်မတ်စြခင်းတိ့ကိ့ပလပ်တတ်ကသည်။ ထိ့နာက်ရဟန်း၏လက်ထဲသိကပ်ရာ၌။ ထိသိကပ်ရာ၌လည်း 'သံသရာမလွတ်မာက်ခင်းအကျိးငာတပည်းကိသနားသောအားဖင့်အင်ဘရား၏လက်မသကန်းကိုပါလိုက်လိုက်ရာတွင်ဗိသုကာထားရ၏။ ထိသိကပ်ရာလည်းသရဏဂံသံးပါးင့်ဆယ်ပါးသီလကိုတယ်ဆာက်တည်ရသည်။ ထိသိကပ်ရာတည်ပီးပါကင်သာမေဏအြဖစ်သိကပ်လပီ။ ထိအခါင်သာမေဏသည်မိမိအားဖင့်သားရဟန်းထံမိုစီးအပ်ယ်ယရာ၏။ ဥပဇာယ်ဆရာသည်င်သာမေဏ၏မိဘသဖွယ်ဖစ်ပါသည်။ ထိ့ ဥပဇာယ်ယပီးနာက် ထိဥပဇာယ်ဆရာကင်သာမေဏ၏မွားင့်ကိက်ညီသင့်လျားသည်ဘွဲအမည်ကိချီးဖစ်ပါသည်။ ဆွမ်း၊သကန်း၊ဗေဒ်၊ဗေစသည့်ပစ်၀င်ပျ်သက်၍
ဗိုလ်ချီချောင်းကြီး၊ အိမ်ရန်၊ အဆောင်ရန်များကို သင်ကားပါ၏။ သင်ကားယခုခတ်ကာလ ပြပေးပါ၏။ ဘရာဦးချိန်သို့ဖက်ဆိုင်ရာ ထိုအရာများ သကန်းကပ်ခင်း၊ သကန်းတာင်းခင်းစသည့် အခန်းကများ ထပ်မံဖျင့်စွက်ထားသည်ကို တွေ့မင်ိင်၏။ ထိကဲ့သို့ပြမဂလာပွဲကြီးတကယ်အစ်သာရစရာပေမဂလာ၏ အဖြစ်သင်ကား ဧည့်ပရိသတ်များလည်းပန်လေပီ။ အနည်းငယ်များရင်းများဖြင့် အလွန်ပင်ပန်း၍ အိပ်ရားပျက်ခဲ့သမို့တွင်ကား ပိုမိုသော အရာများက မဆိုပ်သောအပိပ်သန့များကို အလွန်ပင်ပန်း အိပ်ရားပျက်ခဲ့သမို့တွင်ကား ဘာသာရာ့ထောင်မကည့်လင်းအလွန် စိတ်ပျက်ဖွယ်ဦးလေပေတာ့သည်။

263 ဖျင်တာ ရှီခ်လှိုင်း
င်ေလာင်းအဂါရပ်င် ့င်သာမေဏတိ ့ေစာင့်ထိန်းရမည့်သိကာပဒ်

(၁) အချက်အလက် အချက်အလက်(၂)ဆိုသော်လိမ့်မွှေမှာ

(၂) အချက်အလက်အချက် အချက်အလက်(၃)ဆိုသော်လိမ့်မှာ

(၃) အချက်အလက်အချက် အချက်အလက်(၄)ဆိုသော်လိမ့်မှာ

(၄) အချက်အလက်အချက် အချက်အလက်(၅)ဆိုသော်လိမ့်မှာ

(၅) အချက်အလက်အချက် အချက်အလက်(၆)ဆိုသော်လိမ့်မှာ

(၆) အချက်အလက်အချက် အချက်အလက်(၇)ဆိုသော်လိမ့်မှာ

(၇) အချက်အလက်အချက် အချက်အလက်(၈)ဆိုသော်လိမ့်မှာ

(၈) အချက်အလက်အချက် အချက်အလက်(၉)ဆိုသော်လိမ့်မှာ

(၉) အချက်အလက်အချက် အချက်အလက်(၁၀)ဆိုသော်လိမ့်မှာ
(၇) အကြီးအကျယ်သောစည်ကားများသောစည်ကား ကောင်းမှု စွာမှုဖြစ်ပါသည်။

(၈) ပြည်သူကျောင်းသားများကို ကြားခြင်းဖြစ်ပါသည်။

(၉) သီးသန့်သတင်းတင်ချင်းစွာ ရေးသားပါသည်။

(၁၀) အရေးပြည့်စုံစွာ ရေးသားပါသည်။

မှန်အားဖွင့်စီးစွာအလိုအလျောက် ယူဆရသော စီးပွားရေး (၁)ပါဝင်ပါ၀င်။

ယင်း (၁၀) ပါဝင်သော စီးပွားရေး အထက်မှ ကြားခြင်းဖြစ်ပါသည်။

နိဂ္ဗာ ဘရာဦးကျွန်မိုင်းပေလိုင်းတွင် ချိုးမျှပါက ယူဆရသော အပို့ပြည့်စုံအမများစွာပါဝင်ကြောင်း ချိုးမျှပါသည်။

ထိပ်ပါဝင်အမများဦးကျွန်မိုင်းကသိလိုစွာ ကဲဖြစ်ရသည်လည်း ပျစ် မိုး၊ အပို့ပြည့်စုံတည်းဟူသော စီမံကိန်းသံးတန်မြပ်သား အပို့ပြည့်စုံပျက်ကာ မိမိအယောင်အယောင်ထူးတရားတရားလည်း ဖြစ်ပါသည်။

လေဒါန်းရာ၌လည်း အကားဖွင့်သော စောင်ဝိ့်၊ ဘိသိက်၊ မိမိရင်းလုံ၊ နားထွင်း ဝတ်စံများငားရမ်းစသည့်မှာကား အထက်ပါပိုင်အမများတွင် မိမိအယောင်မကိသာ အံ၊ ၃၊ ၇၉။

ငုံ့သောစီးပွားရေးအကြီးအကျယ်များသောစီးပွားရေး ဥပပြပြရာတွင် ကျင့်သံးရေခိုင်သော စီးပွားရေး အတွက်ကား အထက်ပါပိုင်အမများငြပြခင်းအတွက်ကား အထက်ပိုင်အမများကြားခြင်းဖြစ်ပါသည်။

ငြ့ပါဝင်အမများငြပြခင်းအတွက်ကား အထက်ပိုင်အမများ

ပြည်သူကျောင်းသားများကို ကြားခြင်းဖြစ်ပါသည်။

ငြ့ပါဝင်အမများငြပြခင်းအတွက်ကား အထက်ပိုင်အမများ

ပြည်သူကျောင်းသားများကို ကြားခြင်းဖြစ်ပါသည်။

ငြ့ပါဝင်အမများငြပြခင်းအတွက်ကား အထက်ပိုင်အမများ

ပြည်သူကျောင်းသားများကို ကြားခြင်းဖြစ်ပါသည်။

ငြ့ပါဝင်အမများငြပြခင်းအတွက်ကား အထက်ပိုင်အမများ

ပြည်သူကျောင်းသားများကို ကြားခြင်းဖြစ်ပါသည်။
ပြောင်းလဲမှုသည်ကိလည်းဝမ်းနည်းဖွယ်မင်ရသည်။

ထိ့ကိုဘာသာမျိးတို့သည်ငွေပြခင်း၏တကယ့်အစ်သာရစစ်တွေသိိနားလည်ကကာပကာသနအမကိတတ့်င်သများစွာကိုင်သမိုင်းသတ်းဖွေသင်ပါသည်။

ငွေပြခင်း၏အစ်သာရစစ်များစွာကိုင်သမိုင်းသတ်ချသင့်ကာင်းသတ်းဖွေသင်ပါသည်။

ငွေပြခင်း၏အစ်သာရစစ်များစွာကိုင်သမိုင်းသတ်းဖွေသင်ပါကလည်းဘန်းကီးဌာနစီကောင်းမှုအနီကိုင်သမိုင်းသတ်းဖွေသင်ကားစြခင်းငွေပြခင်း၏အစ်သာရစစ်စစ်များစွာဖွေသင်ကားပါသည်။

ထိကိရင်းများသည်အသက်ကီးဌာန၏ကာင်းတွင်အနည်းဆုံးသံးလခန်းကိရင်းအဖစ်ပျားပါကလည်းပရိတ်ကီး၁၁သတ်၊အားအားတစ်ခြဖစ်ဌာန၊အားအားစသည့်ရာစာဌာနန်စာဌာနပြီးပါကလည်းပရိတ်ကီး၁၁သတ်၊အတွင်းသာမေဏသိအပ်သည်များကိသင်ကားစြခင်းတို့သည်ငွေပြခင်း၏အကျိးရလဒ်သတ်းဖွေသင်ပါသည်။

ယခေခတ်ဗဒဘာသာမျိုးတို့သည်ဘာသာရေးပွဲတစ်ခြဖစ်ဌာနငွေပြခင်းကိုပျားပွဲရွင်ပွဲဖွေသင်ပါပြီးဖန်တီးဌာနကြခင်းကိသတ်းဖွေသင်မစ်ကပါဟာက်တွန်းဌာနအပ်ပါသည်။

အက်သာကမင်းအားစံနမနာထား၍သာသနာ့ဒါယကာဖစ်သားသမီးများငွေပြခင်း၏အစ်သာရစစ်စစ်များဖွေသင်မိမိတို့သားသမီးများငွေပြခင်း၏အစ်သာရစစ်စစ်ကိသိိနားလည်ပကာသနမဖက်စစ်မန်တဲ့ငွေပြခင်းများကိုင်မည်ဆိပါကဗဒသာသနာတိုက်စည်ပင်ဝေပြသားသင်ကားဌာနများပါဝင်ရောက်လာသည်။
ငိမ်းချမ်းသာယာသေသာ ဗုဒ္ဓဟူးတွင် တည်ထောင်မည်ဖြစ်ပါသည်။

ကျမ်းကိးစာရင်း အံ၊၁၊ အဂတ ။ (ပ)၊ သာသနာေရးဦးစီးဌာနပံိပ်တိက်၊ ရန်ကန်မိ။ ၁၉၆၅။ အံ၊၃၊ အဂတ ရပါဠိ တ(တ)၊ သာသနာေရးဦးစီးဌာနပံိပ်တိက်၊ ရန်ကန်မိ။ ၁၉၆၆။ ဒီ၊၃၊ ပါထိကဝဂပါဠိ၊ သာသနာေရးဦးစီးဌာနပံိပ်တိက်၊ ရန်ကန်မိ။ ၁၉၆၆။ ဝိ၊၄၊ စဠဝဂပါဠိ၊ ဝိနယပိဋက၊ သာသနာေရးဦးစီးဌာနပံိပ်တိက်၊ ရန်ကန်မိ။ ၁၉၆၆။ ဇာ၊၊၇၊ ဇာတကအဋကထာ(၇)၊ သာသနာေရးဦးစီးဌာနပံိပ်တိက်၊ ရန်ကန်မိ။ ၁၉၅၉။ ဒီ၊၊၂၊ မဟာဝဂအဋကထာ၊ သာသနာေရးဦးစီးဌာနပံိပ်တိက်၊ ရန်ကန်မိ။ ၁၉၆၆။ ဝိ၊၊၁၊ ပါရာဇိကဏအဋကထာ(ပ)၊ သာသနာေရးဦးစီးဌာနပံိပ်တိက်၊ ရန်ကန်မိ။ ၁၉၆၆။ ဒီ၊ဋီ၊၁၊ သီလကဝဂဋီကာ၊ သာသနာေရးဦးစီးဌာနပံိပ်တိက်၊ ရန်ကန်မိ။ ၁၉၆၆။ ဗဒဝင်၊၂၊ မဟာဗဒဝင်(ဒတိယပိင်း)၊ ဗဒဝင်၊၃၊ မဟာဗဒဝင်(တတိယပိင်း)၊ ကစည်း၊ ကစည်းသဒါကီးပါဌ်၊ သန်းြမင့်ြမင့်ပိဋကစာအပ်ဆိင်၊ ရန်ကန်မိ၊ ၁၉၉၀။ 

ပါဠိြ◌မန်မာအဘိဓါန်၊ ဟတ်စိန်၊ ပါဠိြ◌မန်မာအဘိဓါန်၊ ပည်ေထာင်စြမန်မာိင်ငံေတာ်အစိးရပံိပ်ေရးင့်စာေရးကိရိယာဌာန၊ ရန်ကန်မိ ၁၉၅၄။
ဝင်၉ဝင်၊၂၊ ဗဒဝင်ဝတ၊ ေရြပည်ဝင်ဝတ၊ ထပဝင်ဝတ၊ သာသနာေရးဦးစီးဌာနပံိပ်တိက်၊ ရန်ကန်မိ၊ ၁၉၂၅။ ခင်ခင်ထး၊ မအိမ်ကံ၊ စိတ်ကးချိချိပံိပ်တိက်၊ ရန်ကန်မိ၊ ၂ဝ၁၄။
စစ်ကိင်းမိ ရွေးထွက်ျသော ငွထည်များတွင် ရေသာ ဗဒဘာသာအပညာလက်ရာများ ဦးသီတာသီး၊ တွဲဖက်ပေမာက ၊ အေတိင်းပညာဌာန ၊ စစ်ကိင်းတက သိလ် စာတမ်း အကျး ရွေးထွက်က်မထွက်သော ငွထည်ပစည်းများသည် အလွန်အစိတ်ပီးလက်ရာေြမာက်လေသာေကာင့် ိင်ငံတကာမအထးစ်ခိက်ကပါသည်။ ထိသိ့လက်ရာအဆင့်အတန်းြမင့်မားလေသာ ရွေးထွက်က်များ၏ အပညာလက်ရာများအေကာင်းကိ အပိင်းသံးပိင်းခွဲ၍တင်ြပသွားပါမည်။ နိဒါန်း ပိင်းင့်အခန်း(၁)တွင် ြမန်မာိးရာဆယ်ပွင့်ပန်းတွင်ပါဝင်သော ပန်းတိမ်အေကာင်းင့်၊ အခန်း(၂)တွင် ရွေးထွက်က်တည် ငွထည်လပ်ပံအဆင့်ဆင့်၊ အခန်း(၃)တွင် ငွထည်ျက်ထည်များတွင်ရေသာ အပညာလက်ရာအေကာင်းကိတင်ြပသွားမည်ဖြစ်ပါသည်။ 

နိဒါန်း ြမန်မာလက်မပညာပန်းဆယ်မျိးစာရင်းဝင်ပန်းတိမ်ပညာရပ်ကိ ြမန်မာိင်ငံတွင်လွန်ခဲျသော စ်ပါင်း ၂ဝဝဝ ေကျာ် ပျေခတ်မပင်တတ်ေြမာက်လပ်ကိင်လာကပီး နန်းတွင်းအသံးအေဆာင်ပစည်းများအြဖစ်းြမန်မာမင်းများအဆက်ဆက်ဝင် ့ဝင့်ထည်ထည်ထတ်လပ်အသံးပခဲ့ကပါသည်။ ပန်းတိမ်ပညာရပ်တွင်လက်ဝတ်ရတနာအမျိးမျိးင့်အသံးအေဆာင်ပစည်းအမျိးမျိးတိ့ကိေရင်၊ငွင်ကိ့ြဖင့်ထလပ်ကပါသည်။ ငွထည်လက်ဝတ်ရတနာပစည်းများထလပ်သော ငွပန်းတိမ်ပညာင်များယေန့အချိန်ထိ ေနရာေဒသအံ့အြပားတွင်တတ်ေြမာက်လပ်ကိင် ေနကေသာ်လည်းအသံးအေဆာင်ပစည်းများထလပ်သည့်ငွပန်းတိမ်ပညာင်များမာလက်ဆင့်ကမ်း သင်ယလိသားပါးကာေနရာေဒသေတာ်ေတာ်များ၌ေပျာက်ကွယ်ခဲ့ရပါသည်။

ပရတိင်း၊ ေဇယျပရ၊ အတလဝတီ အမည်ိခဲ့သော စစ်ကိင်းသည်လည်း ြမန်မာဘရင်များ နန်းစိက်ရာေဒသြဖစ်ခဲ့ေသာေကာင့်ထိအချိန်ကတည်းကပင်ရွေးထွက်က်၌ငွထည်လပ်ငန်းလပ်ကိင်ခဲ့သည်ဟမတ်ယိင်ပါသည်။
၁။ ဗဒဘာသာအပညာ အပညာလက်ရာေမာက်ေအာင် ြပလပ်ေသာ လက်မပညာမန်သမကိ ပန်းပညာ ဟလည်းေကာင်း၊ အေြပာက်အမွမ်းအလအပြခယ်သရေသာ လပ်ငန်းအေပါင်းကိ လည်း ပန်းပညာ ဟေခဆိကပါသည်။

၂.၁ ပန်းတိမ် အနက်ဖွင့်ဆိချက် ေရ၊ ေငွ၊ ေကးတိကိ အလမွမ်းမံြပလပ်ေသာ လပ်ငန်းကိ ပန်းတိမ်အတတ် ဟေမည်တွင်ပါသည်။ 'ပန်းတိမ်' တွင် 'ပန်' ဟာပညတ်ြဖာင့်တင်စား ဖွဲဆိခဲ့ြခင်းြဖစ်ပါသည်။ ရာေဇာဝါဒကျမ်းတွင်လည်း "ပဲ တိမ်တည်း ေတာ ့ ေမာ ့ရန်ပပွတ်ချီ ယွန်း" ဟူသိလွယ်မတ်လွယ်ေအာင်ပန်းဆယ်ြဖာကိပင်မတ်တမ်းတင်ခဲ့ပါသည်။ ဗဒဘာသာဆိသည်မာ ဗဒေဟာကားသည့် ဇာတ်ေတာ်များကိ သပ်ေဖထားသည့် ဗဒဘာသာဆိင်ရာ ပန်းေတာ၊ ပန်းတိမ်လက်ရာများကိေခပါသည်။

၂.၂ ပန်ထိန်င့်ပန်ထျန်ပဂံေခတ်ေဟာင်း ကာလေလာက်တွင် ေရးသားေလ့ိေသာ အသံးအန်းြဖစ်၍ ေရ၊ ေငွ၊ ေကးတိကိအလြပြပ င်မွမ်းမံေသာ အပညာတစ်ရပ်ြဖစ်ေကာင်း သိရပါသည်။

265 မြန်မာအခြေစိုက်ပါးအားလုံး စတင်
266 - ဆက် - ပါ
267 မြန်မာ-က အစိုးရအထောက်အထားရေးစိုးရိမ် အရေအတွက်အဆင့်မား သတိပေးချက် (နိုင်ငံရေးသား-အခြေ)
268 မြန်မာ-က အစိုးရအထောက်အထားရေးစိုးရိမ် အရေအတွက်အဆင့်မား သတိပေးချက် (နိုင်ငံရေးသား-အခြေ)
ထို့ကြောင့် ကတ်ပန်းအဆင်တန်ဆာကို တွင်မင်းကြား ဗိုလ်မာ့ိင်ေသာ ဗိုလ်မာ့ိင်ေသာ ပန်းဆယ်မျိးတွင်ပါဝင်သော ပန်းထိမ်တို့များနှင့် ရှိနှင့် ကိုက်ထည်အမျိးမျိးသွန်းထွေးကိုက်သည်

၁၊၂။ ပန်းထိမ်ထွန်းကားရာသေဒသများ

ပန်းတိမ်ပညာသည်လည်း ဗိုလ်မာ့ိင်ေသာ ပျောင်းကပင်စတင်ပြေပြေလာခဲ့ပြီ 

ပျောင်းတွင် အိုးဗိုလ်မာ့ိင်ေတာ၊ များယေကျးမများ ဗိုလ်မာ့ိင်ေနး 

မင်းဗိုလ်မာ့နတ်တို့၏ရတနာအသံးအေဆာင်များတွင် ပန်းတိမ်လက်ရာများကိုတွင်သော သက်ခြင်းများ ဗိုလ်မာ့ိင်ေကားခဲ့ပါသည်။

ယိးဒယား၊ကေမာဒီယား၊ပျားဗိုလ်မာ့စေသေဒသများတွင်လည်း ဗိုလ်မာ့ိင်ေငွ 

ပန်းတိမ်လပ်ငန်းင့်အလားတွင်ဗိုလ်မာ့ိင်းဗိုလ်မာ့ယေနတိုင် 

နန်းသံးအဆင်တန်ထဲကို ဗိုလ်မာ့နတ်တို့၏ရတနာအသံးအေဆာင်များ ပန် 

်တိမ်လက်ရာတို့ကိုတွင်သော သက်ခြင်းများ ဗိုလ်မာ့ိင်ေကားခဲ့ပါသည်။

* ပြောင်းလဲသောစကားပါသည်

* ပြောင်းလဲသောစကားပါသည် - ရွေးချယ်ထားသောစကားပါသည်။
အနောက်ဖို့ကိုမဟုတ် အရေးကြီးလိုအပ်သည် အချက်အလက်ဖော်ပြသည်
တုံးပေါက်သည်အစားလည်း အချက်အလက်ဖော်ပြသည်။

၁၄၇၂

ပို့ရွက်ခြင်း၊ သည်များဖြင့် စည်ကားလျက် ရေပသည်။

ြင်၊ ကိုထည်၊ ကိုထည်ဆိင်များဖင ့် စည်ကားလျက် ိသည်ကိုတွေ ိရေပသည်။

စိုင်ခန်း ၁၆ ၊ ဖွင့်လစ်္ရာင်းချလျက် ပါသည်။

၂၊ ြပလ်ပံအဆင့်ဆင့်

၂၊ ကန်ကမ်းရိမအေြခအေန

ကန်ကမ်းပစည်းများ ထတ်လပ်ရာတွင် ကန်ကမ်းပစည်းအြဖစ် ကိအသံြပရပီး

ကိပ် ကိုထတ်လပ်သည့်လပ်ငန်းများများကိလည်း ြပန်လည်အရည်ကျိ၍ထတ်လပ်ကရပါသည်။

ကိသာ အဓိကဝယ်ယေနရပီး ေရမိက်ထတ်လပ်သများထံမလည်း ေဘာ်အနည်းငယ်ရိပါသည်။

လပ်ငန်းများမတွဲဖက်ရိလာသည့် ေဘာ်ကိကိ မေလးမိ ိ ကန်သည်များထံမတစ်ဆင် ့ ဝယ်ယရိပီး ေရမိက်ထတ်သများထံမ ေဘာ်ကိမံရွာမိ မ အဓိကရိပါသည်။

၃။ ြင်များတွင် တွ ိရေသာအပညာလက်ရာများ

ြင်လပ်ငန်းများထတ်လပ်သည့် အမျိးအမည်အရွယ်အစားအလိက်

အမျိးအစား ေပါင်း (၁ဝဝ) ေကျာ်ိသည့် အနက်ေငွထည်ပစည်းငါးမျိး၏

ထတ်လပ်မအဆင့်ဆင့်င့်ေတွ ိရေသာ အပညာ လက်ရာများကိ ဖာြပပါမည်။

လက်ရာများကိခွဲြခမ်းစိတ်ြဖာပါက ကတ်ပန်းများ၊

တိရစာန်များ၊ ဗဒဝင်င့်ပွားေတာ်များ

ငါးရာ့ငါးဆယ် ဇာတ်ေတာ်များ၊

နတ်ပ်၊ ြဗဟာပ်များ

ဟ၍ ရသည်။

၃၊ ဖလား ၁ဝဝကျပ်စီး

ဖလားတစ်လံးတွင် အတိင်းအတာအရ အဝ၆ လက်မခန် ့ပီး၊

အနံ ၅လက်မ အည် ၆ ကားြပားကိ အဝိင်းပတ်ေခွကာ

ဂေဟဆက်ေပးရပါသည်။

ကားြပားအည်ကိ တိင်းတာ၍ ြပလ်လိသည့်

အထည်၏အဝကိ တွက်ချက်၍တိင်းတာရပါသည်။

ထိ ေခွပီးေသာ ကိတစ်ဖက်မ ဖင်ပိတ်

ဂေဟေဆာပီး ဖလားပံစံ ဖင်ေလာင်းေပးြခင်း၊

အံထတ်ြခင်းတိ ့ြပလ်ကာ တ်ခမ်းသား

အထ ရိရန် ဖလား၏တ်ခမ်းအဝ

အတွင်းမ ဂေဟေဆာ်၍

နန်းစီေပးရပါသည်။

ထိ ဖလားကိမျက်ာြပင်ညီညာေစရန်တ၊

သံတိင်တိ ့ြဖင့်အေချာေပးရပါသည်။

ထိ ့ေနာက်ပန်းသမား၊

အပ်သမားတိ ့မ အဆင့်ဆင့်ထလပ်ပီး အြဖထည်သမားစီသိ ့
ြပန်လည်ေပးပိ ့ရပါသည်။

အြဖထည်သမားမ အေပါက်ဂေဟေဆာြခင်း၊

d，သံတိင်တိ ့ြဖင့်ထိက်ြခင်းတိ

ြပလပ်ကာ ေနာက်ဆံး အေရာင်တင်ေပး ရပါသည်။

ထိသိ ့ြပလပ်ထားေသာ ေငွဖလား、

ဖလားတွင်ထလပ်ေလ့ိေသာ

အပညာလက်ရာကိ ေလ့လာကည့်ေသာအခါ

ပဂံေခတ်，

အင်းဝေခတ်，

အမရပရေခတ်，

ရတနာပံမေလးေခတ်င့်

မျက်ေမာက်ေခတ်တိင်ေအာင်

ေခတ်အဆက်ဆက်မ

cတ်ပန်းများကိ ေတွ ိရပါသည်။

269 ဖလားအလယ်ကိယ်ထည်တွင် ေတွ ိရေသာ

ဇာတ်ေတာ်များကိ ေလ့လာကည့်ေသာအခါ

သဝဏ  သာမ ဇာတ်ေတာ်ကိေတွ ိရပါသည်။

သဝဏ  သာမဇာတ်ေတာ်လာ ဗာရာဏသီမင်း ြဖစ်သ သီဠိယကမင်းကီး သည်

ေရအဆင်းင့်တေသာ

သဝဏ  သာမကိြမင်ေသာအခါ

လသားဟ မထင်မတ်ေသာေကာင ့်

မေြပးိင်ေအာင်ဖမ်းမည်ဟ ကံ၍

အဆိပ်လးေသာ ြမ ားြဖင့်ပစ်လိက်ေလသည်။

မင်းကီး၏အဆိပ်လးေသာ ြမားဒဏ်

ကိ ခံေနရာေသာ

သဝဏ  သာမထံသိ ့

မိဘစ်ပါြဖစ်ေသာ မျက်မြမင်ရေသ့စ်ပါေရာက်လာပီး

ဖခင်ြဖစ်သ ရေသ့ကီးဒကလ

သည်

သဝဏ  သာမ၏ဦးေခါင်းကိ ပွယလျက်

မိခင်ြဖစ်သပါရိကာက

သဝဏ  သာမ၏

ေြခေထာက်ကိ ေပါင်ေပ၌တင်လျက် လက်ြဖင ့်စမ်းကာ ငိေကးြမည်တမ်း

ပီးေနာက်

ြမားဆိပ်တက် ၍

ေမ့ေြမာေနြခင်း ြဖစ်မည်ဟ

ဆိကာအဆိပ်ေြပေစရန်

သစာြပပံကိ

သပ်ေဖာ်ထားပါသည်။

တစ်ဖန်ဆက်လက်၍ ေဝဿရာဇာတ်ေတာ်ကိလည်း

လက်ရာေြမာက်စွာ

ထွင်းထထား

ပါသည်။

ေဝဿရာမင်းကီးသည် ေမွးစကပင်

အလအတန်းကိြမတ်ိးလသည်။

ငယ်စကပင် အဖိးတစ်သိန်းထိက်တန်ေသာ

လည်ဆွဲတန်ဆာ

ကိ

စ်ကိမ်တိင်တိင် ေပးလခဲ ့ပီး မင်းြဖစ်သည့်ေန ့မစ၍ ေန ့စေန ့တိင်း

ေြခာက်သိန်းေသာ ဥစာတိ ့ကိပါ

မင်းကီးသည် ေန ့စအလကီးေပးရာတွင်

တစ်လလင်

ေြခာက်ကိမ်တိင်

ဆင်ြဖေတာ် ပစယကိစီး၍ အလဇရပ်ေြခာက်ေဆာင်တိ ့ကိ

လည့်လည်ကည့် ေလ့သည်

။

ထိဆင်ြဖေတာ်ပစယကိမိးေခါင်၍

ငတ်မွတ်ေခါင်းပါးေသာ ဒဗိက ရ ကပ်ဆိက်ေရာက် ေနသည့်

ကလိဂတိင်းသည်

ဆင်ြဖေတာ်ေရာက်ရာအရပ်၌ မိးရွာသွန်းမဲြဖစ်သည်ကိ သိ၍

ေစတတ  ရာြပည်မ

ေဝ.ExecuteReaderမင်းထံိ�သာ

ဆင်ြဖေတာ်ကိအလခံလာေသာအခါ

ဆင်ြဖေတာ် င့်တကွ

ဆင်ယင်

အပ်ေသာ

အဖိးတန်အဆင်တန်ဆာ၊ ဆင်ထိန်းတိ ့ကိပါ

ေပးလလိက်သည်။

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ထိဇာတ်ကွက်ကိုပလွင်အာင်ဆင်ပံသာန်များင့်တကွသပ်ဖာ်ထွင်ထားသည်ကိလည်းတွနင်ိင်ပါသည်။

ေဝဿရာဇာတ်တွင်ေလာက၏အကျိးစီးပွားများ၏ေကာင်းကျိးချမ်းသာအတွက်ေဝဿရာစ်စ်အရွယ်ကပင်လာရွက်အလခံပါကလမည်ဟူသို့ပြခဲ့သည်ကိန်ရပါသည်။

မိမိ၏အကျိးကိုပဓာနမထားဘဲစွန်းလတ်ခင်းဒါနပါရမီကိြဖည့်ကျင့်ခဲ့ပါသည်။

ထိဇာတ်တွင်ဒါနကိအဓိကထာေဟာထာေသာေကာင့်ဒါနသည်ပဓာနဖစ်၍ဒါနပါရမီဟူသာလည်းဒါနပါရမီးမာက်လင်အြခားပါရမီများလည်းပါိိင်ေကာင်းေတွနင်ိင်ရပါသည်။

ေဝဿရာဇာတ်အြပင်သသပိတဇာတ်၊သိဝိဇာတ်တိ့ကိ၏ြဖင့်အလဒ်နကိရက်ေရာစွာြပလပ်လိေသာသဒါစိတ်များယိဖိတ်လာစပါသည်။

တစ်ဖန်ကတိင်းနဂိရ်ပည်၌ေကာရဗျမင်းစိးစံပီးဝိဓရအမည်သာပညာိအမတ်တစ်ဦးဖြစ်ပါသည်။

ေကာရဗျမင်းသည်ေကအန်ကစားမကိအလွန်စ်သက်လသည်။

မင်းကီးသည်ေကအန်ကစားသကဲ့သိ့တရားဓမကိလည်းလွန်စွာစ်သက်လမတ်ိးသည်။

ေးအခါကအေဆွခင်ပွန်းများဖးဖြစ်သည်ကိုထားမင်း၊နဂါးမင်း၊ဂဠန်မင်းတိ့င့်သီလေဆာက်တည်ရာတွင်မည်သကပိရြခင်းကိုမိိင်းကီးကိအဆံးအြဖတ်ရယရန်ေကာရဗျမင်းကီး၏ပညာိဝိဓရအမတ်ကီးထံသွားရန်ေတာင်းဆိကသည်။

မင်းကီးတိ့သည်သည်းခံြခင်း၊မေကာင်းမကိမြပြခင်း၊ကာမဂဏ်ေမွေလျာ်မမောင်ြခင်း၊ေကာင့်ကမမိြခင်းဟု့သာဂဏ်ေလးပါးင့်ြပည့်စံကသည်ဟဆိကာဝိဓရအမတ်ကီး၏ေြဖကားမကိစ်သက်သွားကသည်။

ထိကားမင်းမပညာိဝိဓရအမတ်ကီးအားဘွဲြဖပဆိး၊ဂဠန်မင်းမေရပန်းခိင်၊နဂါးမင်းမပတ်ြမား၊ေကာရဗျမင်းကီးမိ့စားွားမတစ်ေထာင်၊ဆင်တစ်စီးအာဇာနည်ြမင်းေလးေကာင်၊ရထားဆယ်စီး၊ရွာကီးတစ်ဆယ့်ေြခာက်ရွာတိ့ြဖင့်ပေဇာေလသည်။

ပညာိသခမိန်ဝိဓရဇာတ်တားကိမင်းေလးပါးေကအန်ကစားဟန်ြဖင့်သပ်ဖာ်ထွင်သည်ကိလည်းတွနင်ိင်ကရပါသည်။

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ဆက်လက် ဗိုလ်ချင်း စိုးစံမှ စိုးစံမှ သူကိုယ်တိုင် စိုးစံမှ စိုးစံမှ ဝင်ရောက်သောအခါ မင်းကီးသည် သား၏ခွင်၌ထားလျက် တရားစီရင်သည်။

ဗိုလ်ချင်းကားသိသောအခါ လွန်စွာထိတ်လန်သွားပီး ဗိုလ်စိုးစံုဗိုလ်ဆိုင်မိုးပီး ဗိုလ်သတ်သားအခါ ငရဲတွင်အစ်စ်ဗိုလ်ခံရေလသည်။

ထိသိခံခဲ့ရသည်ကိ ဉာဏ်ထးဗိုလ်ညွှန်ဆင်းသက်သာခင်မိေသာကြက်ဘရင်လပ်ရမည်ကိ လွန်စွာကြက်ရွံုနပ်သည်။

ထိအခါဗိုလ်ဟာင်းတစ်ခက်အမိေသာဖြစ်သော ထီးဗိုလ်နတ်မိုးသည် မင်းသား၏ပပန်မကိ သိသွားပီး ဘရင်မလပ်လိပါက ဆွံအနားပင်းဟန်းဆာင်ရန်အကံပြေလသည်။

မင်းသားလည်း နတ်မိုးအကံပြောသည့်အတိင်းဗိုလ်ရေသည်။

ထိအေက်ခိုက်မင်းကီးကားသိသောအခါ အမတ်များစွမ်းသပ်၏။ တစ်သားအရွယ်တွင် မန်စိုးစံသပ်၏၊

စ်စ်သားအရွယ်တွင် သစ်သီးဗိုလ်စမ်းသပ်၏၊

သံးစ်သားအရွယ်တွင် ကစားစရာအပ်များဗိုလ်စမ်းသပ်၏၊

ေလးစ်သားအရွယ် ဆင်ကိလတ်၍ စမ်းသပ်၏၊

ခစ်စ်သားအရွယ်တွင် ဗိုလ်ကိလတ်၍ စမ်းသပ်၏၊

စ်စ်သားအရွယ်တွင် ပွဲသဘင်ဗိုလ်စမ်းသပ်၏၊

ကိးစ်သားအရွယ်တွင် သန်လျက်ဗိုလ်ခတ်မည့်ဟန်ဗိုလ်စမ်းသပ်၏၊

စ်စ်သားအရွယ်တွင် နားပင်းနတ်သမီးဟတ်မဟတ်သိရန်ခသင်းမတ်၍ စမ်းသပ်၏၊

၁၁စ်သားအရွယ်တွင် စည်တီး၍ စမ်းသပ်၏၊

၁၂စ်သားအရွယ်တွင် ဆီမီးဗိုလ်ကိလတ်မင်းသားငယ်ထးဗိုလ်ခားမိမိ စမ်းသပ်၏၊

၁၃စ်သားအရွယ်တွင် မင်းသားကိယ်ကိတင်လဲရည်တိကြည်ထားသည်မက်ဗိုလ်များကိက်စကာ စမ်းသပ်၏၊

၁၄စ်သားအရွယ်တွင် ကျင်ကီး၊ ကျင်ငယ်အလးလးဗိုလ်မသာပားဖြစ်ရပါက မင်းသားငယ်ထးဗိုလ်ခားမိမိ စမ်းသပ်၏၊

၁၅စ်သားအရွယ်တွင် မီးကျီးစြဖင့် တစ်ကိယ်လံဗိုလ်ပေလာင်အာင်ဗိုလ်မဆွယ်စမ်းသပ်၏၊

၁၆စ်သားအရွယ်တွင် လပ်သားမိန်းမပျိဗိုလ်မဆွယ်စမ်းသပ်၏၊

အမျိးအမျိးအမျိးစမ်းသပ်သော်လည်း မင်းသားကား စိတ်မဝင်စား၊ မမ၊ မသာယာ၊ မတန်လပ်၊ မက်ဗိုလ်များကိက်စကာများကိ ဗိုလ်ချင်းစိုးစံသပ်ပံများကိ ဗိုလ်တွင်ထားသည်ကိ ဗိုလ်ငွေးများဖြစ်ပါသည်။

272 ဇာတ်ကီးဆယ်ဘွဲ့(အစ်ချပ်)၊ ၁၃၇ - ၁၃၈

273 ဇာတ်ကီးဆယ်ဘွဲ့(အစ်ချပ်)၊ ၇ - ၈
စာင်းလိုက်နာသော နောက်ကိုယ်လိုက်ကားချင်းပြုသော လွတ်လပ်စွာ ဆင်းရဲ့ သီတာများ ကြည့်ရှုလိုက်လေကား တွက်ရောက်သော ရာမျိုးစုံစွာ ဆိုင်ရာ အစားအလင်ဇာတ်လမ်းဇာတ်ကွက်ကျကျ ထွင်းထားသည်မာမိးိင်အာင်ဆန်းသစ်လာသည်။

ဘရားေလာင်းဖွားေတာ်မခန်းတွင် မယ်ေတာ်မာယာင်ပဇာပတိေဂါတမီအမျိုးသမီးစ်ဦးစလံး၏ ကိယ်ေနဟန်ထားမာွဲေသာ တိဘဂေခသံးဆစ်ချိးအေနအထားထွင်းထားပါသည်။ ကိယ်ေနဟန်ထားအချိးအဆစ်ေြပြပစ်ံမမကလက်ဟန်များကလည်း ေပျာ့ေပျာင်းစွာလပီးမာယာေဒဝီ၏လက်ယာလက်သည်အင်ကင်းကိင်းကိ ဆပ်ကိင်မထားေသာ်လည်း ကိင်ထားဘိသကဲ့သိ့ထင်ြမင်ေစသည့်မြဒာလက်ဟန်မျိုြဖစ်သည်။

လက်ဝဲလက်သည် အင်အားယတ်ေလျာ့ေနပီးလက်ေချာင်းကေလးများတွဲလျားကျေနဟန်သပ်ေဖာ်ထွင်းထထားပါသည်။ ထိ့ေနာက် ဘရားအေလာင်းေတာ်သည်ကကြမင်းေတာ်ကိစီးပီးလင်ဖွားဖက်ေတာ်ကမတ်ချိးဆအမတ်အားြမင်းမီးကိဆွဲကိင်ေစကာ နန်းေတာ်မထွက်ေတာ်မပံကိဆအမတ်င့်ြမင်းကိဆွဲလျက် သပ်ေဖာ်ထွင်းထထားသည်ကိလည်းေတွြမင်ပါသည်။

ေနာက်တစ်ဖန် ေတာထွက်ေတာ်မခဲ့ေသာ ဘရားအေလာင်းေတာ်သည်မကိဋ်င့်တကွဆံထံးေတာ်ကိကိင်ကာ "ငါသည်ဧကန်စင်စ် ဘရားြဖစ်မည့်သမန်လင်၊ ဤဆံထံးေတာ်သည် ေကာင်းကင်၌တည်ေစသတည်း" ဟုအဓိဌာန်ြပ၍ ေကာင်းကင်သိ့ေြမာက်တင်ပစ်ဟန်ကိမကိဋ်င်တကွဆံထံးေတာ်ကိေကာင်သိ့လွတ်တင်ဟန်ကိမဟာဗဒဝင်လာဆံေတာ်ပယ်ခန်းင့်အညီေတွြမင်ရပါသည်။

ဆက်လက်၍ ဗဒဝင်ဇာတ်ေတာ်များြဖစ်ေသာ ဘရားြဖစ်သိ့ေရာက်ေတာ်မခန်းကိေဗာဓိေညာင်ပင်င့်တကွ ထွင်းထထားသည်ကိလည်းေတွြမင်ရပါသည်။ နောက်တစ်ဖန် ကတ်ပန်းခက်ပန်းွယ်များြဖင့် 274 မြန်မာမပန်းအလကာ၊ 56. 275 မလမဟာဗဒဝင်၊ 300-306. 276 ဗဒဝင်ဘရားသမိင်း၊ 186.
ဝန်းယက်ြခယ်လယ်မွမ်းမံထားြခင်းေကာင့်ပ်ထတိ ့၏ ပံသာန်၊ ကိက၍ တက်လာပါသည်။ ထိ ့ြပင် မတ်စွာဘရားအေလာင်းေတာ် ဥေဒါင်းမင်းကိရည်ွန်း၍ အရာယ်ကင်းသည့် နိမိတ်ကိယ၍ ဥေဒါင်းမင်းပ်ကိလည်းေကာင်း၊ ထပ်မံ၍ ေနမင်းကိယ်စာြပေသာ ဥေဒါင်းပ်ကိ ယ၍လည်းေကာင်း၊ ဥေဒါင်းပ်များထလပ်ထားသည်ကိလည်းေတွြမင်ပါသည်။ ရံဖန်ရံခါတွင်လည်း ကတ်ပန်းများြဖင့် တန်ဆာဆင်ထားြခင်းမိေသာ မင်းခမ်းေတာ်ဝင်ပစည်းစာရင်းထဲတွင်ပါဝင်သည့် မဟာသမတမင်းသံးေဆာင်ခဲ့သည်ဟဆိေသာကမာေပစိေန၊ လကိအစွဲြပ၍ ေနလသာန် ြပလပ်ထားေသာ ေြပာင်ဖလားများကိလည်း ေတွြမင်ရပါသည်။ ထိ ့ေနာက်မေဟာသဓာဇာတ်ေတာ်ကိလည်း မိတ မလာြပည်၌ ဝိဟရာဇ်မင်းကီးမင်းြပစိေနက၊ ပကသ၊ ကာမိ၊ ေဒဝိအမည်ိေသာ အမတ်ကီးေလးေယာက်င့်အတပညာိမေဟာသဓာသခမိန်ထပ်မံေပေပါက်လာသည့်အေကာင်း ေလာက်တင်ေနပံကိမင်းကီးင့်အမတ်ကီး ေလးပါးြခံရံေနဟန်ထွင်းထထားသည်ကိကည့်၍ သိိင်ပါသည်။

277 ထိ ့ြပင် ဖလား၏ေအာက်ေြခတွင် ေန ့ခစ်ေန ့နံတိ ့၏ ကိယ်စားဂိလ်ကီးစ်လံးကိ ကိယ်စာြပေသာ ဂဠန်၊ ကျား၊ ြခေသ့၊ ဆင်၊ နဂါး၊ ကက်၊ ပး စေသာ ဂိလ်စ်ခွင်တိရစာန်ပ်ထများကိ ထည့်သွင်း၍ တန်ဆာဆင်ထားသည့်အြပင်ရာသီခွင်ဆယ့်စ်ခြဖစ်ကေသာ မိဿ(Aries)ရာသီကိယ်စားြပဆိတ်ပံ၊ ပိဿ(Tauruse)ရာသီကိယ်စားြပွားပံ၊ ေမထန်(Gemini)ရာသီကိယ်စားြပကိရီပံ ြခေသ့ပံ၊ ကာကဋ်(Cancer)ရာသီကိယ်စားြပဂဏန်းပံ၊ သိဟ်(Leo)ရာသီကိယ်စားြပွားပံ၊ ကန်(Virgo)ရာသီကိယ်စားြပစပါးံပံ၊ တ(Capricorn)ရာသီကိယ်စားြပဆင်ပျံပံ၊ ကမ်(Aquarius)ရာသီကိယ်စားြပကလသာပန်းအိးပံင့်မိန်(Pisces)ရာသီကိယ်စားြပငါးစ်ေကာင်ပံ ဟ၍ ပတ်ပတ်လည်အချိးကျမတေအာင်ေရာယက်ေနရာချြပလပ်ထားသည်ကိလည်း ေတွြမင်ရပါသည်။

ဇာတ်တစ်ကွက်င့်တစ်ကွက်အကားတွင် မတ်စွာဘရားအား သိကားမင်းကမဂလာေတာ် တရားေဟာကားေပးပါရန် ိခိးေနဟန် သိကားပ်ကိကတ်ပန်းခက်များအသံြပဍောင်းကျျေပ်ထားသည်မာကရွလပါသည်။

277 ဇာတ်ကီးဆယ်ဘွဲ(အစ်ချပ်)၊ ၃၃။
သိကားပ်သည် တည်ငိမ်လပီးလက်စ်ဖက်မာ ြမတ်စွာဘရားင်အားရည်န်းပေဇာ်နဟန် ေတွ ြမင်ရသည်မာလည်းကျက်သေရိလပါသည်။

ယုံကြည်းသောအခါမှာအပင်၊ အွယ်၊ အေခွ၊ အဖး၊ အပွင့်၊ အသီး၊ အရွက်၊ အခက်၊ အွန့်၊ အိးပဥငါးပါးစလံးပါဝင်သောနိပ်စ်နိုင်ရပါသည်။

2.8 လင်ပန်း

လင်ပန်းကိြပ်လပ်ရာတွင်မိမိြပလပ်လိေသာအဝိင်းဘဲဥ၊ ေလးေထာင့်ပံစံအတိင်းေငွြပား၊ ေကးြပားတိကိက်ယပီးေရကန်တည်တေချာေပးရပါသည်။

ထိန် ကတ်ပန်း၊ ဇာတ်ေတာ်ကီးတိကိြပ်လပ်ရပါသည်။များေသာအားဖင့်ကတ်ပန်းင့်တန်ဆာဆင်ထားသည်ကိညီကပါသည်။လင်ပန်း၏လက်ရာများကိလ့လာကည့်သောအခါအပင်၊ အွယ်၊ အေခွ၊ အဖး၊ အပွင့်၊ အသီး၊ အရွက်၊ အခက်၊ အွန့်၊ အိးပဥငါးပါးစလံးပါဝင်သောနိပ်စ်နိုင်ရပါသည်။

2.9 ဆွမ်းအပ်

ဆွမ်းအပ် ြပလပ်ရာတွင်ေငွဆွမ်းအပ်ကိအဓိကထားပီးေငွဆွမ်းအပ်တစ်ခကိတစ်ဆက်တည်းြပလပ်၍မရဘဲကိယ်ထည်ပိင်းအဖံးပိင်း၊ခွာပိင်း၊အခန်းပိင်းဟဍတစ်ခချင်းခွဲြခားရပါသည်။

ထိပံကမ်းကိချိတ်ထည့်၍ကတ်ပန်းအပ်များပံေဖာေပးကာအြဖထည်သမားမာအေချာကိင်ဂေဟေဆားတွဲဖက်ြခင်းများြပလပ်ပီးအေရာင်တင်ေပးရပါသည်။

ေငွဆွမ်းအပ်တွင်အများဆံးေတွိရသောအပညာလက်ရာများကိေလ့လာကည့်မည်ဆိပါကကတ်အွယ်၊ အခတ်၊ အရွတ်စသည့်ရစ်ပတ်ေထွးယက်ဟန်သည့်အေြပာက်အမွမ်းတစ်မျိး။

* * *

* ကာရွက်၊ ေကျးတ်၊ ေကွးေကွးငတ်သား၊ ကတ်ကတ်တစ်ပတ်စင့်(ြမန်မာစကားအဖွင့်ကျမ်း၊ ၁၆၃)。

* *

(ြမန်မာစကားအဖွင့်ကျမ်း၊ ၂ - ၄ - ၈၉)
သဇင်ခွက်ကိတ်ပန်းလက်ရာများကိသာ အများဆားျမင်ရပါသည်။

ကတ်ပန်းသည် ပဂံေခတ်ောင်း ၊ ပထမအင်းဝေခတ် ၁၄-၁၅ရာစက်ပံုခဲ့သောကတ်ပန်းများင့် အလားသာန်တေသာ ကတ်ပန်းကိပွင်စွာဖက်စ်ဖက်ပါသည်။

ရွေ့ထားကွက်မထွက်ျသာ ဆွမ်းအပ်တိ့ကိ့လ့လာကည့်မည်ဆိပါက ပဂံေခတ်မအစြပ် ေခတ်တိင်တည်နေသာကတ်ပန်းတိ့ကိ အမျိးမျိးျရာ၍ ျမင်ရပါသည်။

ခွာပိင်းတွင်ပွင့်ဖက်သံးဖက်ကိညာတံိး၊ ပန်းခက်၊ ပန်းလက်များင့် ျဝ့ျဝ့ဝိက်ဝိက်၊ ေကာက်ေကာက်ေကွးေကွး ထဆစ်ေလ့ိေသာ၊ အင်းဝေခတ်င့်တာင်ငေခတ်တွင် အများဆံးထေလ့ိေသာ၊ ကန်းေဘာင်ေခတ်တွင် သဇင်ေခွပန်းဟေြပာင်းလဲေခဆိခဲ့သောကတ်ဟန်ကိလည်း ျမင်ရပါသည်။

ဆက်လက်၍ ကိယ်ထည်ပိင်းတွင် ေြခာက်ဖက်ပွင့်、ေလးဖက်ပွင့်ဖတ်ခန်းပန်းကိ အဒီ၂ဝရာစရတနာပံုခတ်ောင်းဟန်င့်မျက်ေမာက်ေခတ်ဟန်ကိ့ ေပါင်းစပ်လျက် ျမင်ိင်ပါသည်။

တစ်ဖန်အဖံးကိကည့်ပါက ပဂံေခတ်လယ်၊ စစ်ကိင်းပင်းယေခတ်မထခဲ့သောကတ်ဟန် တိ့ကိ့ ျမင်ရပါသည်။

ေနာက်ဆံးအဆင့်ြဖစ်သော အခန်ပိင်းတွင် အထက်သိခန်တက်သွားျသာန်အခန်၏ေအာက်တွင်ပဂံေခတ်မကာေမာက်ကာလန်သာန် ျမင်ရပါသည်။

*** အဓိပာယ်ဖွင့်ဆိပါသည်။ (ပုံမှန်ကြိုးစားသင်္ကေတများကို ဗားမျှသာ သုံး၍ အထောက်အကူရာန်ကောင်းသော မှတ်ချက် မှတ်ချက်မှတ်ချက်ကို ဗားမျှသာ သုံး၍ အထောက်အကူရာန်ကောင်း)
၃၊၄၊ ဗျာမက်အစ်တစ်လျှောက် ကိယ်ထည်ပိင်းအတွက် ၂ မျိုးခန် ေငွြပားကိ ေဂွေခွပီး ဂေဟဆက်တစ်ဖက်မဖင်ပိတ်ဂေဟေဆာ်ပီး ပံစံကျေအာင် ပံထတ်ေပးရပါသည်။ ခွာအတွက် ၄လက်မခန် ့ ထေထာင်းတေချာ၍ ပံေဖာ်ရပါသည်။ တ်သီးအတွက်ေငွြပားကေလးများကိ ပံေဖာ်ရပါသည်။ လက်ကိင်ကိင်းအတွက် ေငွရည်သွန်းေလာင်း၍ လည်းေကာင်း ေငွြပားကေလးကိ ပိက်ပံစံလံး၍ ချိးေကွေပးရပါသည်။ ထိကိယ်ထည်များတ်သီး၊ ကိင်းင့်အဖံးတိ ကတ်ပန်းထလပ်သထံသိ ့ထလပ်ေစပီးြပန်လည်ရိပါက တေချာပီးကိယ်ထည်င့်ခွာ၊ အဖံး၊ တ်သီး၊ ကိင်းတိ ကိရာင ့်ဆက်ဆက်ေပးကာ အေရာင်တင်ေပးရပါသည်။ ေရစက်ချခရားကိ လ့လာကည့်ေသာအခါ မ်းလမျိုးများအသံြပပါက ြခးပန်းြခးွယ် ိသည့်ဟန်တစ်မျိုးမာနတ်သမီးကိယ်ထည်လက်ကိင်ကိင်းဟသာပံတ်သီးပံ၊ ကိယ်ထည်တွင် ေပါ ့ပါးသွက်လက်စွာလပ်ားေနေသာလပံသာန်ကခန်ေနေသာကိရီ၊ ကိရာအစိသည်တိ ကိအပ်လည်းမများ ၊ပန်းလည်းမများရေအာင်ထလပ်မွမ်းမံေလ့သည်ကိလည်း ေတွ ြမင်ရပါသည်။ ၃၊၅၊ ကွမ်းအစ်တစ်လျှောက် ကိယ်ထည်ပိင်းအေနဖင် ၇ x ၂၅ လက်မ ေငွြပားကိ ေဂွေခွ၍အေပမ အဖံးေငွြပားစွပ်ကာ ဂေဟေဆာ်ေပးရပါသည်။ ခွာအတွက်ဆိလင် ၁၂လက်မအဝိင်းိေသာေငွြပားကိထခတ်၍ ပံသာန်ေပေအာင်ြပလပ်ရပါသည်။ ခွာအတွက်ေအာက်တွင် ေြခေထာက်တပ်၍ ငက်ေြခေထာက်ပံငါးေချာင်းင့် အဖံးအေပမအပ်တင်ရန် (ရာမ၊ကိရီ၊ကိရာ) စသည့်အလိိရာကိတ်မတစ်ဖန်အဖံးသမားမ ကိယ်ထည်င ့်အဖံးကိ သီးခားစီြဖစ်ေအာင်ြဖတ်ေတာက်၍ ကိယ်ထည်င့်အဖံးစွပ်၍ ရေအာင်ကိယ်ထည်အတွင်းမအံေထာက်ေခွ၍ ဂေဟေဆာ်ေပးရပါသည်။ ကိယ်ထည်ကိ ဖင်ပိတ်ပိတ်ပီး အဖံးေပမအပ်တပ်ဆင်ကာ ကိယ်ထည်ပိင်းကိအပီးသတ်ရပါသည်။ ခွာပိင်းကိမ ေြခေထာက်ငါးေချာင်းတပ်ဆင်ကာ အပီးသတ်အေရာင်တင်ေပးရပါသည်။ ကွမ်းအစ်များကိ ေလ့လာကည့်ေသာအခါ
ကိယ်ထည်တွင်ကိရာပံများကိလ်င်ာင်းငက်ပံသာန်ကေနဟန်ကိလည်းကောင်း၊ကာဖးသာန်လက်ယက်လည်းကောင်း ဗမင်ရပါသည်။

ထိပ်ငွေ့်ငါးရာငါးဆယ်ဇာတ်များမဇာတ်ကွက်များကိကတ်များဖင့်ဖည့်၍ဗပလပ်ထားသည်ကိဗမင်ရသည်မာလက်ရာမာက်လပါသည်။

ဗမန်မာ့ယေကျးမနယ်ပယ်တွင်အဓိကအသံးအေဆာင်ပစည်များဖစ်သည်လက်ဝဲမင်းခမ်းဗို်ပစည်ထဲတွင်ပါဝင်သေသည်မာကွမ်းအစ်သည်ထီးနန်းင့်ဆိင်ရာတိတွင်လည်းကောင်း၊ သာမန်ပည်သင်ဖျင်ဆိင်ရာတွင်လည်းကောင်း၊ ကျယ်ပန်နက်ဆိုင်ရာယခဲ့ပီး ဗမန်မာ့ယေကျးမစစ်စစ်သမဂလာဆိင်ရာပစည်ဖစ်သည်။

နိဂံးချင်းနီးပါးစွာဗဒပိုင်းတွင် ဗဒသာသနာစတင်ထွန်းကားစအခါကလတိင်းလတိင်းဘရာ့ဟာပါဠိစာပများကိတတ်ကမ်းကသည်မဟတ်ပ။ ဘရာ့ပထိးပစ်တီဘာန်းဗို်ကျားများသိသွားရာကသည့်အခါမသာလပညာရဟန်းပညာတိ့ဟာေဟာေြပာြပသ၍သာ ဗဒအဆံးအမတိ့ကိသိိခဲ့ကရပါသည်။

ဘရာ့ပထိးပစ်တီဘာန်းဗို်ကျားများသိသွားရာကသည့်အခါမသာ င်ေသာ်လည်း ဗဒအဆံးအမဆိုင်ရာအပျက်များထဆစ့်ဖယ်လယ်ထားသည်ကိဗမင်ရပါကလည်းသိိနားလည်သေဘာပါသည်။

ယခုရွာထားကွက်မထွက်သေသာေငွထည်၊ ပစည်များကိလ့လာခင်ားအားဖင့်ယခုဘဒကြမ်းနားပွင့်ဗို်အားအားဖင့် ဗမာဒ၏ဗဒဝင်အဖစ်အပျက်များကိဗမင်ကရပါသည်။

ထိပန်းအခန်းများတွင်ဒါန်နိလ်ဘာဝန်အကျိးဇာတ်လမ်းများကိဇာတ်လမ်းဇာတ်ကွက်များဖင့်ထဆစ်ထားသည့်အပ်င်နတ်ပ်ဗဟာပ်သမင်သမင်စေသာတိရစာန်များ၊ဟသာ၊ဥေဒါင်သမင်သာတိရစာန်များကိဗမရိးပန်းရိးွယ်ပန်းခက်များဖင့်ဗမင်လ့လာရေသာအခါအသိပညာများအသီးသီးရိကရပါသည်။

ဘရာ့င်၏အတိတ်ဘဝဖစ်စများကိအေလးထားဖားပသည့်ဇာတကကျမ်းများ၏အဓိကရည်ရွယ်ချက်မာအတိတ်ဘဝများစွာတိ့၌ဘရာ့လာင်းပါရမာဖည့်ဗိမ်းများကိဗဒဘာသာဝင်တိ့သိိကည်ညိေစရန်ဖစ်သည်ဟဆိရပါမည်။
သိဝိဇာတ်၊ ေဝဿရာဇာတ်၊ သဝဏ  သာမဇာတ်၊ သတဇာတ်၊ ဝိဓရဇာတ်၊ မေဟာ်သဓါဇာတ်စေသာဇာတ်ေတာ်များမာမ
ဗဒဘာသာကိ အေြခြပထားေသာ ဇာတ်ေတာ်များ သဒါတရားတိးပွား လာေစပီးေကာင်းမ၊ မေကာင်းမတိ ့ကိ
ခွဲြခားသိိသွားကပါသည်။ ထိ ့ြပင် အမားအမန်ခွဲြခားသိြမင်ေသာ ေကာင်းကျိးရလဒ်များရိသွားေစေသာအမျိးဘာသာ
သာသနာကိ ြပန် ့ပွားထွန်းကား ေစလိေသာ ရည်ရွယ်ချက်ြဖင့် ရွာေထာင်ရပ်ကွက်မထွက်ိ�သာ ေငွထည်များ
တွင် ေတွ ိရေသာ အပညာလက်ရာများအေကာင်းကိေလ့လာတင်ြပရြခင်ြဖစ်ပါသည်။

မီြငမ်းကားေသာစာရင်းများ

1. Dr Than Tun and Mg Aye Myint ြမန်မာမဒီဇိင်းေကာင်းများ ANCIENT MYANMAR DESIGN လွင်ဉီးစာေပ (လည်းတန်း)
   နှင့်ပြောင်းစာေပဗိမာန်လ ၂၀၁၆၊ ေဖေဖာ်ဝါရီလ။

2. လိင်ဝင်းစိး၊ ြမန်မာ့ပ်ေပါင်းစအပညာစာေပဗိမာန် ၂၀၁၄

3. ဉီးေသာ်ဇင်၊ မဟာဗဒဝင်၊ စာေပေလွ၊ ိဝင်ဘာလ၊ ၁၉၆၇

4. ေမာင်ယလိင်း (ပျးမမိင်) ြမန်မာ့ိးရာပန်းတေမာ့စာေပဗိမာန် ၂၀၁၇
   - ခစ်။

5. ေးေဟာင်းသေတသနင့်အမျိးသားြပတိက်ဉီးစီးဌာန၊ ယေကျးမဝန်ကီး
   ဌာနြမန်မာ့ယေကျးမအေမွအစ်မင်းခမ်းေတာ်ဝင်ပစည်းများ၊ ဖဂျီယာမပံိပ်တိက်၊
   ၂၀၁၆မတ်လ။

6. မိနယ်ေြမစာရင်းဉီးစီးဌာန၊ စစ်ကိင်းမိနယ်၏အချက်အလက်များစာတမ်း၊
   ၂၀၀၇ခစ်၊ ဇလိင်လ (၂၄ရက်)

7. ြမန်မာအဘိဓာန်အကျးချပ်၊ အတွဲ (၃) ဖိတိလစ်သိပံိပ်
   တိက်၊ ဩဂတ်လ။

8. ေကျာ်ေအာင်စံထားဆရာေတာ်၊ ေဝါဟာရတ ပကာသနီကျမ်း၊
   ယေကျးမဝန်ကီးဌာနမိုးေဟာင်းစာေပင့်
   ယေကျးမဌာနစိတ်၏စာေစာင်နံပါတ် (၁)
   ၁၉၅၇ခစ်။

9. ဒဂန်နတ်င်၊ ြမန်မာ့ိးရာဆယ်ပွင့်ပန်း၊ စာေပဗိမာန်ပံိပ်တိက်၊
   ရန်ကန်၊ ၁၉၇၈။

10. အင်ဓမသာမီဘိဝံသ၊ မလမဟာဗဒဝင်၊ သန်းြမင့်ြမင့်ပိဋကတ်စာအပ်ဆိင်၊
    ၁၉၉၇မတ်လ။

11. မင်းသေဝ၊ ဇတ်ကီးဆယ်ဘွဲ (အစ်ချပ်)
    မဂလာေရာင်ြခည်စာေပြဖန ့်ချီေရး၊ ၁၉၉၉ခစ်
    ေမလ။

12. မန်နန်းရာဇဝင်ကီး၊ ဒတိယအတွဲ၊ ြပည်ကီးမိင်ပံိပ်တိက်၊
    ၁၃၂၉ခစ်။

13. ေမာင်ယလိင်း (ပျးမမိင်)
    ြမန်မာမပန်းအလကာ၊ စာေပဗိမာန်ပံိပ်တိက်။

14. ဉီးလင်း (အဂမဟာပိတ)
    ေရတဂံဘရားသမိင်း၊ ဟံသာဝတီပံိပ်တိက်၊
    ရန်ကန်။
နန်းတော်ကြီး

ဤဖောက်သည်ကို ရိုမိုးဆိုင်ကြောင်း ဖော်ပြထားပါသည်။

ပထမဆုံး အနောက်အလေးကို သွားရောက်ပါ။

ဒီဇိုင်းကြသည်ကို မြန်မာနိုင်ငံတို့မှန်ကြားရေး ရှင်းပြပါ။
အားလုံးကဗျာများတွင် ဗျာသီလ့မာစာများ

လိုအပ်ရာကိုင်း ပေါ်သားစွာ ကျင်းပသော ကွဲပြားစွာ ဖော်ပြချက်ကို စောက်လှစ်ပေးသည်။

စာသီးအတွက်

လိုအပ်ရာကိုင်း ကဗျာများတွင် ဗျာသီလ့မာစာများ ပါဝင်စေသည်။ ရည်ရွယ်ချက်မာ အားလုံးတွင် ဗျာသီလ့မာစာများကို ဖော်ပြသည်။ စိစစ်အေလ့လာခင်းစောင်း လကဏာများကို ပိမိတန်ဖိုးထားရာ စာသီးကို အမျိးသားဗျာဖော်ပြသည်။ ဗျာသီလ့မာစာကို ယေက်စမီ၊ ဓာတ်ထံစံချောင်းချောင်းသည် လိုအပ်ရာကိုင်းပိုင်ရှင်များ ဖော်ပြရာတွင် ကျင်းပစ်သည်။ စိစစ်အေလ့လာခင်းအားဖြင့် အားလုံးကဗျာများ၏ အမျိးသားဗျာစွာ အမျိးအစားများစွာသည် အမည်မည့်ဗျာတံတားဖြင့် အေကာင်းအရာေပမတည်၍ အမည်မည့်ဗျာတံတား မည်သိရှိပါကြည်သည်။ အားလုံးကဗျာများ၏ အေကာင်းအရာင့် ပံသာများမည်သိရှိပါက တည်သည်။

ဗျာသီလ့မာစာများတွင် ဗျာသီလ့မာစာများကို လိုအပ်ရာကိုင်းတံတားဖြင့် ဗျာသီလ့မာစာများ ပါဝင်စေသည်။ အားလုံးကဗျာများ၏ တည်သည်။

ဗျာသီလ့မာစာများတွင် ဗျာသီလ့မာစာများကို များကိုင်းတံတားဖြင့် ဗျာသီလ့မာစာများ ပါဝင်စေသည်။ အားလုံးကဗျာများ၏ တည်သည်။
သီချင်းဆိကာ 'ကာက' ေနကပီး ြဖစ်သည်။ အဲချင်းကဗျာမျိးကို အင်းဝေခတ်တွင် ေခတ်စားခဲ့ပီး ကြိုးစား ေစာင်းမတ်တီးကာ သဘင်ခံခဲ့ကေကာင်း ေတွရသည်။ အဲချင်းကဗျာပံသာန်မျိးကို ကန်းေဘာင်ေခတ်ေရာက်မသတ်သတ်မတ်မတ်၊ ၎င်းတို့ကို ဖွယ်ဖွယ်ရာရာ ေတွခဲ့ရသည်။ ထင်ားသော အဲချင်းစာဆိများမာငစ့ကးမင်းင့် ဘိးေတာ်ဘရားလက်ထက်တွင် ထင်ားခဲ့သော ဦးယာ၊ ေမာင်ထွားင် ့ ဘိးေတာ်ဘရား လက်ထက်တွင် ထင်ားခဲ့သော မယ်ေခွတိ့ြဖစ်ပါသည်။ အဲချင်းကဗျာများတွင်ပင် အေကာင်းအရာ၊ ပံသာန်င့် ေပေပါက်ရာလိက်၍ အမည်အမျိးမျိး ေပးထားကပါသူက မာ့နတ်သံအဲ (၄) လပအဲ (၂) သံးေထာင့်အဲ (၅) စ်ဆယ်ေပအဲ (၃) ဆယ့်စ်ရာသီအဲလိက်တိ့ြဖစ်ကသည်။

ကန်ေတာ်သည် ဦးယာ၊ ေမာင်ထွားင့် မယ်ေခွတိ့ြဖစ်သော အဲချင်းကဗျာများထဲမြန်မာ ဓေလ့ထံးတမ်းများကိ ထတ်တ်စိစစ်ေလ့လာမည်ဖစ်ပါသည်။ ထိသိ့ေလ့လာရာတွင် ြမန်မာ ဓေလ့ထံးတမ်းအြဖစ်ထင်ထင်ားားေတွ့ြမင်ရသည့်အပိင်းများကိသာ ထတ်တ်၍ ေလ့လာတင်ြပမည်ဖစ်ပါသည်။

ရည်ရွယ်ချက် အဲချင်းကဗျာများတွင် ေတွရေသာ ြမန်မာ ဓေလ့ထံးတမ်းများကိ ထတ်တ်စိစစ်ေလ့လာတင်ြပူင်းင့် အမျိးသားေရးလကဏာများကိ ပိမိတန်ဖိးထားေလးစားလာကေစလိြခင်းဖစ်သည်။

အဲချင်းဟသည့် ေဝါဟာရအဓိပာယ် င့် သေဘာသဘာဝအဲချင်းဟသည့် ေဝါဟာရကိ ပညာင်အသီးသီးက အမျိးမျိးဖွင်ဆိခဲ့ကပါသည်။ သီဆိသများက အစအဝန်းင်ရပ်တည်၍ အချီအချိအတိက်အခံ သီဆိရေသာေကာင့် 'ဟဲချ'မ 'အဲချင်း'မြဖစ်လာေကာင်း၊ အာလပ်သီချင်းမျိးမြဖစ်ေကာင်း၊ အချိပညာင်များကလည်း 'အဲ'ဟသည်မာ အမျိးသမီးများကိ ရည်နှဲ၍ အမျိးသမီးများဝိင်းဖွဲသီဆိကေသာ သီချင်းြဖစ်ေကာင်း၊ ေးအခါကလေးများသည် အပျိများဆီသွား၍ အဲတိက်၊ချမ်းြမ ካး (မဟာဝိဇာ) ၊ ၁၉၅၈ ካး ၆ ካးယင်း ካး          ካး ၁၈ ካး
အဲချင်းဟသည်မာ ေးအခါက ြမန်မာလမျိးများအထးသြဖင့် ေကျးလက်နန်းများသည် ရပ်ပွဲရွာပွဲ၊ ရပ်ဓေလ့၊ ရွာဓေလ့များ၊ ရာသီသဘာဝအြဖစ်အပျက်များကိုအေြခခံ၍ ဝိင်းဖွဲကာ အြပန်အလန်သီဆိကရသည့် ေကျးလက်သီချင်းမျိးနားလည်ရပါသည်။

အဲချင်းကဗျာသည် ေကျးလက်လထေတးကဗျာတစ်မျိးဖစ်သည်။ ထိသေဘာကိဆရာေမာင်သာိးက 'လထကဗျာ'စာအပ်တွင် - "လေတွသီချင်းဟစ်ကရာမ ဂဝင်ကမ်းတဲ့သီချင်းေရးဆရာ ရဲ ့ စာသားဖွဲသလိ၊ သတိကိယ်တိင်စိတ်ထဲိရာဟစ်ေအာ်ရင် သီချင်းဖစ်သွားတာလည်းတယ်။ ဒီသီချင်းမျိးကိ လထကဗျာလိ့ေခကတယ်။

တိင်းပည်အသီးသီးမာ ိကတယ်။ အဂလိပ်ေတွ 'Folk song'လိ့ေခတယ်' Folk song ဟသည်မာလည်း ေကျးလက်တွင်ထွန်းကားသည်။ လထကိအေြခခံသည်။ ေကျးလက်လထ၏ခံစားချက်င် ဓေလ့သဘာဝများကိုထင်ဟပ်ြပိင်စွမ်းိသည့်သီးခားဂဏ်အဂါရပ်များလည်းပါဝင်ကပါသည်။ ထိသေဘာကိ WEBSTER’S NEW INTERNATIONAL DICTIONARY တွင် "ိင်ငံတစ်ခိ သာမန်ပည်သလထတိ၏ ိးရာဓေလ့င့်၎င်းတိကိ အေြခြပ၍ ခံစားချက်င့်ဖွဲဆိပံများတွင် သီးခားဂဏ်အဂါရပ်များပါဝင်ေနေသာသီချင်း" ဟေဖာြပထားပါသည်။

ဓေလ့ထံးတမ်းဟသည့် ေဝါဟာရအဓိပာယ်င့်သေဘာသဘာဝဓေလ့ထံးတမ်းဟသည်ေဝါဟာရကိစိတ်ဖာ၍ ေလ့လာကည့်သာ့ကိ  "ဓေလ့" ဟသည်မာ ထံးစံ၊ ဓေလ့၊ "ထံး" ဟသည်မာ ေးကြပခဲ့ဖးေသာြဖစ်ရပ်၊ "တမ်း" ဟသည်မာအည်သြဖင့် ခိင်မဲေအာင် ေရးမတ်သည်။ ထံး၊ ဓမတာ၊ သေဘာသဘာဝဟ၍
အဓိပာယ်ရကပါသည်။ ြမန်မာ-အဂလိပ်အဘိဓာန်တွင် Custom: tradition ဟူ အဓိပာယ်ဖွင့်ဆိထားပါသည်။

သေဘာသဘာဝအားဖင့် ဓေလ့ထံးတမ်းဟသည်မာ ေးကတည်းက ယခအထိအစအဆက်ကျင့်သံးခဲ့သော အစအလာလကဏာများဟ နားလည်ိင်ပါသည်။

ထိဓေလ့ထံးတမ်းများ ပေါင်းစည်းအေြခတည်နသည့် ဖွံဖိးသွားသော လ့အဖွဲအစည်းတစ်ခေတွင် သွင်ပင်လကဏာများကိ ယေကျးမ (Civilization, Culture) ဟူ အသွင်အြပင်အေြခအေနများ၊ ကမာကီး၏ တစ်စံတစ်ခေသာအစိတ်အပိင်း၊ လ့ဘဝ၏တစ်စံတစ်ရာ အေြခအေနင့် အချိန်အခါ ယေကျးမအေဆာက်အဦးများ၊ ကမာေပိ ၌ိသားအားလာဖြစ်သော လ့အဖွဲအစည်းများဖွင့်ဆိင်းြပထားပါသည်။

မျက်ေမာက်ကာလသည် စက်မလွန်ခတ်အေြပာင်းအလဲတတိယလိင်းမ်းမိးချိန်များဖြစ်သည်။ သတင်းနည်းပညာအစွမ်းေကာင့်ကမာကိရွာေခတ်ကီးပင်ြဖစ်သည်ကမာရွာေခတ်ကီးပုံသေးသည်။ ထိသေဘာကိ "ယေကျးမများတိးတိက်မိြခင်း" ဆိကပါသည်။

287 Oxford Advanced Learner's Dictionary, 2000, 211.
ယေကျးမများ တိးတိက်မိြခင်း အေကာင်းရင်းများင့် ပတ်သက်၍ ဆင်မျရယ် ဟန်တင်တန်၏စာတမ်းကိ အစ်ချပ်မိတ်ဆက် ေပးထားသည့် စာအပ်တွင် ဆရာေကျာ်ဝင်းကကမာကီးက ပိ၍ ကျးကျံလာသည့်သေဘာ ိသည်။ ဤ တွင် မတေသာ ယေကျးမနာက်ခံများမာလအများကား အြပန်အလန် ဆက်ဆံမများများသည်ထက်များလာသည်။ ဤသိ ့ ထိေတွဆက်ဆံကရာမမတြခားနားမများ ပိမိ ထင်ားလာပီး ဇာတိပညများကိ မီးထိးေပးသလိ့ဖစ်လာ ရသည်။ ကျးကျံးလာေသာ ကမာကီးတွင် ေရကည်ရာ ြမက်ရာ ေရွ ေြပာင်းေနထိင်မများလည်း ေခတ်စားလာပါ သည်။ ဤအချက်ကလည်း ယေကျးမအချင်းချင်း ခလတ် တိက်မိဖိ ့ အေကာင်းဖန်လာသည်။ ဟ၍ ဒတိယအေကာင်းရင်းအေနြဖင့် ေဖာ်ြပထားပါသည်။

ခံငံသံးသပ်ချက် အဲချင်းကဗျာများသည် ြမန်မာစာေပသမိင်းတွင် ကန်းေဘာင်ေခတ်ေရာက်မ ထွန်းကားထင်ားလာခဲ့သော ေကျးလက်ကဗျာ၊ လထကဗျာတစ်မျိး ြဖစ်ပါသည်။ ေကျးလက်ေန ြပည်သများသည် မိမိတိ ၏ဘဝ၊ ခံစားမ၊ အေတွးအြမင်စေသာ အေရးအရာများင် ပတ်သက်၍ရင်ဖွင့်က၊ သီချင်းဆိက ပါသည်။ စကားအေနြဖင် ့ေသာ်လည်းေကာင်း၊ အေရးအသားအေနြဖင့်ေသာ်လည်းေကာင်း၊ သီဆိမ ပံစံအေနြဖင့်ေသာ်လည်းေကာင်း လက်ဆင်ကမ်းခဲ့ကပါသည်။ ၎င်းတိ ့ကိ စာဆိများ၊ ပညာိများက ကဗျာ၊ သီချင်း၊ စာေပအြဖစ် ဖန်တီးမတ်တမ်းတင်ခဲ့ကသည်။ ထိအထဲတွင်အဲချင်းကဗျာအဖွဲ ပံစံလည်း တစ်ခအပါအဝင် ြဖစ်သည်။

အဲချင်းကဗျာများတွင်မ များေသာအားြဖင်ကာလ၊ ေဒသ၊ ရာသီသိပ္ပံးများကိစ္စလျက် ေတွရသကဲ့သိ့ ထင်ားအားေကာင်းစွာမေတွရပါ။ ဖွယ်ဖွယ်ရာရာလည်း မေတွရပါ။

အဲချင်းကဗျာများတွင် ေလ့လာေတွ ိရသမ ထံးတမ်းဓေလ့များသည် ကန်းေဘာင်ေခတ်အညာေဒသမ်ကျးလက်ဓေလ့များြဖစ်ကသည်။

အသက်ေမွးမဆိင်ရာဓေလ့များ၊ ဝတ်စားဆင်ယင်မဆိင်ရာ ဓေလ့များ၊ ကိးကွယ်ယံကည်မဆိင်ရာဓေလ့များင့် အြခားဓေလ့အေထွေထွကိသာ ထင်ထင်ားားေတွ ိရသည်။ ေနထိင်မဆိင်ရာဓေလ့ကိမ တိက်ိက် သတ်သတ်မတ်မတ်မေတွရေပ။ သွယ်ဝိက်ေသာအားြဖင် ့သာ ေတွရသည်။ ေတွ ိရသမ ဓေလ့ထံးတမ်းများသည် ြမန်မာ့ဓေလ့ ထံးတမ်းအစအလာအတွက် ေယဘယျသေဘာသာေဆာင်ပါသည်။ ဝိေသသ ေဘာ မေဆာင်ပါ။ အဘယ်ေကာင် ့ဆိေသာ် ေတွ ိရသမ ထံးတမ်းဓေလ့အများစသည်

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မည်သိကျင့်သံးခဲ့ကသည်ဟေသာအမအရာ (ဘဝေနထိင်မပံစံ) ထက်မည်သည့်ဓေလ့ဖစ်သည်ဆိေသာအေကာင်းအချက်သေဘာအဆင့်မသာေသာေကာင့်ဖြစ်ပါသည်။

ယခဆိလင်ကမာကီးကိ Globalization မြဖင့်ကမာရွာကီး (Global Village)အဖြစ်ဖန်တီးေနကပီြဖစ်သည်။ ထိ့ေကာင့်ယေကျးမများ၊ ဓေလ့ထံးမ်းအစအလာများ၊ လေနမဘဝပံစံများအရာရှိအရာအေထွးေထွးြဖစ်ကာ တိးတိက်ထိခိက်မများေပေပါက်လာကမည်မာမလွဲေပ။ ထိအေနမျိးထဲတွင်ြမာလမျိးများသည်အြခားကိစများ၌ေခတ်အေနအရမည်မပင်ကမာဆန်ေစကာမြန်မာလမျိးဟသည့်ဝိသသအတွက်အမျိးသားေရးလကဏာများအခိင်အမာိေနကရေပမည်။ ေခတ်င့်အညီရပ်တည်င်သန်ိင်ေရးအတွက်ကမာအြမင် (Global)အြမင်ြဖင့်ကည့်တတ်ရန်လိသကဲ့သိ့ အမျိးေရးအတွက်ြမန်မာအြမင် (Local)ိေနရန်သိန်ရန်လိအပ်လေပသည်။

Globalization ေခတ်ကီးထဲတွင် Nationalization အခန်းကသည်ယခင်ကထက်ပိမိတန်ဖိးလာသည်ကိေတွရပါသည်။ တစ်နည်းအားဖင့်ေခတ်မီတိးတက်မန်သမည်သည်အမျိးေရးဟန်ဖြင့်ေတွပ်ေနဖိ့လိအပ်ပါသည်။ ထိကဲ့သိ့အမျိးသားေရးသေဘာသာေဆာင်ေသာအမျိးသားေရးလကဏာများကိအဲချင်းအစိသည့်ကဗျာများတွင် ာဖွေတွိင်ပါသည်။ ထိမတစ်ဆင့်ေလ့လာေဖာ်ထတ်၊ ထိန်းသိမ်းပီးေခတ်အညီအသစ်ဖန်တီးကရေပမည်။

အချပ်အားဖင့်ဆိရေသာ်အဲချင်းကဗျာများထဲမြန်မာ့ဓေလ့ထံးတမ်းများသည်ြမန်မာများပင်ြဖစ်သည်ဟေဆိချင်ပါေတာ့သည်။

နိဂံးကန်ေတာ်သည်အဲချင်းကဗျာများထဲမြန်မာ့ဓေလ့ထံးတမ်းအစအလာများကိထတ်တ်စိစစ်ေလ့လာခဲ့ပါသည်။ ကန်ေတာ်သည်ယခင်ကအဲချင်းငက့်ေဝးခဲပါသည်။ ေဝးခဲ့သေကာင့်ရင်းမမမိခဲ့ပါ။ ရင်းမမိေသာအကမ်းတဝင်မြဖစ်ခဲ့ပါ။

အကမ်းတဝင်မြဖစ်ေသာအခါချစ်ရေကာင်းမန်းမသိခဲ့ပါ။ မချစ်မိေသာလည်းတန်ဖိးကိသိခွင့်မရခဲ့ပါ။ ယခမှဲချင်းင့်အနီးဆံးတွင်ိေနပီးတန်ဖိးကိလည်းနားလည်ခဲ့ပါပီ။ အဲချင်းများထဲမြန်မာ့ဓေလ့ထံးတမ်းအစအလာဆိင်ရာတန်ဖိးကိနားလည်မိရင်းအဲချင်းများထဲမစကားသံးတန်ဖိးကိလည်းေတွလာရပါသည်ဟေလ့လာလိသ သေတသီများအားတင်ြပလိပါသည်။ ယခစာတမ်းပါေလ့လာချက်များသည်ကန်ေတာ်တစ်ဦးေခါင်းတည်း၏တစ်ပညာမသာြဖစ်ပါသည်။ သေတသီများေဆွးေွးအကံေပးြခင်းဖင်ပီးပည့်စံရလိမ့်မည်ဟယံကည်ပါေတာ့သည်။

ပခက မိနယ်စားခိုင်းစကားများကို လိုလာချက် (လမေဒသိယ)

စစ်ဆေးချက်

ဤစာစီကို အသီးသီးအတည်အရေးနှင့် ပြည်သူပါဝင်ခြင်းဖြင့် လိုလာချက်

စာစီအတွက် လမေဒသိယစကားဖြင့် အားလုံးအားဖြင့် ပြင်ပွဲအားဖြင့် အသီးသီးအတည်အရေးနှင့် ပြည်သူပါဝင်ခြင်းဖြင့် လိုလာချက်

စာစီကို အသီးသီးအတည်အရေးနှင့် ပြည်သူပါဝင်ခြင်းဖြင့် လိုလာချက်
ချိန်ကန်ဆံးလင် လလတ်ပိင်း (လငယ်အများစု) သည် ပခံးထမ်းအလပ်ကိေးအခါကတည်းကလပ်ကိင်ခဲ့ကပါသည်။ပခံးထမ်းဆိသည်မာအြခားမိရွာများသိလည်းတံပိးင့်ကန်ပစည်းများထမ်းကာကးသန်းေရာင်းဝယ်ြခင်းကိလိပါသည်။ပခကမိနယ်မဖွံဖိး၊မစည်ကားခင်ကတည်းကအထမ်းသမားဘဝင့်အရပ်ရပ်အနယ်နယ်သိလည်းတံသထွက်ကန်(ေစာင်၊သနပ်ခါး၊ချည်ထည်ပစည်းများ)စသည်တိ့ကိုရောင်းချခဲ့ကပါသည်။ထိ့ကဲ့သိအြခားမိရွာများသိသွားေရာက်ေရာင်းချရာတွင်ရက်လကာည်တတ်ပါသည်။ထိအခါအြခားလများမသိေစချင်သေသာအေကာင်းအရာများေြပာေသာအခါတွင်လည်းကောင်း၊ကန်ပစည်းေငွေကးတွက်ချက်ေသာအခါတွင်လည်းကောင်း၊မိမိတိ့အချင်းချင်းသာသိသေသာစကားများကိသာေြပာဆိကပါသည်။ထိစကားများကိမိမိဇာတိရွာသိသေသာအခါတွင်လည်းဆက်လက်ေြပာဆိကပါသည်။ကာလကာသာထိစကားများသည်ထိေဒသ၏ေဒသိယစကားများြဖစ်လာပါသည်။ယင်းေဒယေဒသိစကားများကိေလ့လာြခင်းြဖင့်ထိေဒသ၏လမစီးပွားဘဝ၊လမအေြခအနေတိ့ကိေဖာေဆာင်ေနသာလမေဒသိယစကားဟဆိရပါမည်။

အခန်း၁ ပခကမိနယ်သမိင်းအကျးပခကမိသည်မြန်မာိင်ငံအလယ်ပိင်းမေကွးတိင်းေဒသကီးအတွင်းမိတစ်မိဖွဲစည်းထားပါသည်။ဧရာဝတီြမစ်င့်ချင်းတွင်ြမစ်ဆံရာြမစ်ဆံ၏အေနာက်တာင်ဘက်၁၈မိင်အကွာဧရာဝတီြမစ်ကမ်းနဖးတွင်ကပ်လျက်တည်ရပါသည်။ဧရာဝတီြမစ်သည်ပခကမိ၏အဘက်တွင်ေြမာက်မေတာင်သိစီးဆင်းပါသည်။ဧရာဝတီြမစ်ေကာင်းစ်ခအကားတွင်ကန်များြဖစ်ထွန်းလျက်ပါသည်။ထိန်ရာများတွင်လည်းလများရွာတည်ရာတွင်လည်းနိုင်ကပါသည်။မေကွးတိင်းေဒသကီးသည်ခိင်(၅)ခိင်၊မိနယ်(၂၅)မိနယ်င့်ဖွဲစည်းထားပါသည်။ပခကခိင်မိနယ်(၅)မိနယ်ပါဝင်သေသာခိင်မိတစ်မိဖွဲစည်းထားသည်။ပခကမိနယ်နယ်သည်ရပ်ကွက်(၁၆)ရက်ကွက်၊ေကျးရွာအပ်စ(၅၅)အပ်စ၊ေကျးရွာေပါင်း(၂၄၆)ရွာပါဝင်သေသာမိနယ်ဖွဲ့စည်းသည်။
ပေးထားသော စာသားများကို နားလည်စေရန် အောက်ပါအတိုင်း ဖန်တီးပါ။
အခန်း ၂

အချိန်အောက် သဒါဝါသိရာဇ်မှာ ကျေးဇူးရွယ်လိုက်သော ကြက်စာတော်များဖြင့် သဒါဝါသိရာဇ်ကို စားသေချာစေရန် လိုအပ်သည်။ စားသေချာရမည်။

စားသေချာရန် အနည်းဆုံးလေးရက်တွင် စားသေချာရာတွင် စားသေချာမှု့ကြောင်း အလွန်ရက်သတ်မှတ်ချက်ထူးသည်။

စားသေချာရာတွင် စားသေချာရာအပေါ် စားသေချာရာမှု့ကြောင်း အပေါ် စားသေချာရာမှု့ကြောင်း သတ်မှတ်ထားသည်။

စားသေချာရာ စားသေချာရာမှု့ကြောင်း အပေါ် စားသေချာရာအပေါ် စားသေချာရာမှု့ကြောင်း သတ်မှတ်ထားသည်။

စားသေချာရာ စားသေချာရာမှု့ကြောင်း အပေါ် စားသေချာရာအပေါ် စားသေချာရာမှု့ကြောင်း သတ်မှတ်ထားသည်။

စားသေချာရာ စားသေချာရာမှု့ကြောင်း အပေါ် စားသေချာရာအပေါ် စားသေချာရာမှု့ကြောင်း သတ်မှတ်ထားသည်။

စားသေချာရာ စားသေချာရာမှု့ကြောင်း အပေါ် စားသေချာရာအပေါ် စားသေချာရာမှု့ကြောင်း သတ်မှတ်ထားသည်။

စားသေချာရာ စားသေချာရာမှု့ကြောင်း အပေါ် စားသေချာရာအပေါ် စားသေချာရာမှု့ကြောင်း သတ်မှတ်ထားသည်။
အသွင်ကွဲစကားများိသည်သာြဖစ်သည်။ ထိအသွင်စကားများကိပင် ေဒသိယစကားဟေခေဝသံးန်းပါသည်။ ကမာေပတွင် ဘာသာစကားေပါင်းများစွာိသည်။ ထိဘာသာ စကားများတွင် ေဒသိယစကားများြဖစ်သည်။ ထိနည်းတြမနာဘာသာစကားတွင်လည်း အင်းေလးေဒသိယစကား၊ရခိင်ေဒသိယစကားစသည်ြဖင့် ေဒသိယစကားေပါင်းများစွာိသည်။ ထိ ့ေကာင့်ဘာသာစကားသည် ေဒသိယစကားထက်ကျယ်ြပန် ့သည်။ ေဒသိယစကားသည် ဘာသာစကားတွင်အကျံးဝင်ေနေသာ ဘာသာစကား၏ အစိတ်အပိင်းတစ်ခ (သိ ့) ဘာသာစကား၏ အသွင်ကွဲစကားတစ်ခြဖစ်သည်။ သိ ့ြဖစ်၍ ဘာသာစကားတိင်းကိ ေဒသိယစကားအြဖစ်သတ်မတ်ရာတွင် မရိင်ေသာ်လည်း ေဒသိယစကားတိင်းကိ ဘာသာစကားအြဖစ်သတ်မတ်ိင်ပါသည်။ ြဖစ်ေပလာေသာအေြခအေနေပမတည်၍ ေဒသိယစကားအမျိးအစားကွဲြပားသွားတတ်သည်။

"ေဒသိယစကား(၃)မျိးိသည်။ ေဒသကွဲြပားမေကာင့် ြဖစ်ေပလာေသာ ေဒသ ေဒသိယင့်လမအဆင့်အတန်းကွာြခားမေကာင့် ြဖစ်ေပလာေသာလမေဒသိယ၊ အချိန်ကာလအေြပာင်းအလဲေကာင့် ြဖစ်ေပလာေသာ ကာလေဒသိယ တိ ့ြဖစ်သည်။" 291

ပုံစံကြည့်၍

"ေဒသိယစကားသည်လမေဒသိယစကားများမလမဆိင်ရာစကားအသွင်ကွဲများသိ ့မဟတ်လမေဒသိယစကားများသည်လမအေြခအေနအရပ်ရပ်ေကာင့် ြဖစ်ေပလာေသာဘာသာစကားအသွင်ကွဲများြဖစ်သည်။ လမေဒသိယင့်ပတ်သက်၍ ၁ Th Ha, 1997. 3.

J Wardhaugh. 1998.45.
"လမေဒသိယစကားဆိသည်မာ ကွဲပားခားနားသေသာ လမဘဝ ကိပိင်ဆိင်ကေသာ သတိ တွင် မိမိတိ့ လမအဆင့်အတန်းအလိက် ပြပြီးဆိသံးစွဲကေသာစကားဖစ်ပါသည်။ 293

"လမေဒသိယဆိသည်မာ အတိအကျိေနသည် လမအလာနဲစားအဆင့်အတန်တစ်ခက်နဲနီးနီးကပ်ကပ်သေသာ (၃) ထိသများ ဖစ်ပါသည်။ 294

"ကျွန်ုပ်လမေဒသိယစကားကို လမအေကာင်းရင်းခံအမျိးမျိးတွင် အသွင်ကွဲစကားများဖစ်ပါလျက် သည်။ ကာသမားအသိင်းအဝိင်းတွင် ေသာစကား၊ ပညာတတ်အသိင်းအဝိင်းတွင် ေသာစကား၊ လငယ်လရွယ်များအတွင်း ေသာစကား၊ အပညာလောကတွင် ေသာစကား စသည်ဖင့်လမေဒသိယစကားများဖစ်ပါသည်။ လမေဒသိယစကားတွင် အခြား စံဘာသာစကားင့်ကွဲမနည်း၍ အချိမာ ကွဲမများသည်ကိေတွရသည်။ လမအစအဖွဲ့ဖစ်ပါလာရခင်းသည် လမေနာက်ခံများတွင် ပညာအရည်အချင်း၊ ပတ်ဝန်းကျင်အေနလပ်ငန်းဆာတာများ၊ အသက်အရွယ်၊ လိင်တိပါဝင်သည်။ လမအဖွဲအစည်းတစ်ချင်း လမအစအဖွဲမည်၍ မည်မိသည်ကိလျင်မတ်ပိင်ခံ။ 3

Mesthrice, 2000.78.

5 ရောဂါတာ့အများ။ 2008, ၁၁၂.
မရိင်ပါ။ လမေနာက်ခံအေြခအေနအမျိးမျိးတွင် အစအဖွဲြဖစ်ပါသည်။ ြဖစ်ပါသည်။ ြဖစ်ပြပင် ဖန်တီးအသံြပ လာကသည်။ ထိသိ ့ ဘာသာစကားကိ ြပြပင်ဖန်တီးရာတွင် ဘာသာစကား၏ အသံထွက်၊ ေဝါဟာရ အသံအန်းသည် အသွင်ကွဲများြဖစ်သည်။ သဒါသည်အသွင်ကွဲမနည်း၍ ေဝါဟာရ အသံအန်းသည် အသွင်ကွဲများြဖစ်သည်။ ဘာသာစကား၏ အသွင်ကွဲများြဖစ်သည် ေဒသိယစကားတိ ့သည် ဘာသာစကားတစ်ခ၏ သေဘာလကဏာများကိ ဖာြပေနာမက ဘာသာစကားေြပာဆိရာတွင် လ့အဖွဲအစည်းတစ်ခလံးက အသံြပ လာကသည်။ ထိသိ ့ ဘာသာစကားကိ ြပြပင်ဖန်တီးရာတွင် ဘာသာစကား၏ အသံထွက်၊ ေဝါဟာရ အသံအန်းင့် သဒါတိ ့ြဖစ်ိင်ပါသည်။

၂၊ စံစကားသတ်မတ်ချက်

ေဒသိယ ေလ့လာမတွင် ဘာသာစကားတစ်ခ၏ အသွင်ကွဲများအနက် အသွင်ကွဲ တစ်ခကိစံအြဖစ်သတ်မတ်ရန်လိအပ်ပါသည်။ ြမန်မာစာအဖွဲက တရားဝင် ထတ်ေဝထား သည့် အဘိဓာန်များတွင် ပါိေသာ စာလံးေပါင်းသတ်ပံ၊ စကားလံး၊ ေဝါဟာရ၊ အသံထွက်ေဖာြပချက်များကိ စံြမန်မာဘာသာစကားအြဖစ်သတ်မတ်ပါသည်။ စံြမန်မာစကားသည် ေဒသင့်လမဆိင်ရာကွဲြပားမကိ ြပသမမိသည့် ပံစံြဖစ်သည်။ ကွဲြပားသည့် အသွင်ကွဲစကားများမ တညီသည့် ပံသာန်ိသည် ဘာသာစကား ြဖစ်သည်။ စံြမန်မာဘာသာစကားသည် ြမန်မာဘာသာစကားေြပာသ အများစအသံြပသည့် တရားဝင်ဘာသာစကား ြဖစ်သည်။
ယင်းေဒသိယစကားများကို ကြည့်ပါ၀င်သို့မှ စံညများ ဖြင့်သော်လည်း၊ လမ်းခရီးတွင်အေကာင်းအရာများကို သာဖော်ပြသည်။ စကားများကို မိမိဇာတိသိ ဖော်လိုက်လင်လည်း ဆက်လက်၍ ဖော်သည်။ ကာလကာေသာအခါ ထိစကားများသည် ထိေဒသ၏ ေဒသေဒသိယစကားများဖြစ်လာပါသည်။ ယင်းေဒသိယစကားများကို ကြည့်ခင်းဖြင့် ထိေဒသ၏ လမစီးပွားဘဝ၊ လမအေြခအေနတိ့ကို ဖော်ဆိုသောအခါ လမ်းခရီး၏ အချင်းချင်း ကျွန်းစုကဲ့သို့ အသံသာများ ပါဝင်ပါသည်။
ပခံးထမ်းသမားများ၏စကားများကိုလ့လာတင်ြပရာတွင်အသံးအေဆာင်ဆိင်ရာပခံးထမ်းစကားများ၊အစားအေသာက်ဆိင်ရာပခံးထမ်းစကားများ၊ေငွေကးဆိင်ရာပခံးထမ်းစကားများ၊အေထွေထွပခံးထမ်းစကားများဟုခွဲခြားကာဖြာ့ပပါမည်။

၃၃၁။အသံးအေဆာင်ဆိင်ရာပခံးထမ်းစကားများပခံးထမ်းထွက်ရာတွင်ရက်လကာတတ်သည့်အတွက်မိမိတိ့င့်ဆိင်သေသာအသံအေဆာင်ပစည်းများကိယသွားကပါသည်။အြခားမိရွာများတွင်အိမ်ငားရနကရသည်။ထိအခါအြခားသများမသိေစချင်သည့်အခါမိမိတိ့အချင်းချင်းသိသာစကားများကိုြပာဆိကသည်။

/lo/ လံ/ -lo/ လံဆိသည်မာအိမ်ကိခင်းဖစ်သည်။လံြခံသည့်သာဓက-"ဒီလံကာင်းတယ်"၊"ငားလိက်ကွာချမ်းြခံ/ Synthetic - Synthetic/ချမ်းြခံဆိသည်မာ'ေစာင်ကိခင်းဖစ်သည်။ချမ်းသည့်အခါေွးေထွးေစရန်ြခံရေသာအရာကိလိြခင်းဖစ်သည်။

/la/ လံ/ -la/ လံြခံမကိအစွဲြပ၍ြခင်းဖစ်သည်။ဤအေခသည်ပစည်၏အသံးဝင်မအေပမတည်၍ြခင်းဖစ်သည်။

/ta/ လံ/ -ta/ လံြခံမကိအစွဲြပ၍ြခင်ကိက်မယ်လံြခံယခဲ့မီးတိ/ -mb/မီးည်ဆိသည်မာဇွန်းအည်၊ဇွန်းအတိကိခင်းဖစ်သည်။ဇွန်း၏လက်ကိင်မာအတိြဖစ်လင်မီးည်ဟေခပီးဇွန်း၏လက်ကိင်မာအည်ြဖစ်လင်မီးည်ဟေခသည်။ဇွန်း၏ပံသာန်ကိမီးတိ/ -mb/မီးည်/ -mb/မီးည်ဆိသည်မာဇွန်းအည်၊ဇွန်းအတိကိခင်းဖစ်သည်။
ဗုဒ္ဓကိမ္ပမာသော ဗုဒ္ဓကိမ္ပမာ ကျင်ြခံသည်။ ကျင်ြခံသည် ကျင်ြခံသည် ကျင်ြခံသည် ကျင်ြခံသည်
အယောင် - " ကျင်ြခံ မိုဘိုး"

ဗ/ န - ဗ/ /

ကျင်ြခံသည် " ကျင်ြခံသည် ကျင်ြခံသည်
အယောင် - " ကျင်ြခံ မိုဘိုး"

ဗ/ န ဗ/ - ဗ/ /

ကျင်ြခံသည် ကျင်ြခံသည် ကျင်ြခံသည် ကျင်ြခံသည်
အယောင် - " ကျင်ြခံ မိုဘိုး"

ဗ/ လာဟာ /

ဗ/ လာဟာ ကျင်ြခံသည် " ကျင်ြခံသည် ကျင်ြခံသည်
အယောင် - " ကျင်ြခံသည် ကျင်ြခံသည်

ဗ/ ပန်း /

ပန်း ကျင်ြခံသည် ကျင်ြခံသည် (စိုက် ကျင်ြခံသည် ကျင်ြခံသည်) ပန်း ကျင်ြခံသည် ကျင်ြခံသည်
ပန်း ကျင်ြခံသည် ကျင်ြခံသည်
အယောင် - " ပန်း ကျင်ြခံသည် ကျင်ြခံသည်

ဗ/ / ပန်း /

ပန်း ကျင်ြခံသည် ကျင်ြခံသည် (စိုက် ကျင်ြခံသည် ကျင်ြခံသည်) ပန်း ကျင်ြခံသည် ကျင်ြခံသည်
ပန်း ကျင်ြခံသည် ကျင်ြခံသည်
အယောင် - " ပန်း ကျင်ြခံသည် ကျင်ြခံသည်

ဗ/ ပန်း / ပန်း / ပန်း /

ပန်း ကျင်ြခံသည် ကျင်ြခံသည် (စိုက် ကျင်ြခံသည် ကျင်ြခံသည်) ပန်း ကျင်ြခံသည် ကျင်ြခံသည်
ပန်း ကျင်ြခံသည် ကျင်ြခံသည်
အယောင် - " ပန်း ကျင်ြခံသည် ကျင်ြခံသည်

ဗ/ / ပန်း / ပန်း / ပန်း / ပန်း /

ပန်း ကျင်ြခံသည် ကျင်ြခံသည် (စိုက် ကျင်ြခံသည် ကျင်ြခံသည်) ပန်း ကျင်ြခံသည် ကျင်ြခံသည်
ပန်း ကျင်ြခံသည် ကျင်ြခံသည်
အယောင် - " ပန်း ကျင်ြခံသည် ကျင်ြခံသည်
ပန်းည်ဆိသည်မာ မန့်ဖတ်အည်များပါဝင်သည့် စားစရာကိေခ်ဖစ်သည်။ ပန်းပားဆိသည်မာ အေပားပံသာန်ိေသာ စားစရာကိေခ်ဖစ်သည်။ အရာဝတ်ပံသာန်ကိေခ်ဖစ်သည်။ သာဓက- "ေစျးသွားရင် ပန်းပားဖစ်၊ ပန်းည်ဖစ်ဝယ်ခဲ့နား စားချင်လိ့" ပဲခး / pə ɡə /
ပဲခးဆိသည်မာ "ဗု"ကိုဖော်ထားရန်မှာသာ ပဲခးသည် ပဲခးဟေခ်ဖစ်သည်။

မိန့် / jə ɡə /
မိန့်သေချာကျောက်နံပါဝြေက်ဖုံဖော်ထားရန်မှာသာ မိန့်သည် မိန့်ဟေခ်ဖစ်သည်။

လီချာ / mə ɡə /
လီချာကိုဖော်ထားရန်မှာသာ လီချာသည် လီချာဟေခ်ဖစ်သည်။

ချောက် / nu wə /
ချောက်ကိုဖော်ထားရန်မှာသာ ချောက်သည် ချောက်ဟေခ်ဖစ်သည်။

ဗျီ / nə /
ဗျီကိုဖော်ထားရန်မှာသာ ဗျီသည် ဗျီဟေခ်ဖစ်သည်။
မှတ်ချျ- “သာဓက စလာဆို လိ့ာင်ယ်ဘာ”

ဃိပ်တစ်ခါး အောက်နှင့်စီးချင်းစကားများ

ပုံမှန်အစိတ်အပိုင်း မြော်စိတ်စပ်သုံးသူ အောက်ပါအဆင့်

ကြည့်ရှုပ်သည် မြော်စိတ်စပ်သုံးသူ ရှိတွေ့ရှိသောအခါးပျက်စွဲ

သို့ရာတို့မှာ စီးချင်းချက်ရေအာင်ဖြစ်သည်။

မြော်စိတ်စပ်သုံးသူ အောက်ပါအဆင့်

ဗိုလ်(၁) = ကြယ်

ဗိုလ်(၂) = နှစ်

ဗိုလ်(၃) = မော့

ဗိုလ်(၄) = ဆူ

ဗိုလ်(၅) = မီး

ဗိုလ်(၆) = မော့

ဗိုလ်(၇) = မီး/မီး

ဗိုလ်(၈) = မီး/မီး

ဗိုလ်(၉) = မီး/မီး

ဗိုလ်(၁၀) = မီး/မီး

ဗိုလ်(၁၀၀) = မီး/မီး

ဗိုလ်(၁၀၀၀) = မီး/မီး

ဗိုလ်(၁၀၀၀၀) = မီး/မီး

ဗိုလ်(၁၀၀၀၀၀) = မီး/မီး

ထွား / thwà/

ထွားသည်ပြား ပြားပြားသောနောက်တစ်ခါ ဒီသို့မဟုတ် ဒီပြားပြားကြည်သောနောက်တစ်ခါ

ထွားအောက်ပါအဆင့် အပြောင်မှုသည် ပြားပြားကြည်သောနောက်တစ်ခါ ထွားသည်

ထွားပြား / ထွားပြား / thwà / thwà

ထွား / thwà/

ဗိုလ်(၁) = ကြယ်

ဗိုလ်(၂) = နှစ်

ဗိုလ်(၃) = မော့

ဗိုလ်(၄) = ဆူ

ဗိုလ်(၅) = မီး

ဗိုလ်(၆) = မော့

ဗိုလ်(၇) = မီး/မီး

ဗိုလ်(၈) = မီး/မီး

ဗိုလ်(၉) = မီး/မီး

ဗိုလ်(၁၀) = မီး/မီး

ဗိုလ်(၁၀၀) = မီး/မီး

ဗိုလ်(၁၀၀၀) = မီး/မီး

ဗိုလ်(၁၀၀၀၀) = မီး/မီး

ဗိုလ်(၁၀၀၀၀၀) = မီး/မီး

ဗိုလ်(၁၀၀၀၀၀၀) = မီး/မီး

ဗိုလ်(၁၀၀၀၀၀၀၀) = မီး/မီး

ထွား / thwà/

ဗိုလ်(၁) = ကြယ်

ဗိုလ်(၂) = နှစ်

ဗိုလ်(၃) = မော့

ဗိုလ်(၄) = ဆူ

ဗိုလ်(၅) = မီး

ဗိုလ်(၆) = မော့

ဗိုလ်(၇) = မီး/မီး

ဗိုလ်(၈) = မီး/မီး

ဗိုလ်(၉) = မီး/မီး

ဗိုလ်(၁၀) = မီး/မီး

ဗိုလ်(၁၀၀) = မီး/မီး

ဗိုလ်(၁၀၀၀) = မီး/မီး

ဗိုလ်(၁၀၀၀၀) = မီး/မီး

ဗိုလ်(၁၀၀၀၀၀) = မီး/မီး

ဗိုလ်(၁၀၀၀၀၀၀) = မီး/မီး

ဗိုလ်(၁၀၀၀၀၀၀၀) = မီး/မီး

ဗိုလ်(၁၀၀၀၀၀၀၀၀) = မီး/မီး
ဘတ်ဆိသည်မာ မိမိတိ့ေရာင်းချခဲ့သောကန်ပစည်းအတွက်ေငွေကးကို ထားခဲ့လင် “ဘ” ဟေခသည်။

သာဓက - ဒီတစ်ေခါက် ဘတ်ထားခဲ့တာများတယ်

ဘတ်က်ထွက် / ဘတ်စထွက် / bou Ɂ kau Ɂ thwa Ɂ /

ဘတ်က်ဆိသည်မာ မိမိတိ ထားခဲ့သောအေကးကို ြပန်လည်ေတာင်းယရန် သွားသည့်အခါ ဘတ်က်ထွက် / ဘတ်စထွက် ဟေခသည်။

သာဓက - ေအပတ်ထဲ ဘတ်က်သွားရာအာင်

ေဒါင်ထ / ေဒါင်ထားခဲ့သည်မေခက်ေလာက်။

ေဒါင်ထဆိသည်မာ မိမိ၏ ကန်ပစည်းကိုတစ်ဖက်လက်ငင်းေပးသည်ဝယ်ယလင် ေဒါင်ထခဲ့သည်ဟေခသည်။

သာဓက - ငါေတာ့ဒီတစ်ေခါက် ေဒါင်ထတာများတယ်

နကန်ဆင် / na ɡshi /

နကန်ဆင်ဆိသည်မာ မိမိရင်းထားသည် ထက်ပိုအြမတ်ရသည့်အခါတွင် နကန်ဆင်ဟေသံးသည်။

သာဓက - ဒီဂါကမဝါတယ် နောများတယ်

မငံ / ma nã /

မငံဆိသည်မာ ကန်ပစည်းများမေရာင်းရ၍ အဆင်မေြပေကာင်း အခါတွင် သံးသည်။

သာဓက - ဒီတစ်ေခါက်မငံက်ေဟ့

ငွေကးဆိင်ရာ ပခံးထမ်းစကားများသည် ဗန်းစကားဆန်ေနသည် ကိေတွရ သည်။
ရူး ရူး အခြေခံအရေးကောက်ပြီး
ပါသောအခြေခံကုံးကူးမှုက အဓိကအီးကုံးကူးမှုကို
အဓိကောက်ပြီး ပါသောအခြေခံကုံးကူးစကားများကို
သုံး၍

"သာဓက ဒီယာကို မိုးျခင်းြဖစ်သည်။"

ဗား / ma nou/ ဗားဆိသည်မာ "ဒီယာ ဗားနှင့် အပြားျခင်းြဖစ်သည်။"

能源 / wē - ᵃ/ မိုးျခင်းြဖစ်သည် "ဒီယာ မိုးျခင်းြဖစ်သည်။"

ဗား / gā/ ဗားဆိသည်မာ "သာဓက ဒီယာ ဗားနှင့် အပြားျခင်းြဖစ်သည်။"

ဗား / mwē/ မိုးျခင်းြဖစ်သည် "ဒီယာ မိုးျခင်းြဖစ်သည်။"

ဗား / -loū - ᵃ/ ဗားဆိသည်မာ "ဒီယာ မိုးျခင်းြဖစ်သည်။"

ဗား / bi zē/ ဗားဆိသည်မာ "ဒီယာ မိုးျခင်းြဖစ်သည်။"
ဘိေဇဆိသည်မာ ဘန်းကီးေကျာင်းကိဆိလိသည်။ (ဘ = ဘန်းကီး၊ ေဇ = ေကျာင်း)

သာဓက - "ဒီဘိေဇမာပဲတည်းရေအာင် ြခံငံသံးသပ်ချက်

ဤစာတမ်းသည် ပခက မိနယ်ပခံထမ်းစကားများကိလမဘာသာေဗဒနည်းြဖင့် ေလ့လာတင် ြပထားြခင်းြဖစ်ပါသည်။

လလတ်ပိင်းေြပာပခံးထမ်းစကားများကိ ေလ့လာကည့်လင်၄င်းတိ ့သည် နယ်ေြမေဒသအသီးသီးသိအချိန်ကာလကာြမင့်စွာသွာေရာက်လည့်လည်ကးသန်းေရာင်းဝယ်သများြဖစ်ရာ ၄င်းတိ ့သည် အသက်/ေငွေကးလံြခံစိတ်ချေစေရးအတွက် အချင်းချင်းနားလည်ေသာစကားများကိ ေြပာဆိသံးစွဲကသည်။ြခံ၍ကည့်လင်ပခံးထမ်းစကားများသည် ဗန်းစကားဆန်နသည်ကိလည်းေကာင်း၊ အနက်ချဲထွင်လည်းေကာင်း၊ ပါဠိစကားလံးကိအတိေကာက်ြပိြိေသာေကာင့် လည်းေကာင်း၊ သဘင်သည်များသံးေသာ စကားများကိတင်စား၍ လည်းေကာင်း၊ ဝက်၍လည်းေကာင်း ေတွရသည်။

ပခံးထမ်းလပ်သတိသည်များေသာအားြဖင့် လလတ်ပိင်းေယာက်ျားများသာြဖစ်သည်။

မိမိတိ့၏ အသက်ေမွးဝမ်းေကျာင်းမအေပမတည်။ သိသာသည်အချိလကီး၊ လငယ်များကလည်း ေြပာဆိကပါသည်။

ယင်းစကားများသည် စံဘာသာစကားင့်မတဘဲကွဲြပားြခားနားမိေသာေကာင်း ေဒသ ေဒသိယစကားများလည်းြဖစ်သည်။

တဖန်လမအဆင့်အတန်းအေြခအေနများကိလည်း ေပလွင်ေစသာသည်။

စံစကားင့်ယလင်အရင်းခံလမေဒသိယစကားစစ်စစ်များ။

စံဘာသာစကားင့်ပခကိသံး ေဝါဟာရများကွဲြပားရြခင်းသည် စံဘာသာစကား အများဆံးအသံးြပေနေသာ ပခကိမိေပင့် ေဒသသံးသေဘာကိ ေဖာေဆာင်ေပးသည့် ပခကိ မိနယ်အတွင်းိကျွာရွာများ၏ခရီးကွာေဝးမလမ်းပန်းဆက်သွယ်ေရးခက်ခဲမစသည့့်အေကာင်းများေကာင့် လည်းေကာင်း၊ မိေပိေနလတန်းစားင့်မိနယ်အတွင်းိကျွာရွာတိ့၏ လမအေြခအေနကွဲြပားမေကာင့်ြဖစ်သည်ဟလည်းေကာင်း ဆိိင်ပါသည်။

ပခကိ ေဒသတွင် ိးသားြဖစင်ေသာ ြမန်မာမဓေလ့စိက်သဘာဝများင့် ြမန်မာဆန်သည် အေြပာအဆိအသံးအန်းများယေန ့တိင်ကျန်ိေနေသးေကာင်း သိိရပါသည်။
ယခုနောက်ကမ္ဘာပေါ်ပြောပြပါမှာ မိုးနိုင်သည် လမ်းပန်းဆက်သွယ်ရေးအကာအကွယ်ရာ ဘာသာစကားတွင် အများဆုံးရှိပါသည်။ နိဂံးပြခံးထမ်းစကားများကို ပြခံးထမ်းစကားများတွင်သာ အများဆုံးရှိပါသည်။ မိမိရောင်းချခဲ့ရသော ယခုနောက်လမ်းပန်းဆက်သွယ်ရေးအကာအကွယ်ရာ ဆိင်ကယ်များဖြင့် ယေန့တိင်သွားရောက်ရာ၊ ယေန့တိင်လည်း ထိပြန်ထမ်းစကားများကို ပြန်ဆိုပါသည်။ စာတမ်းသည် မိမိနိုင်ရာ ဒသဝန်းကျင်ကို အတိင်အတာတစ်ခုထိ အေထာက်အပံ့ဖစ်လိမ့်မည်ဟု ယံကည်ပါသည်။

ကျမ်းကိးစာရင်းကိုလာ၊ ဒသာ၊ (၂၀၁၈)၊ လမာဘာသာဖုရားများအဖွင့်ရန်ကန်၊ ရန်ကန်တကသိလ်၊ မြန်မာစာဌာန၊ ဗုဒ္ဓိကျောင်း၊ ဗုဒ္ဓိကျောင်းကိုလာ၊ ရန်ကန်၊ ရန်ကန်တကသိလ်၊ မြန်မာစာဌာန၊ ဗုဒ္ဓိကျောင်းကိုလာ၊ ရန်ကန်၊ ဓဝံပံိပ်တိက်၊ တင်ဧ၊ ဦး။ (၁၉၇၅)၊ မြန်မာဘာသာစကား၏ ဒသယစကားများလည်းကောင်း၊ မြန်မာိန်းနိုင်ငံတက္ကသိုလ်ဂျာနယ်၊ အတွဲ (၅၈)၊ အပိုင်း (၂)၊ ၂၀၁၀၊ ပါခက်မဂ္ဂဇင်း၊ (၂၀၁၂)၊ ရန်ကန်၊ ဦးမျိးဆင့်၊ ငွေမြို့ ဥပရာမှူးချုပ်လုပ်နေရာ၊ မိနယ်အေထွေထွရအပ်ချပ်ဌာန၊ (၂၀၁၀)၊ မိနယ်အေထွေထွရအပ်ချပ်ဌာန။


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<td>3 Kinds of dialects; (1) Regional dialect according to geography region (2) Social dialect according to social structure / level (3) Temporal dialect according to historical period. (Thi Ha, 1997, 3.)</td>
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<td>၂</td>
<td>The term dialect can also be used to describe differences in speech associated with various social groups or classes, There are social dialects as regional ones. (Wardlaugh, R, 1998,45)</td>
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<tr>
<td>၃</td>
<td>Ascertain Significant correlations between the social groups and particular speech choices. (Mesthrie, 2000, 78.)</td>
<td>ฎ</td>
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<td>အသက်</td>
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<td>ဗီလာ</td>
<td>၁</td>
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</table>
ပါဝင်သည် (က)
ဗိုလ်ချုပ်ချုပ်အားလုံးကို ဖွင့်လှစ်ခြင်း

စည်းစိုးချက်

စာတမ်းအကျး

စာတမ်းသည် ဗိုလ်ချုပ်ကို အားလုံးကို ဖွင့်လှစ်နေသောစာတမ်းဖြစ်သည်။

ဗိုလ်ချုပ်(၁၂၁၇)ခုတွင် ဗိုလ်ချုပ်အရပ်မ အားလုံး ဖွင့်လှစ်ခဲ့သည်။ ဗိုလ်ချုပ်၏ အရာပိုင်းတွင် မိသားစုသားများ ပစ်မှုအကျိးဖြင့် ဆောင်ရွက်ရေးရာတွင် အများများကို ဖွင့်လှစ်ထားသည်။

ဗိုလ်ချုပ်အားလုံးကို ဖွင့်လှစ်ထားသော အကျိးအရာကို အားလုံးအဖြစ် သတ်မှတ်ထားသည်။

ထိုစာတမ်းသည် ဗိုလ်ချုပ်အားလုံးအဖြစ် ဖွင့်လှစ်ရာတွင် အဝေးပေးပါသည်။
နိဒါန်း

ဤစာတမ်းသည် ေတာင်ငမိအနီးြမတ်ေစာညီေနာင်ဘရားမအိးကန်းသြမတ် ေခါင်းေလာင်းစာများကိလ့လာေသာ စာတမ်းြဖစ်သည်။ ဤစာတမ်းတွင် တင်ြပမည့် ြမတ်ေစာညီေနာင်ေစတီေတာ်မအိးကန်းသြမတ်ေခါင်းေလာင်းစာများကိပံိပ်အကရာတင်၍ ေလ့လာထားြခင်းမိသးပါ။ ထိေခါင်းေလာင်းများမာရာသီဥတု၊ လ ့ပေယာဂဒဏ်င့်စကာလကာြမင့်ခဲြခင်း ေကာင့်အချိေနရာများတွင် စာများပျက်ယွင်းလျက်ိန်ပါသည်။ ေနာင်ေတာ်ေစတီ ေခါင်းေလာင်းမာရာသီဥတုမာရာသီဥတုကို ဖတ်လျက်ရှိသာေနကာင်းလံးဝဖတ်မရေတာ့ပါ။ ညီေတာ်ေခါင်းေလာင်းစာမာစာေကာင်းေရမိန်ေသာ်လည်း ဖတ်၍ရိင်ပီး ေနာင်ေတာ်ေစတီ ေခါင်းေလာင်း ဖတ်မရသည့် စာများကိတိက်ဆိင်ဖတ်၍ ရေကာင်းေတွရသည်။ အြခားေခါင်းေလာင်းတစ်လံးမာရာဟသာေစတီေတာ်ိေခါင်းေလာင်း ြဖစ်ပါသည်။ အရွယ်အစားေသးငယ်ေသာ်လည်း ေခါင်းေလာင်းစာကိလက်ယာရစ်ရစ်ပတ်ေရးထိးပီြဖင့် စာတမ်းင်အေနြဖင့် အိးကန်းသြမတ်ေစာညီေနာင်ေစတီေတာ်ကိပဂံေခတ်မတိင်မီကပင်တည်ထားကွယ်ခဲြခင်း ြဖစ်ကာင်း ဘရားသမိင်းအရသိရသည်။ ဘရားအေလာင်းကက်ြဖမင်းဘဝြဖစ်စအခါက ညီ ေတာ်အာနာေလာင်းလျာင့်အတ ြမတ်ေစာညီေနာင်ေစတီတည်ထားမည့်ကန်းေြမေနရာတွင်ကျင်လည်ကျက်စားခဲ့ကာင်း သိရသည်။ ြမတ်ေစာညီေနာင် ေစတီေတာ်သည် ေတာင်ငမိ

ပြည်သူ့ကြည်တွင်

ပြည်သူ့ကြည်တွင် ပြုလုပ်ခဲ့သည့် ကျွန်တော်မှန်းထောင်ပြန်ခဲ့သည်။ ကျွန်တော်တို့ကို မှန်ကန်သောအချက်အလက်များဖြင့် အခြေခံမှန်ကန်မှန်ကန်ဆိုသည်။ အထက်ပါ မြောက်ခေါင်းသည် ပါဝင်နေသော သောအခါအထောက်အထားသို့မဟုတ် ကျွန်တော်တို့ကို အခြေခံပွဲပေးခဲ့သည်။
ဗိုလ်ချင်းစိုးပြုပြီး အဘိုးကိုးကွယ်ခဲ့ရာတွင် အိုက်ချင်းစိုးပြုပြီး ပြည်သူများအား ထိန်းသိမ်းခဲ့ကသည်။

ဓာတ်ဖောပ်တွင် အိုက်ချင်းစိုးပြုပြီး ပြုပြီး အတွေးအရေးကို ထိန်းသိမ်းခဲ့ကသည်။

ဓာတ်ဖောပ်တွင် အိုက်ချင်းစိုးပြုပြီး ပြုပြီး အတွေးအရေးကို ထိန်းသိမ်းခဲ့ကသည်။
ဤေခါင်းေလာင်းသံးလံးတွင်မြန်သြမတ်၏ ဘွဲေတာ်ကိက င်ကလျာဏဓဇဟု ရွေးထိးထားေကာင်းေတွရသည်။ မေထရ်ြမတ်ဟု ရွေးထိးသည်ကိေထာက်၍သိကာေတာ်ဝါေတာ်ရသည်ဆရာေတာ်တစ်ပါးြဖစ်မည်ဟုမန်းဆရပါသည်။

အိးကန်းသြမတ်ေခါင်းေလာင်းများ အိးကန်းသြမတ်ေခါင်းေလာင်းများမေခါင်းေလာင်းစာများ ြမတ်ေစာညီေနာင်ေစတီေတာ်တွင် အိးကန်းသြမတ်လဒါန်းခဲ့ေသာ ေခါင်းေလာင်းသံးလံးေတွ ိရသည်။ အိးကန်းသြမတ်ေခါင်းေလာင်းများမအေြခခံအချက်အလက်များကိုအာက်ပါဇယားအတိင်း ေတွိင်ပါသည်။

အိးကန်းသြမတ်၏ ေခါင်းေလာင်းသံးလံးမ ေခါင်းေလာင်းစာများသည်သကား ရာဇ်များ၊အေလးချိန်များမလွဲ၍အေကာင်းအရာေရာ၊ အေရးအသားပါထပ်တတည်ကသည်။

မြန်သြမတ်ေခါင်းေလာင်းသံးတွေ့ရသော ရေးထိးချက်အကြောင်း ပြောင်းလဲချက်အကြောင်း အာက်ပါဇယားအတိင်းရွေးထိးသုံးသည်မှာ မေထရ်ြမတ်သောလွှမ်းမှုများကို လျှောက်လှုပ်ရာချက် အာက်ပါဇယားအတိင်းဖော်ပြောပြပါသည်။
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</tbody>
</table>

ပြုလုပ်ဆောင်ရွက်သော အချက်အလက်များအားလုံးကို တင်ပြချက်ရသည်။ အကြောင်းဖော်ပြမှုနှင့် တကယ်တွေ့ရစ်မှုအတွက် တင်ပြချက်များသည် အမျိုးမျိုးပြုလုပ်သည်။ စောဂါလောက်စစ် ဗိုလ်ချုပ်အတွက် အကြောင်းဖော်ပြမှုများကို တင်ပြချက်ရသည်။ အကြောင်းဖော်ပြမှုကို တင်ပြချက်ရသည်။
ဗိုလ်ချင်းအရာ

ဗိုလ်ချင်းအရာပိုင်းကြည်စွာဘရားင်ဘရားဖစ်တာမီ
သံသရာဘဝကကက်ဖညီနာင်ဖစ်တာအခါကျင်လည်ခဲ့ဖစ်တာ
ဗျာဒိတ်ဖတ်ခဲ့သည့်သီရိဓမာနသာကမင်းကီးင့်သိကားမင်းတိကပ်မတည်ထားတာ၌သဒါကည်ညိကြသာခဲ့သည်။

ဗိုလ်ချင်းများ၏အေလးချိန်ကိလည်းအတိအကျဖြပ်ရးထိးထားသည်။

အလင်အိးကန်းသြမတ်မာကလျာဏဓဇဟုဘွဲ့တာရေသာမေထရ်ဖစ်တာ၊

မေထရ်ကိးစားအားထတ်လဒ်နာရေသာကသိလ်ဖက်ကသများ၊

အဆံးစွန်၌ဘရားဖစ်တာစင်စစ်ဧကန်ရာက်ိတွင်သတဝါများကိကယ်မလိေကာင်း

ထိ့အြပင်ဗိုလ်ချင်းသွန်းလပ်ကသိလ်ဖြပရာတွင်ညီညာလပ်ဆာင်ကသများ၊

သာဓိကွယ်၍ရေးထိးထားသည်။

မိမိ၏ဗိုလ်ချင်းအသံချိသာစွာထိးဖြည်သာကားရလင်ကသိလ်ဖြပကသိတာသည်

မိမိအားလည်းအမေဝကပါရန်ရေးထိးထားပါသည်။

ဗိုလ်ချင်းသြမတ်းစာများမြမတ်းစာညီနာင်စာတာသမိင်းြမတ်းစာညီနာင်စာတာကိတ်ကသည်။

င်ဉာဏသည်းခံကီး၏ဗိုလ်ငရာဇဝင်တွင်ြမတ်းစာညီညာင်ဘရားသမိင်းကိတ်သိတ်သည်။

ထိတရထည်ဘရားညီနာင်ကားထိ့တည်းဘရားြမတ်စွာေဒသစာရီလည်းတာအခါအာသာဝတီမည်သာပါရန်ဗိုလ်ချင်းကိတ်ကားကြန်တာများ၊

အင်ဂဝံပတိလည်းပါရန်ဟုတိုင်း။

အင်ဂဝံပတိလည်းြခေတာ်ရာထားခဲ့၏။

ထိအရပ်ကိအရာေတာင်တွင်၏။

အရာေတာင်ကသည်ဘရားြမတ်စွာအေနာက်ေတာင်ေထာင့်သိတာသွားေတာ်မေချ၍ြခေဆးေတာ်မလိလင်ြခေဆးေချာင်းဟတွင်၏။
ယင်းကသည် အေသိလာရာတွင်ရပ်တာများ၍ ပံးတာများ၏။

ျပံးတာများသာမှာ ငါသည် အရပ်တွင် ကက်ဖညီနာင်ြဖစ်၍ ည့်အိပ်လျာတည်း။

ယင်းကလည်း အေသိသွားတာများ၍ ျခာင်းနားတွင်ရပ်တာများ၏။

ကက်ြဖေဖစ်သတည်း ငါလည်း၊ နီးနီးျနာသတည်းဟာျဟာတွင်ြဖစ်သတည်းဟ၍ ဆိသည်ကိရည်သြဖင့်တရထည်ဟသတည်း။

သည်အေကာင်းကိသဝန်ကီးအားနတ်ကီး၏များပါးတိ ဆိသည်ဟ၏။

အေကရင်တိလည်း အေေတာင်ြခရင်းမာရွာတည်မိဖစ်သတည်း။

ေထာင်မးင့်သဝန်ကီးသဝန်ငယ်တိ့သည် ယခငါတိ ျနာသည့် ျခာင်သငယ်သည်ကျးခဲ့စွလများျနာက်လာက်အာင်ဟမိရွာသာက်ြဖက်၌မင်းဝံျနား၊ အေနာက်အရပ်၌ျကာက်ျဆာက်ဘရားအေေတာင်၌ခေပါင်းင့်ပါင်းလာက်ြမစ်ဆံျတွရာများ၏။

ျဖြင်သိသိသာသာကိုင်ပေးသားထားသည်ကိျတွရသည်။

စာများကိ တွရသည်။

ျကာ်ဝင်း၊ ျဒါက်တာ၊ ၂၀၀၇၊ စာ–၃၄၈၊

ပထမဦးဖြင့်ကျွန်တော်များကိ အေရွေးတာတွင်ြဖုခဲ့ကြသည်။ စီမံချေးများကိ အထူးဖြင့်ကျွန်တော်ဒုတ်ဟက်ကားများကိ အတူတက်ရွေးချယ်သည်။

ယူနစ်များကိ အတူတက်ရွေးချယ်သည်။
မင်းဇယျရမိတ် တ်၏ မင်းရဲနရာဧချင်းပိဒ်ေရ တွင် –

"စေချန်ကြည်မှုသို့ မရှိသောအခါမှ သေဘာတော်ကို အက်တူရာမှ သေပ်ေတွို့လျှင် ဆိုန်ကးအကားသစ်ဖင့် ေးခါလွန်ေလမှာင်စေရန် စေသောက်သား။ ြမံလည်ေရ၌ ယေတွသီတာ၊ ြမွင်မျက်ာက၊ အာကာကွန်တက်၊ တိမ်သိက်မ၊ ေကျာက်စေဝန်ချာ၊ ဆင်ကလာရာစွန်းမည်သား၊ ြပံးေချာင်းမည်သား၊ ြမရည်က်သန်း၊ သိဂါနန်းထက်၊ တစ်သန်းလံေတွ၊ တည့်မွန်းေနသိက်၊ သေရဓမာ၊ စကာစိးေဆာင်၊ တည်ခဲ့ေထာင်သည်။ ညီေနာင်စံင်ေတာ်တကား။"

298 မင်းဇယျရမိတ် တ်၏ မင်းရဲနရာဧချင်းပိဒ်ေရ တွင်–

"ဆန်ကးအကားသစ်ဖင့် ေးခါလွန်ေလမှာင်စေရန် စေသောက်သား။ ြမစက်သီတာလတွင်ရစ်လည်၊ တရထည်င့်ေရာင်ြခည်တစ်သန်း ဆိပ်သာကန်းထက်၊ ဉီးစွန်းတော်၊ ညီေနာင်ေကျာ်လည်း၊ ြမင်ေတွော်တည်နီးေဝးစံကမး။ ညီေနာင်ဟေခေကာင်း၊ သီရိဓမာေသာကမင်းက စတင်တည်ထားကိးကွယ်ခဲ့ေကာင်း ေတွရပါသည်။ အိးကန်းသြမတ်၏ေခါင်းေလာင်းစာများတွင် ဤသမိင်းင့်ထပ်တညီပင်ဟ၍ ဖွင့်ဆိထားေကာင်းေတွရသည်။ ထိ့ေကာင့် တရထည်ဘရားဟသည်မာြမင့်အလားသာန်တေသာေသာက်ေရခပ်ေချာင်း စိမ်းြမမကိစွဲ၍ ေပေပါက်လာေသာအေခအေဝ ြဖစ်ေကာင်းေတွရြပပါသည်။ အိးကန်းသြမတ်၏ ေခါင်းေလာင်းစာများ၏ ေရးဟန်ကိပါေတွာ်ထည့်သွင်းတင်ြပလိပါသည်။ ေရးဟန်ကိဖွင့်ဆိေသာ 298 နတ်င်ေနာင်ရတေပါင်းချပ်၊ ၁၉၆၆၊ စာ–၃၂–၃၃ ။ 

299 ေဇယျရမိတ်၊ ၂၀၁၈၊ စာ–၂၆–၂၇ ။
ဖွင့်ဆိချက်အမျိးမျိးိပါသည်။

ဤေနရာတွင် ေရးဟန်င့်ပတ်သက်၍ င်းလင်းချက်များအကျယ်တဝင့်ထည့်သွင်းတင်ြပြခင်းမြပလိေတာ့ပါ။

အိးကန်းသြမတ်ေခါင်းေလာင်းစာများမစကားသံးဟန်အိးကန်းသြမတ်ေခါင်းေလာင်းစာများတွင် အနက်ြပစကားလံးများ၊ အသံးြပစကားလံးများ၊ အေကာင်အထည်စကားလံးများ၊ သေဘာြပစကားလံးများစာေပသံးစကားလံးများင့် ေပါရာဏစကားလံးများကိုတွေ့ရင်းသည်။

သတ်ဗာရား၊ 'စော်စော်'၊ 'ကျင်လျှင်'၊ 'အချိ'၊ 'သိပ္ပံး'၊ 'အိမ်ရံ'၊ 'ကျွန်းစား' အစောတွေ့ရာတွင်ြဖစ်သင်း၊ စကားလံးစွာကိလည်းတွေ့ရသည်။

စာေရးရာတွင်ြဖစ်ေစ၊ စကားေြပာရာတွင်ြဖစ်ေစသံးန်းသည့် ဝိဘတ်များ၊ စကားဆက်သိမဟုတ်သမများြဖစ်ေသာ အသံးြပစကားလံးများကိုေခါင်းေလာင်းစာတိင်းတွင် ေတွရသည်။

နောက်ဆိုင်ရာအေနြဖင့် ‘(ြမတ်ဘရား)’၊ (သံသာရ)၊ (မရင့်မီ) ဝယ်၊ (ြဖစ်လတ်) ေသာခါ၊ (ငါ ့ေနရာ) ဟ၊ (မိန် ့ေတာ်န်း) စသည့်စာသားများသည်ြဖင့် အသံးြပစကားလံးများကိုသံးန်းထားေကာင်းေတွရသည်။

အေကာင်အထည်မြမင်ိင်ေသာ စကားလံးများင့် သေဘာြပစကားလံးများကိုတွဲစပ်သံးစွဲသည်ကိုတွေ့ရသည်။

ယာယီအေနြဖင့် ‘ေခမာကန်းထိပ်’၊ ‘နိဗာန်ဆိပ်’ စသည့်စာသားများသည်ြဖင့် ေဘးကင်းရာေခမာနိဗာနကိကန်းင့်တွဲစပ်၍ေသာ်လည်းေကာင်း၊ သံသရာဝဲသဃမလွတ်ေြမာက်ရာနိဗာနကိဆိပ်ကမ်းင့်ပမာိင်းရာနိဗာနကိဆိပ်ကမ်းင့်ပမာိင်း၊ သံသာစွဲေရးထိးဟန်မျိးြဖစ်ပါသည်။

ထိမသာမက ေခါင်းေလာင်းစာများတွင် စာေပသံးစကားလံးများကိုေနရာတကျ ထည့်သွင်းသံးစွဲထားသည်ကိုတွေ့ရသည်။

ပါဠိသက်ေဝါဟာရများြဖစ်သည့် ‘သံသာရ’၊ ‘ပါရမီ’၊ ‘ဗျာဒိတ်’၊ ‘ဒါန’၊ ‘ကသိလ်’၊ ‘မဂ်ဖိလ်’၊ ‘ပည’၊ ‘နိဗာန’ ့၊ ‘အပါယ်’၊ ‘ဗိုတ်’၊ ‘ပညာ’ ဗျာတွင်ြဖစ်ေသာ်လည်းေကာင်း သံသာစွဲေရးထိးဟန်မျိးြဖစ်ပါသည်။

ဤသည်မာကာရန်ချိတ်
စကားျပြဖစ်ျခင်းျကာင့်လည်းျက်၊ ျရးထိ့သည့် ျခတ် အျချ်အျန်အရ ထိျခတ်က သံျစွဲျနေသာ စကားသံျစွဲများ ျဖစ်ျခင်းျကာင့်လည်းျက် သံျစွဲျခင်း ျဖစ်ိင်ပါသည်။ စာပေသံျစွဲစကားလံးများ သံျစွဲျခင်းျကာင့် စာဟန်မာ ခံ့ခံ့ညားညား ိလာပါသည်။ ျခြင်းျလာင်းစာင့်လိက်ဖျက် သံျစွဲျခင်းျကာင်း ျတွရပါသည်။ ထိ ့အျပင် အနက်တစကားလံးများကိလည်း သံျစွဲျဖြဲထားသည်ကိ ျတွရ သည်။ တန်ခိးင့်ဣဒိကိတွဲ၍ ‘တန်ခိးဣဒိ’ ဟွေျက်၊ ဦးစွန်းင့်သရဖကိတွဲ၍ ‘ဦးစွန်သရဖ’ ဟွေျက်၊ စင်စစ်င့်ဧကန်ကိတွဲ၍ ‘စင်စစ်ဧကန်’ ဟွေျက်၊ ေဆွဝါးင့်ညာတိကိတွဲ၍ ‘ေဆွဝါးညာတိ’ ဟွေျက်၊ သံေညာင့်ချိသာကိတွဲ၍ ‘သံေညာင့်ချိသာ’ ဟွေျက် သံျစွဲျဖြဲထား သည်ကိ ျတွိင်ပါသည်။

အိးကန်းသြမတ်သည် သံသရာဝဲျရအလျမကင်းလွတ်ရာ နိဗာန်ဆိပ်ကမ်းကိ ေခမာကန်းထိပ်နိဗာန်ဆိပ်ဟ နိဗာန်င့်ဆိပ်ကမ်းဝဲသဃမလွတ်ေြမာက်ရာ ေနရာချင်း သည့် ဂဏ်ရည်တချင်း ထပ်တြပေရးဖွဲထားသြဖင့် ပကအလက်သံျဟန်ကိ အသံျမာပါသည်။ ထိ ့အျပင် အိးကန်းသြမတ်သည်ပညာအရာ၌ သတစ်ပါး ထက်သာလွန်၍ တပည့်များစွာကိ သင်ကားျဖ်သည့် ပဂိလိေကာင်း ဆေတာင်းသည်။ ထိဆေတာင်းတွင် ေမးသမပစာကိ ေြဖိင်ေသာ မာဟာသဓပညာ ိကဲ့သိ ့ ဟ “မတ်လမေဟာ်၊ ပညာျကာ်သိ ့” ဟ ဥပမာအလက်သံျ၍ ခိင်းိင်းျရးဖွဲထားပါသည်။

စာပေအသစ်ေျဖြင်ချင်သူကို အေသာက်စောက်။

စာပေအသစ်ကို အေသစ်ေျဖြင်ချင်သူ၏ အေသာက်စောက်ချင်သူများကို အသစ်ကို ရေးကြည်ကြည်၍ပါက သူများစွာကိ ဖြူသပါစောက်ပါသည်။

ပညာရေးရေးေမာင်ခင်(ဗ) ရေးကြည်ကြည်ချင်သူအေသစ်တွင် အေသာက်စောက်ချင်သူများကို များစွာဖြူသပါစောက်ပါသည်။
ထို့ကြား စာတွဲစာပိုဒ်တွင် သုံးစွဲခဲ့သည်အခြေအနေများ အော်ဖက် ၎င်းသောစာပိုဒ်တွင် သုံးစွဲခဲ့သည်အခြေအနေများ ဖြစ်ပါသည်။

စာပိုဒ်တွင် သုံးစွဲခဲ့သည်အခြေအနေများ ဖြစ်ပါသည်။

300 ခင်မင်၊ ဗမာ(ဗမာ)၊ ၂၀၁၁၊ စာ–၁၄၇။
အိးကန်းသြမတ်မာ ဘရားဆပန်သြဖစ်ပီး နိဗာန်မေရာက်မီဝယ်ပညာင့်ြပည့်စံလိပီး မေဟာသဓာကဲ့သိ့ပညာဉာဏ်ကီးလိသြဖစ်ကာင်း ဆေတာင်းထားသည်။

ထးြခားချက်မာသလဒါန်းခဲ့ေသာ ေခါင်းေလာင်းမချိသာေသာအသံကိကားရလင်ြပြပသမကသိလ်အမကိသ ့အာေဝမကရန်ထည့်သွင်းေရးထိးထားြခင်းြဖစ်သည်။

ေခါင်းေလာင်းများမေအာက်မန်မာိင်ငံအဂလိပ်တိ့လက်ေအာက်ကျရာကျပီးသည့်အချိန်ပဂံမင်းနန်းကျ၍မင်းတန်းမင်းနန်းတက်ကာစအချိန်တွင်လဒါန်းခဲ့ြခင်းြဖစ်ပီးထိေခတ်က သံးစွဲေရးသားေပာဆိသည့်စကားလံးအန်းများဝါကျတည်ေဆာက်ဟန်ကိေတွရသည်။

ဝါကျအားလံးကိကာရန်ချိတ်စကားေပ ြဖင့်ေရးသာေခင်းေကာင့်စတင်ဖတ်ရသည်မစ၍ ေခါင်းေလာင်းစာဆံးသည့်တိင်အဆက်အစပ်မြပတ်ဘဲသွက်သွက်လက်လက်ဖတ်ေစိင်သည်။

သမိင်းအေထာက်အထားအေနြဖင့်ခိင်မာသာသမိင်းကိထည့်သွင်းေရးထိးထားြခင်းြဖစ်သည်။

အိးကန်းသြမတ်ေနထိင်သီတင်းသံးရာင့်အြခားလဒါန်းခဲ့ေသာကသိလ်ေကာင်းမများအြခားေခါင်းေလာင်းစာများကိလည်းာေဖွမတ်တမ်းတင်၍ သေတသနြပဖွယ်ရာများကျန်ိေနပါေသးသည်။

သမိင်းအေမွခံကီးမားရင့်သန်သည့် ေကတမတီေတာင်ငင့်ဆက်စပ်ရာသေတသနစာတမ်းများဆက်လက်ေပထွန်းိင်ပါေစေကာင်း ဆမွန်ေကာင်းေတာင်းအပ်ပါသည်။
စာအုပ်များ

- ကျမ်းစာရင်းခင်မင်၊ ေမာင် (ဓြဖ) (၂၀၁၁) ရန်ကန်၊ ဗိုလ်နိုင်ပညာနိဒါန်းစားပိုလွတ်ပန်း

- ချမ်းမေး၊ ဦး (၁၉၈၅) ရန်ကန်၊ စာပို့ချိချိစားပိုလွတ်ပန်း

- ဗိုလ်မာဇဝင်းသိလ်များဗဟိစာကည့်တိက်၊ ရန်ကန် (၁၉၆၆) ရန်ကန်၊ ဟံသာဝတီပိုလွတ်ပန်း

- မင်းရဲနရာဧချင်း (၂၀၁၈) ရန်ကန်၊ ရာပန်းစာအပ်တိက်

- မဟာရာဇဝင်သစ်ဗိုလ် (ဗိုလ်မာဆက်) နေဒါက်တာဗိုလ်တည်းဖတ် (၂၀၀၇) ရန်ကန်၊ အားမာန်သစ်စားပိုလွတ်ပန်း

- မြန်မာစာအဖျား ဦးစီးဌာန (၂၀၀၈) ရန်ကန်၊ မြန်မာအဘိဓာန်၊ မြန်မာစာအဖျား ဦးစီးဌာန
ပေးထားသောစာသားတွင် ကြယ်သတ်မှုအမှု
"သခင်ကိယ်ာတ်မိင်း" စာရွက်ချက်

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ဤစာတမ်းသည် သိန်းဖြင့် ရေးသားသော "သခင်ကိယ်ာတ်မိင်း" စာရွက်ချက်တွင် ပိုင်းချင်းတွေ့ရှိနေသော စဥာဏ်အားဖြင့် အခြေခံကျွန်းစုပ်ပြုလုပ်ရန် ထိန်းသိမ်းစေမည်။

ဤစာတမ်းတွင် စာရွက်သူ အနေဖြင့် မိုးမိုးအကြောင်း ချိန်ထိးသော အချက်အလက်များဖြင့် အတောင်အနေဖြင့် ထုတ်ယူသည်။

ဤစာတမ်းသည် သေတ်သနစာတမ်းတစ်စာင်ဖြစ်ပါသည်။

ဤစာတမ်းတွင် စာရွက်သူ အကြောင်းအရာတွင် ဗျူဟာများ၏ စာရွက်ကို အခြေခံကျွန်းစုပ်ပြုလုပ်နေပါသည်။

ဤစာတမ်းတွင် စာရွက်သူ အနေဖြင့် မိုးမိုးအကြောင်း ချိန်ထိးသော အချက်အလက်များဖြင့် အတောင်အနေဖြင့် ထုတ်ယူသည်။

ဤစာတမ်းသည် သေတ်သနစာတမ်းတစ်စာင်ဖြစ်ပါသည်။
စာရေးရာတွင် နည်းလမ်းဖော်ဆိုချက်များစွာ စားသောကြောင့် ပြုလုပ်သည်။

မိမိတို့၏ ဟုတ်ယှဉ်လျက်ရှိသော အချိန်သတော်များအပြင် လေ့လာရာတွင် အရေးပါသခင်ကိယ်တွင် စားသောကြောင့် သေချာသည်။

1. စားသောကြောင့် အချိန်သတော်များကို ၁၉၁၄ ခုနှစ်၊ ဇလိင်လ (၃ဝ) ရက်၊ သိန်းေဖြမင့် အဖေမြတ်စားသောကြောင့် အမိအမိများနှင့် များစစ်ကို အဖေမြတ်စားသောကြောင့် ဆရာက်ဖွဲ့စည်းသောကြောင့် သေချာသည်။

2. သေချာ အရေးပါသခင်ကိယ်တွင် စားသောကြောင့် ၂၀၀၀ ခုနှစ် ကြည့်ရှုခြင်းသည်များကို အချိန်သတော်များကို ဆောင်ရွက်ခြင်းနှင့် ကျော်ကြားခြင်းသို့ အဓိကအရာများကို ဆောင်ရွက်ခြင်း စိတ်ကွန်းမြို့သို့ပေါင်းစပ်သည်။

စာရေးရာတွင် အချိန်သတော်များကို အရေးပါသခင်ကိယ်တွင် စားသောကြောင့် သေချာသည်။

ဤစာကြည့်ရှုခြင်းများ ဆောင်ရွက်ခြင်းဖြစ်သည်။

1 ဆောင်ရွက်ခြင်းကို ၁၀၀၀ (၁ဝ) အထိ အသုံးပြုသောကြောင့် အထွက်သာအရာရှိလေ့လာခြင်း များစစ်ကို အရေးပါသခင်ကိယ်တွင် စားသောကြောင့် သေချာသည်။

2 ဆောင်ရွက်ခြင်းကို အထွက်သာအရာရှိလေ့လာခြင်း အထွက်သာအရာရှိလေ့လာခြင်း စိတ်ကွန်းမြို့သို့ အထွက်သာအရာရှိလေ့လာခြင်း
မိဘများက ငယ်မည် ေမာင်ြမေမာင်မ ေမာင်သိန်းေဖအမည်သိ ့ န့သင့်နံသင့်ေပးခဲ့ သည်။

၁၉၃၂ တွင် မံရွာမိ ဗဒဘာသာအထက်တန်းကျာင်းမ ဝတန်းကိ ြမန်မာစာင့်သ ချာ ဂဏ်ထးများြဖင့် ေအာင်ြမင်သည်။

၁၉၃၂-၃၃ တွင် မေလးဥပစာကျာလိပ်သိ တက်ရောက်သည်။ ထိစ်တွင်ပင် ိင်ငံရေး လာထဲသိ ဝင်ရောက်သည်။ မေလးဥပစာကျာလိပ်တက်ရောက်ေနစ 'ဝေနငေဖ ဘတလင်'ကျလာင်အမည်ဖင့် ‘ရာဇဝင်ပညာဆာင်းပါး’ င့် ‘မေလးအင်တာမီဒီယိတ် ကျာလိပ်အကျာရွက်ပိ့ချသင့်ခင်း’ ဆာင်ရွက်သည်။

၁၉၃၃ တွင် ရန်ကန်တက သိလ်သိ တက်ရောက်ပီး ၁၉၃၅ တွင် ဝိဇာဘွဲရိခဲသည်။

၁၉၃၅-၃၆ တွင် ဗမာိင်ငံလံးဆိင်ရာ တိ့ဗမာအစည်းအံး ဝါဒဖန် ဌာန၌ တွဲဖက်အတွင်းရေးမးဖစ် ဆာင်ရွက်ပီး သခင်သိန်းဖြစ် ခံယခဲသည်။ ၁၉၃၆-၃၇ တွင် ရန်ကန်တက သိလ် ကျာလိပ်သားများသမဂ္ဂ အေဆာင်အဖစ်ဆာင်ရွက်သည်။ ၁၉၃၆-၃၈ တွင် အိိယိင်ငံ၊ ကာလကတာ တက သိလ်တွင် ဥပေဒပညာမဟာဝိဇာ(ပါဠိင့်ေဟာင်းအိိယသမိင်း)တက်ရောက်နစ တက်ဘန်းကီးစာအပ်ထတ်ဝရာတက်ဘန်းကီးသိန်းဖြစ် ဟနာမည်ထင်ားခဲသည်။ ၁၉၃၉-၄ဝ တွင် ‘ေယာက်ျားဂဏ်ရုန်’ ဇာတ်ကားကိ ဒါိက်တာလပ်သည်။

၁၉၄၅ အောက်တိဘာမ ၁၉၄၆ ဇွန်အထွေထွေအတွင်းရေးမးဖစ် ဆာင်ရွက်ခဲသည်။ ၁၉၄၆ စက်တင်ဘာမ ေအာက်တိဘာလထိ ဗိလ်ချပ်ေအာင်ဆန်း၏ ပထမဆံးအစိးရအဖွဲတွင် လယ်ယာစိက်ပျိးရေးင် သစ်တာဝန်ကီးဖစ် ထမ်းဆာင်ခဲသည်။ ၁၉၄၆ ိဝင်ဘာလ ၂၂ ရက်န့တွင် ေဒခင်ကည်ကည် လက်ထပ်ခဲ့သည်။

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1 - အချိ - ၁၅၄၁
၁၉၅၈ တွင် ၎င်း “အကြံ့အဖျင်ဆုံး”နှင့် “သောက်ရာဇ်” အဖျင်ဆုံး ကျွန်ုပ်ကို အရွယ်အစား အခက်အခဲဝင်ဖော်စဥ်သော ၎င်းတို့သည် အမျိုးသားစာပေ(စာပေဒသာဆ)၊ ၁၉၆၈ တွင် “သီတာပံ့” စာအပ်ဖင့် အမျိုးသားစာပေ ဝတ်ညွ တစ်ဆတိ့ ရိခဲ့သည်။

သိန်းဖြမင့်သည် ၁၉၇၈ ခစ်၊ ဇန်နဝါရီလ (၇)ရက်၊ စေနေန ့နံနက် ၇း၃ဝနာရီ ခန် တွင် ဆရာေတာ် အင်ဇနကာဘိဝံသအေကာင်း ရေးသားေနစ ဦးေဏာက်ေသွးေကာ ြပတ်ကာ လဲကျပီး ေဆးံတင်ခဲ ့ရသည်။ ၁၉၇၈ ခစ်၊ ဇန်နဝါရီလ (၁၅)ရက် ေန ့လယ် ၁၁း၃ဝ နာရီတွင် ကွယ်လွန်ခဲ့သည်။

မင်းယေဝ၊ ၁၉၇၈၊ ၁၈။

၁ သိန်းဖြမင့် ၊ ၂၀၀၀(ခ)၊ ၃၅၇ - ၃၆၁။

၂ မင်းယေဝ၊ ၁၉၇၈၊ ၁၈။

ပထဝီဝင်

ဒါနှင့်အတူ ထို့ကြောင့် သက်ားမှုမရှိသော များစွာ ၏အဆိုအားလုံးကို ဖျင်သုံးသော “စာပေဒသာ” အဖျင် ရွေးထားသည်မှာ သို့မဟာ ၏အဆိုအားလုံးကို ဖျင်သုံးသော “စာပေဒသာ” များစွာ ဖျင်သုံးသော “စာပေဒသာ” များစွာ ဖျင်သုံးသော “စာပေဒသာ” များစွာ

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1 သိန်းဖြမင့် ၊ ၂၀၀၀(ခ)၊ ၃၅၇ - ၃၆၁။

2 မင်းယေဝ၊ ၁၉၇၈၊ ၁၈။
ပရောဂျီမြန်မာစာအဖွဲ့ ၁၉၉၁၊ ၄၄၂ ပြောင်းလဲပါသည်။ နှင့် ပါရဂျီ တွင် ပထမဆုံးစာသီများကို ပေးထားသည်။ စိုက်ကိုးမှားရာတွင် ပထမဆုံးသူကို ပေးထားသည်။

1 ပထမဆုံးစာသီများ ကို ပေးထားသည်။
2 ပထမဆုံးသူကို ပေးထားသည်။
3 ပထမဆုံးသူကို ပေးထားသည်။
4 ပထမဆုံးသူကို ပေးထားသည်။

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1 စိုက်ကိုးမှားရာတွင်
2 ပထမဆုံးသူကို ပေးထားသည်။
3 ပထမဆုံးသူကို ပေးထားသည်။
4 ပထမဆုံးသူကို ပေးထားသည်။
ဘာသာ (က)မှာ စိတ်ဝင်စားဖွယ် တစ်ကွက်(သိ့မဟတ်)တစ်ကွက်များကို ဆိုသည်မာ ဝတ္ထီးနှင့် နည်းလမ်းများကို တင်ပြခင်း။ ထိ့ပြင် ဝတ္ထီးနှင့် နည်းလမ်းများကို ဝတ္ထီးကွင်းခွင့် နှင့်သက်ဆိုင်သော နည်းလမ်းများကို ထပ်မံအားနှင့် ဆိုသည်မာ ဝတ္ထီးထားသည်။ အကြောင်းအခြေများကို တင်ပြခင်း။ အကြောင်းအရာများသည် အကြောင်းအရာပြခြင်းများကို ဝတ္ထီးအားနှင့် ဆိုသည်မာ ဝတ္ထီးများကို တင်ပြခင်း။ တံ့တိတင်ပြခင်းမဟုတ်ဘဲ မွမ်းမံခယ်လယ်၍ တင်ပြရသည်။ အမန်တကယ်၍ အကြောင်းအခြေကို တင်ပြခင်း။

1 ဝန်ကြီးချက် (ပါရာ) ဒီဇိုင်း မှ ၂၄၆ နှစ်ချောင်း
2 ကမ္ဘာ့ ပုဂ္ဂလိကို
ဟောင်းလမ်းထားပါသည်။ ထိ့ကေသ်ဝတန်းအတွက်ပတ်သက်ပိုင်းများကိုလည်းကောင်း၊ ဝတန်းအတွက်ပတ်သက်ပိုင်းကိုနည်းအတွက်ပတ်သက်ပိုင်းကိုအကူအညီသည်။

ဝတန်းအတွက်ပတ်သက်ပိုင်းချက်စုစုပေါင်းအေပတွင်အေြခခံသားရပါသည်။

၃။ ‘‘သခင်ကိယ်တာ်မိင်း’’ ဝတန်းအတွက်ပတ်သက်ပိုင်းအေပတွင် အများအပြားကိုချိုးစားခြင်း

ဝတန်းအတွက်ပတ်သက်ပိုင်းအေပတွင် သခင်ကိယ်တာ်မိင်းနှင့်ပတ်သက်ပိုင်းအေပတွင် အများအပြားကိုချိုးစားခြင်း

ပထမ(၃)ပိုင်းသည် သိန်းစားမိုင် ထားေဖြမင် ရေးသားချက်များ ေဖစ်ပါသည်။ စတတ(၅)ပိုင်းသည် စားတာ်မိင်းဘယ်သာဘော်စားတာ်မိင်းကိုထားေဖြမင် ရေးသားချက်များ ေဖစ်ပါသည်။ ထိ့ပင် တတိယအကိမ်ထတ် ဤစာအပ်တွင် ဆရာကီးသခင်ကိယ်တာ်မိင်းကိယ်တိုက် သိြမင်ခဲ့ရသည် အချက်များကို အေြခခံကာ ရေးသားထားပါသည်။

1 အေဖြံြပြခင်း (ပါရဂ)င့်အများ၊ ၁၉၇၁၊ ၈၈-၈၉
ကိယ်မဟတ်သည် ပထမပိုင်းတွင် ဝတနဟန်မွမ်းမံမပိမိပါဝင်ကြာရသည်။ သိရုံမင်း၏ ဝတနဟန်အတွင်း ဇာတ်လမ်း၊ ဇာတ်ဆောင်၊ နောက်ခံဝန်းကျင်ဟူးအပိုင်း(၃)ပိုင်းပါဝင်ရာ ဤစာတမ်းတွင် ဇာတ်လမ်းပိုင်းဆိုင်ရာမွမ်းမံသားဟန်ကိုလာတင်ပမည်ဖစ်သည်။

ဝတနအတွင်း ဇာတ်လမ်းဖန်တီးဟန်များအတွင်း စိတ်ကြည့်၍ ဇာတ်လမ်းဆင်နည်းများကိုဆရာဇာ်ဂျီက "သိရုံင့်ကျားဖြက်" စာဖျင် ဇာတ်လမ်းဆင်နာဟူးဆိရာသည် စာ၏အာေဘားငြေဆာက်ဦးဦမကို အေကာင်းအရာကိုဖြစ်အပျက်အလိက်အစီအစြပ်ပြုခင်း၊ အေကာင်းသင့်အကျိးသင့်ချိတ်ဆက်ခင်း၊ အရိပ်နိမိတ်ပြခင်း၊ နမပ်ကွက်ထားခင်း၊ အားပိုင်မထည့်ခင်းတို့ဖြင့်စာ၏ပန်းတိင်ရသသောကြောင်းကိုဆိလိပါသည်။

မမိးမကမ "ဝတနည်းသေဘာတရားဝတနရော်ပညာ" စာအပ်တွင် ဇာတ်လမ်းဖန်တီးရာတွင် (၁) အေကာင်းဆက်နည်းကိသံးခင်း၊ (၂) အားပိုင်မကိသံးခင်း၊ (၃) အစိတ်ခယ်မန်းဖွဲခင်း၊ (၄) နမပ်ကွက်ကိသံးခင်း (၁) ယင်း - (၁၀) ၂၈-၃၀၊ (၂) ယင်း - (၁၀) ၈၄၊ (၃) ေဇာ်ဂျီ၊ ၁၉၈၄၊ ၂၉၅။
(ဗ) ကြန်နှစ်သက်ရာ ဆက်စပ်ပြုလုပ်ရာ များနှင့် လုပ်ဆောင်သည်များကို အခြေခံခြင်း 1

(၅) လည့်ကွက်ကိသံးြခင်း၊ (၆) တိက်ဆိင်မကိသံးြခင်း၊ (၇) ေတ့လွဲ ြဖစ်ရပ်များကိ ဖန်တီးြခင်း စသည့်နည်းပညာများကိ သံးေလ့ိပါသည်

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ဟ ခွဲြခားေဖာြပထားပါသည်။ အထက်ပါမိန် ့ဆိချက်များအရ ဇာတ်လမ်းဆင်နည်းများကိ စိစစ်

ကည့်လင် (၁)ဇာတ်လမ်းဖွင် ့ြခင်း(ဇာတ်ပက်ချပံင်)၊ (၂)ေကာင်းကျိးချိတ်ဆက်ြခင်း၊

(၃)အရိပ် နိမိတ်ြပြခင်း၊ (၄)လည့်ကွက်သံးြခင်း၊ (၅)ြမ ပ်ကွက်သံးြခင်း၊ (၆)တိက်ဆိင်မသံးြခ

င်း၊ (၇)အားပိင်မသံးြခင်း၊ (၈)ေတ့လွဲြဖစ်ရပ်များဖန်တီးြခင်းဟသည့်

ဇာတ်လမ်းဆင်နည်း (၈)ချက်ကိ ေတွရသည်။ အစိတ်ြခယ်မန်းေရးဖွဲ ြခင်းသည်

ဇာတ်ေဆာင်ပိင်း၊ ေနာက်ခံဝန်းကျင်ပိင်းင် ့ ပိမိသက်ဆိင်ပါမည်။ အဆိပါ(၈)ချက်တွင်လည်း

ကိဝတ ဇာတ်လမ်းအသွ င်ဖန်တီးရာ၌ ဇာတ်လမ်းဖွင် ့ြခင်း၊ ေကာင်းကျိးချိတ်ဆက်ြခင်း၊ အရိပ်နိမိတ်ြပြခင်း၊ အားပိင်မသံး ြခင်း ဟသည့်

နည်းများမလွဲ၍ ကျန်နည်းများကိသံးရန် အခွင့်အလမ်းမာ နည်းပါးပါသည်။

3, 1. ဇာတ်လမ်းဖွင့်ြခင်း ဇာတ်လမ်းဖွင့်ပံ (သိ ့မဟတ်) ဇာတ်ပက်ချပံင် ့ပတ်သက်၍ ဆရာကီဦးစိန်ဘန်း (သရိယကိ)က ' ဝတထဲတွင် တည်မဲြဖစ်ေသာတရား၊ ေြပာင်းလဲတတ်ေသာတရား၊ ြဖစ်ပျက်တတ်ေသာသေဘာ စသည်ြဖင် ့ ယဆထင်ြမင်ချက်တိ ့ကိ 

သံးသပ်ဆင်ြခင်ဘိသကဲ့သိ ့ စ၍ ေရးသာြခင်း ၂. ဝတထဲတွင် အြခား ဝတတစ်ပဒ်ကိ ေြပာြပဟန်ြဖင့် ဇာတ်လမ်းဖွင့်ပံ ၃. ဇာတ်လိက်တစ်ဦး၏ပ်လံးကိေဖာ်၍ ဝတစပံ ၄. အရပ်ေဒသကိ ေနာက်ခံကားြပ၍ ဝတစပံ ၅. အချိန်ကာလကိ ေဖာြပ၍ ဝတစပံ

1 မိးေြမ၊ မ၊ ၂၀၀၉၊ ၅၀ ။
၆။ လတစ်ဦးအား ြခံရံထိခိက်တတ်သည့် သေဘာတရားကိ ေဖာ်ြပ၍
ဝတစပံ
၇။ ဇာတ်လိက်တစ်ဦး၏အေြခအေနကိ ေဖာ်ြပ၍
ဝတစပံ
၈။ စာဖတ်သအား သိေစလိေသာ အေကာင်းအရာ၊ အချက်အလက်တိ ့ကိ တစ်စတစ်ေဝးတည်းေဖာ်ြပ၍
ဝတစပံ
၉။ ဇာတ်လိက်တိ ့ တစ်ဦးင် ့တစ်ဦး အြပန်အလန်စကားေြပဆိေနဟန်င် ့
ဝတစပံ
၁ဝ။ ဝတစလင်စချင်း ဇာတ်ကွက်ေဖာ်၍
ဝတစပံ
၁၁။ ဝတကိ ဖတ်ချင်လာေအာင် အစပျိးြဖင့်
ဝတစပံ
၁၂။ စကားပံ သိ ့မဟတ် စာတစ်အပ်မေကာက်ချက် သိ ့မဟတ် ေတးသီချင်းများင့်
ဝတစပံ
၁၃။ စာေရးဆရာထံသိ ့ စာဖတ်သက စာေပးဟန်ြဖင့်
ဝတစပံ
၁၄။ြဖစ်ေနဆဲအေကာင်းအရာ သိ ့မဟတ် အချက်အလက်များကိ တြဖည်းြဖတ်ေဖာ်ြပ၍
ဝတစပံ
၁၅။ ဝတဆံးသည်င့် ဝတ ၏အရသာကိ ပေစလျက် ဖတ်သ၏
စိတ်လံး ကိ ထိခိက်ေသာ သင်ခန်းစာတစ်ခြဖစ်ေအာင်ြပသည့်
ဝတစပံ
၁၆။ စာေရးသတိ ့ အသံးများသည့် ဝတ ဇာတ်လမ်းဖွင့်နည်း(၁၅)နည်းကိ ေဖာြပထားသည်။
ဆရာကီးသိန်းေဖြမင့်က သခင်ကိယ်ေတာ်မိင်း အတ  ပတ  ိ ကိ ဝတဟန်ြဖင့် ဖန်တီး ေရးသားရာ၌ ဇာတ်လမ်းအဖွင့်ကိ ရွက်ေဟာင်းကေလးတိ ့သည် တြဖတ်ြဖတ်ေကကျ၍ ရွက်သစ်အွန် ့အဖးကေလးများသည် တလွန် ့လွန် ့ြဖာထွက်လျက် ...

ပင်မင်း မခင်းသန် ့သန် ့မာလ၊ အင်ကင်း ြဖဝင်းဖန် ့ဖန် ့တိ ့သည် ပွင် ့ချပ်များကိ ြဖန် ့လျက် ...

1 စာလုံးတိုးတစ်စုး များစွာ ဆောင်ရွက်ခြင်း ပြုလုပ်နေသည်။
စာဘုရားကာလကျော်စိတ်ကျားစွက်သည်။ နိမိတ် သော သာယာစွာသံကျားသည်။ အခြေခံမှုသည် သာယာစွာသံကျားသည်။ အချိန်ကာလကိဖော်ပြခြင်းမှ ဝတ္တီပံနည်းကိအသံခြင်းမှ အက်ဖန်ဖန်ပွတ်တိက်အပ်သော ကျမ်းကဲ့သိ ကည်လင်စလျက် ...

စ်သက်ကည်းလွမ်းမှုဖွယ်ကားလာနှင့်အချိန်ကာလသပ်ကိစ်သက်ကည်းလွမ်းေမာဖွယ်ကားလာေအာင်ြခယ်မန်းေရးသားထားသည်။ စာေရးသသည် သအမန်တကယ်သိိထားေသာ...

1 စက်ဝှက်စ်တစ်ပြည်နယ်အနီးစ်၊ စာျပ်းပုဝါညီမှုတစ်ခါစ်သက်ကည်းလွမ်းေမာဖွယ်ကားလာေအာင်ြခယ်မန်းေရးသားထားသည်။
တစ်ရက်အလိကာလ င်းရော့ခေါင်ကျ ိသည်။ စာဖတ်သကိ စ်သက်ကည်းစိတ်သွင်းကာဆွဲေဆာင် စည်းံးထားိင်သည့် ဇာတ်လမ်းအဖွင့်ေရးသားဟန်ြဖစ်ပါသည်။

၃၊ ေကာင်းကျိးချိတ်ဆက်ြခင်း

အခြားစိတ်ပြုပြီးနောက် ပြုပြင်သူ သေနက်လိကုန်းစနစ်မှ သေပြုသော သက်ချိန်ချင်း၌ ပင်တွေ့ရှိခဲ့သည်။ သော်လည်း ပြုပြင်သူ၏ နိစဓဝိပျက်သမ်ဘဝဖြစ်စကိမ်း တင်ြခင်းမျိး မဟတ်ေပ။ ပြုပြင်သူ၏ ဘဝဖြစ်စမ်း လေးစားစံြပအပ်သည့်၊ မတ်သားအပ်သည့်၊ စာေရးသားမိသည့် အဖစ်အပျက်၊ အချက်အလက်များကိသာ ေရွးချယ်မတ်တမ်းတင်ြခင်းမျိး ဖစ်သည်။ သော်လည်း ဖစ်ရပ်အစား ေတာက်သွားမြဖစ်ေစရန် ဖစ်အပျက် တစ်ချက်င် တစ်ချက်၊ တစ်ကွက်ကို ဝတ်လမ်းစအတိင်း ေကာင်းကျိးချိတ်ဆက်ေပးရပါသည်။

ဝတ်ေတာက် ထိသိချိတ်ဆက်ေပးရြခင်းမျိးကိ မမိးေမကြောက်ချိတ်ဆက်ယ၍ ဇာတ်လမ်းအဖစ်ဖန်တီးရာတွင် ေရပ်င်နာက်ဖစ်ရပ်များကိ ချိတ်ဆက်ယသည့် သေဘာဖစ်သည် ၁

ဟင်းဖစ်ပါသည်။ ဦးလွန်းအတွင်း စာေရးသကဖခင်ကွယ်လွန်သွားပီးေနာက်မိခင်ကီးကိလပ်ေကးေနသာ ေရွေတာင်မိ၌သာေနလင်းဘဝမရန်ကန်တွင် ပံိပ်စာစီဘဝဖင့် ေရာက်လာမည့် ကိလွန်းဘဝသိ့ကွာသာေပာင်းတင်ြပလိသည့်အခါ ေမာင်လွန်းမာရွေတာင်မိ၌သာေနလင်းမသင့်သြဖင့်မပွင်းဵေသာ ေကာ်ကာဖးငံကာ သိပီးပညာတို့သည်အသံးမဝင်မိးေမ၊မ၊ ၂၀၀၉၊၂၆ ။

1 မြန်မာ ၁၀၀၁၆
ဗိုလ်မှူးကြီး ဗိုလ်ချုပ်မှူးကြီး အကြီးမားတိုးတက်ရောင်စိုးစမောင်းခြင်း ဖော်ပြစေခြင်း ၁

ပြီးလျှင် အမှဲ့အစား အကြီးမားသော အားကြီးအရင်းကြီးများအား ဖော်ပြရန် အချက်အလက်များကို စာရင်းသို့ သိရှိပါယ်မှု့စ်ကြား သိရှိနိုင်မည်။ အဆိုပြေစိတ်ကျမ်းများကို သေချာစေရန် စာဖတ်ခြင်းသည် မှန်ကန်ကြားသော ကြိုးစားချက်ဖြစ်သည်။ အကြောင်းကြောင်းအရာကို သတ်မှတ်ရပါက အဆိုပြေစိတ်ကျမ်းများကို များစertစေရမည်။

၁ သိန်းဖြစ်သော ၁၉၆၄ ခုနှစ် ၂၂-၂၃ ၌
သားသမီးများ သံုးသယ်မည်ဖစ်၏။ နောက် မိမိမာ သည်လည်းညီဖြစ်ကြောင်းသော စားနေကြည့်သည်။ မိမိမာ ယခုသာက်စားမိကင်းသည်။ အဖ်အပ်မကာင်း၍ သရာမရမ်ယံကျွန်းမိကလွန်ကြည်ထားသည်။ ကျွန်းကလားဖြစ်နေကြည်သည်ကိုစိတ်ကျမိရာသီအေထ်အေပါင်းနှင့်သရာမရမ်ယံကျွန်းမိကလွန်ကြည်ဖိ့၊ သည်ကျွန်းကလားဖြစ်ဖိ့၊ သည်ကျွန်းကိုကျွန်းဖိ့လွယ်သည်ဟေတွေ့မိရာသီအေထ်အေပါင်းပိတ်မည်ကိြမင်၏။ ၎င်းပိုင်းသို့စကားကိပယ်းမမတိ့လိုးတာ့ဖြင့်ကန်တာမြင်ပါးကိုတားတားတားမကည်မသာ့မည်ကိြမင်၏။ စိးရိမ်သည်ထက်တဏာအေများဘီလးရန်ကမခခံ့င်ဘဲအကျင်းသီလမိ၊ မြောက်သာသာ ဇနီးသည်ကိုတွေနကအက်တော်အကျိးနည်းမည်ကိုကျောက်မိရာသီအေထ်အေပါင်းပိင်းအကျိးနည်းမည်ကိုကျောက်မိရာသီအေထ်အေပါင်းပိင်းများ၌ကိတင်အရိပ်နိမိတ်ပေးနည်းကိုအသံ့ပြုသောစာဖတ်သေးနေသောအာ့ဝင်စားေဆာင်းရာသားသည်လည်းပါသည်။လိဝက်ေသာနည်းဖဖင့် ြမပ်ကွက်ထားဖင့်သေဘာသွားဆင်တသည်။သိရာတွင်ြမပ်ကွက်၏သေဘာမာေရွလျားနေသောဇာတ်လမ်းအဖစ်အပျက်ကိရပ်ကာဇာတ်လမ်းတစ်ေလာက်ထိန်ချိန်ခရီးမှန်ဇာတ်လမ်းအရလိအပ်လာသည့်အခါ၏ြပန်လည်ေဖာ့ေဆာင်ေပးသြဖင့်ချိတ်ဆက်ထားရာနေ့စွဲသောဖြစ်ချိန်မည်။ဇာတ်ရိပ်ဇာတ်နိမိတ်မာမှဇာတ်လမ်းတွင်နောင်ဖစ်လာမည့်ဇာတ်လမ်းဖစ်ရပ်င်တိ့သိန်းဖြမင့်။

1 ဆင်းသက်တန်း။
ကိတင်နိမိတ်ေပး ေဖာ်ြပြခင်းြဖစ်သည်။ ြမ ပ်ကွက်ထားြခင်းင့် အရိပ်နိမိတ်ြပြခင်း စ်နည်းစလံးသည် ဇာတ်ကွက်၊ ဇာတ်လမ်းအဆံး၌ စာဖတ်သ၏သိလိစိတ်ကိ ေြဖေလာ့ေပးပံချင်း အတတပင်ြဖစ်သည်။ အတ ပတ ိ ဝတဇာတ်လမ်းအသွင်ဖန်တီးရာ၌လည်း အတ ပတ ိြဖစ်စအရ ထိစကားသည် ဇာတ်ရိပ်ဇာတ်နိမိတ်ေပးသည့်သေဘာ ေဆာင်ပါသည်။ ထိစကားအတိင်း ပင် ဦးလွန်း အသက်(၄ဝ)အရွယ်သိ ့ ေရာက်ေသာအခါ ဇနီးြဖစ်သဆံးပါးသွားပံကိ စာေရးသက သတ ဝါတိ ့ မောင်ိင်ေသာ ေသမင်းသည် ေဒင်ကိ ဆရာလွန်းထံမခွဲလိက်ေလေတာ့သည်။ ထိ ၁၂၇၇ ခစ်ကား ဆရာလွန်းအတွက် သိန်းေဖြမင့် ၊ ၁၉၆၄ ၊ ၃၀ ውေးစားသောအခါမိဘကိ မွမ်းမံမြပိင်သည်။

1 မရဏမင်းမတစ်ပါး မည်သမစိစိတ်ကိ မခွဲိင်ေတာ့ပီ
သုံးသပ်မှု အရာအမျိုးအစားသည် အမြဲတမ်းကို ဖော်ပြသည်။

ဆရာကျောင်းသားလွန်းမှာ အခြေခံရရှိ၍ ထားခဲ့သည်။

နိမိတ်ပစ်ကားင်း နိမိတ်ဖျင်ဖြစ်ရပ်တို့သည်
တစ်ထပ်တည်းကျေနသားဆောင်ကြီးမှုသားဆောင်ကြီးမှုများ
များနှင့်ရှိသည်။

ဆရာလွန်းမှာ သခင်ဘစ်များကို အပေါ်များခဲ့သည်။
ဆရာလွန်း၏ အရေးမလိုသော မျက်နှာအတွက်
အောက်ပါသည်။

“မိုင်းမြင်းသား” သမိုင်းအဝါရိုက်ထားသည့် အခွံအ
သော်တစ်ခါက ဆရာလွန်းမှာ အပေါင်းများသားခဲ့သည်။
ဆရာလွန်း၏ အရေးမလိုသော မျက်နှာ
များအတွက် အော်ပါသည်။

1 ဟု ရေးသားဖော်ပြသည်။

2 သိန်းဖော်ပြပုံအတွက် အရာများစွာကို ဖော်ပြသည်။

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1 မြန်မာ ၁၉၃၂

2 မြန်မာ ၁၉၃၃
ဆရာလွန်းသည် မန်ပါေပသည်။ ဆရာလွန်း ထိစကားများမားဒင်ြဟာသည်င့်ပင် တပါေပသည်ဟု က်ပ်သည်များစွာ ကျနပ်တာ့သည်
ဟု စာေရးသ၏ ချီးမွမ်းစကားင့် နိမိတ်ြပန်ေဖာ်မကိ အသံးသတ်ေပးခဲ့သည်။

တစ်ဖန် ပထမဆံးကျင်းပေသာ အမျိးသားေနတွင်မာန်ပါပါဟန်ပါပါင်ြဟာေြပာေနသာ အမျိးသားပညာေရးေကာင်စီအဖွဲဥကိ အမ်ြအဦးေမာင်ကီး၏ ဟာေြပာချက်ပီးဆံးသွားသည့်အခါ ေနာက်နားတွင်ထိင်ေနေသာ ဆရာလွန်းက ေဘးနားိအမျိးသားေကျာင်းဆရာတစ်ဦးကိ လက်တိ၍ ေြပာဆိပံကိ စာေရးသကံဟ...တိ့ေခါင်းေဆာင်ကီး အသက်ြပင်းပါးလိ ့သာ ဆေတာင်းရေတာတာပဲ၊ ေတာ်ေတာ်ကာေရေပကတင်ထားတဲ့ငါးလိကန်းပင်လယ်ဝေဒါပံခန်ချရင် အခက်ပဲ ဟဲ...ဟဲဟဆိကာ လက်ြဖင်ကိင်၍ ြပံးေနေလ၏

ဟု ရးသားထားသည်။ အမန်လည်း ဆရာလွန်း၏စကားသည် အရိပ်နိမိတ်ြပစကားဖစ်ခဲ့သည်။ စာဖတ်သစိတ်တွင် ဦးေမာင်ကီး မည်သိ့ြပမမည်ကိ သိလိလာသည်။

ေနာက်ဆံးတွင် ဦးေမာင်ကီး သည် အဂလိပ်အစိးရထံ အမျိးသားေကာလိပ်ကိဖျက်ေပးပါမည်ဟေသာ ကတိြဖင်ငါးေထာင်စား ရာထးကိရယပီး မကာမီအမျိးသားေကာလိပ်ကိသာ့ဖျက်သိမ်းခဲ့ပံြဖင့် နိမိတ်ြပန်ေဖာ်ပးထားသည်။

3, 4. အားပိင်မသံြခင်း

1 - စကားလိုက် ၁ ၄၃
2 - စကားလိုက် ၂ ၈၂
အကြိုက်အပိုက်များဖြင့် အလိုအလျောက် မိန့်မားရာတွင် လိုအပ်ချက်များ အားဖျင်စွာ သိရှိရာ အာဆောင် အားဖျင်စွာ သိရှိလာရာတွင် အားပိုင်ယာ အာဆောင်တစ်ခုဖြင့် ဆရာကြီးခင်မင်(ဓာတ်) က ဇာတ်လမ်းအဖွဲ့တွင် သိရှိအားဖျင်စွာ မထောင်ကြသည်။ အားပိုင်ယာက အားဖျင်စွာ မထောင်ကြသည်။ ခင်မင်၊ ဗာ (ဓာတ်)၊ ။ ၁၉၉၄ ድ ၂၃၅ ድ ၃၄ ድ ၄၅၄။ ဗာ၊ ၁၉၉၈ ድ ၆၆ ድ ၃၃ ድ ၄၄ ድ ၅၄၄။ မိးဗာ ድ ၂၀၀၉ ድ ၅ ድ ၄၄။

1. အားပိုင်ယာသတ္တရားနှင့် အားပိုင်ဟူသောအချက်ကား အားပိုင်ယာအဖြစ် ရှိသည်။
2. အားပိုင်ယာသတ္တရားနှင့် အားပိုင်အားပိုင်ဟူသောအချက်ကား အားပိုင်ယာအဖြစ် ရှိသည်။
3. သတ္တရားအားပိုင်အားပိုင်ဟူသောအချက်ကား အားပိုင်ယာအဖြစ် ရှိသည်။

စာရင်းမှာ ဖော်ပြထားသည်။

1 ကြည့်ရှုပ်သော စာရင်း ድ ၁၄၄ ၄၄၄ ድ ၄၄၄။
2 ကြည့်ရှုပ်သော စာရင်း ድ ၄၄၄ ၄၄၄ ድ ၄၄၄။
3 ကြည့်ရှုပ်သော စာရင်း ድ ၄၄၄ ၄၄၄ ድ ၄၄၄။
ဆရာလွန်းသည် အမျိးသားေကာလိပ်အသက်င်ရပ်တည်ိင်မအတွက် လစာေငွ ၂ဝဝ ေပးသည်ကိ ၁၅ဝသာ ယသည်။ ထိ ၁၅ဝ ကိပင် မန်မန်ရသည့်လက နည်းေလသည်။

သားသမီးေလးေယာက်င် ့ြဖစ်၍ ေနေရးထိင်ေရး၊ သွားေရးလာေရး၊ စားေသာက်ေရးတိ ့အတွက် အဆင်မေြပိင်။ ိသမ ပဆိးအကျီတိ ့ကိပင် ေပါင်ံရာသည်။

မိမိေနထိင်ရာ ဘားလမ်းမ အမျိားသားေကျာင်းိရာ ဗဟန်းအထိ ေန ့စ ေြခကျင်လာရသည်။

အသက်အရွယ်ကလည်းရ၊ ေနကလည်းပေသာေကာ င့် ေခးတဖိင်ဖိင် ယိစီးကျေနေပသည်။

တိရစာန်ံ ေဘးေရာက်သည့်အခါ သစ်ပင်ေအာက်တွင် ေခတ   နားကာ ပဆိးမိတ်ကိလက်င့်မယလျက် ယပ်ခတ်ရာသည်။

ထိသိ ့ အေမာေြဖပီးမ ဗဟန်းေကျာင်းေကာလိပ်သိ ့ တက်ေရာက်ရေလသည်။

အတန်ကာ အနားေန အေမာေြဖပီးမ ဗဟန်းေကျာင်းတိက် ေနင်နယ် ေကာလိပ်သိ ့ တက်ေရာက်ရန် လာခဲ့ေလသည်။

ဟေသာ ေရးသားချက်များသည် ဆရာလွန်းကိ သဘာဝတရားင် ့ အားပိင်ေပးလိက်ြခင်း ြဖစ်သည်

၏။ ဤသိ ့ စိတ်ပျက်အားေလျာ ့ဖွယ် သဘာဝတရားများင် ့ ရင်ဆိင်ေနရေသာ်လည်း အနည်းငယ်မ စိတ်ဓာတ်မယိမ်းယိင်ဘဲ မျိးချစ်စိတ်အတွက် အားခဲမာန်တင်းိင်ခဲ ့သည်။

အားပိင်မေကာင့် ဇာတ်ိန် ြမင် ့လာသကဲ့သိ ့ ဇာတ်ေဆာင်အရည်အေသွးကိလည်း ေတာက်ေြပာင်လာေစပါသည်။

1  မြို့နယ် ၁ လမ်း ၁ ခု ၂ ချမ်း
ဝတ်သေဘာအရ ဆရာလွန်းသည် အဓိကဇာတ်ဆာင်ဖစ်သည်။ အဓိကဇာတ်ဆာင်ဖစ်သေသာ ဆရာလွန်းကိ ဆန့်ကျင်ဇာတ်ဆာင်များဖင့် အားပိင်မြပ၍လည်းဇာတ်သန်းမင့်အားဖန်တီးထားသည်ကိေတွရသည်။ သပိတ်မာက်ကျာင်းသားများက သရိယတိက်တွင် အယ်ဒီတာလပ်နေသာ ဆရာလွန်းအားအမျိးသားကျာင်း၌ ဗမာစာဆရာလပ်ပါရန် မရမကေတာင်းဆိကသည့်အခါ ဆရာလွန်းကလက်ခံလိက်သည်။ ထိုနာက် ဦးဘေဖကိအလပ်ထွက်မည့်အေကာင်းသွားရာဆိရာ၌ ဦးဘေဖင်ဆရာတို့အြပန်အလန်ပားကပံ့ကိအားပိင်မျဖန်နံထား၍ "ဆရာသိပ်လာမကီးနဲဆရာ၊ စးစားပါအံး" ေနင်နယ်ကာလိပ်ကိုသချာတာမဟတ်ဘး။ ေနင်နယ်ကာလိပ်ပျက်သွားရင် ဆရာမခက်ေပဘးလား...

"အေကာင်းများကိုပျက်သွားရင် ဆရာအလပ်ထွက်မဲ့မင်းတိကမလပ်ခင်က အပျက်စကားေြပာပါထား တာမဟ်ပါဘး၊ ဆရာ့အတွက် မပေတာ်မပါနဲ့ေမာင်ရာ။ အေမျိးထားတာေမွးထား တာေမိ့အဂလိပ်စာတတ်ခိင်းစားဖိ့မဟ်ပါဘး၊ ဆရာေတာအလပ်ထွက်ပီ။ ဆင်ြပဆန်မေတာင်းနဲတ့ဟေြပာကာ သရိယတိက်မထွက်ခဲ့ေလ၏ 1

1 - ဓာတ် - ကမ်း - ကမ်း
ဆရာလွန်းအနေဖြင့် အစိုးရပါလောမြောက်ကျွန်းစုတွင် ဗုဒ္ဓဟူးအမှတ်တံဆိုင်ရာ ဖွဲ့စည်းချက်ကို ပြုလုပ်ပေးသည်။

ဆရာလွန်းအနေဖြင့် အခြေခံအရွယ်အစား အောက်ပါအတွက် ပထမဦးဆုံးသွားရာ (၁၁)လအရွယ်သော သမီးငယ်ကလေး အပါအဝင် သားသမီးကြက်ကျန်ဦးသွားသည်။ ဆရာလွန်းထောင်စုတွင် ကသီလင်တိုင်းသားများနှင့် ဆရာလွန်းကန့်ကိုပြောပြန်နေသည်။ ယင်းသည် ဝန်းကျင်လွတ်အပေါ် အသုံးပြုခင်း ဖစ်သည်။ သို့မှသား တဏာရာဂျက်မဖက်တွယ်မှမက်မာသည့် ဆရာလွန်းအဖိ့ ထိအားပိုင်မတွင် အိင်ရိခဲ့ပါက စားသက်တပည်တိ့မိတ်ဆွတ်ဖြင့်၊ ရာဝါသမာဓြဖင့်၊ ဒကဖွဲောင်၊ အိမ်ကြောင်းစောင်ခဲ့ပီ။ လမိက်တိ့အလပ်၊ ယတ်သမားအလပ်၊ ကာမားင်ပြထွေသောအလပ်ကိုလပ်ခဲ့ပီ။ ဆရာသည် တစ်ခါသာမိက်ပါရေစို့။ 

"သို့သော် မိဘမှာ မြင်ကွင်းနှင့် များကြားရောက်လျက် ရှိပြီး စိုးရိမ်စိတ်ကတစ်ဖက်၊ အိမ်ကြောင်းမြပြပန်လင် ဘဝပါပျက်စီး၍ မိန်းမယတ်များင် မတွမည်ကို စိုးရိမ်စိတ်ကတစ်ဖက်ြဖင့်လွန်ဆွဲးနေသည့် ဆရာလွန်း၏ အတွင်း စိတ်ချင်း အားပိုင်မကိလည်း ကိလွန်းသည် တွေ့နေလ၏။ မိမိသည် သံုးချင်းကိုက်၏။ မိမိသည် သံုးက်စားမ သိန်းဖြမင့် ၊ ၁၉၆၄ ၊ ၅၀ ။

1 မြန်မာစာလိုဝေါဟာရ
ကင်းေသး၏။ အေဖာ်အေပါင်း မေကာင်း၍ သရာေမရိယကံ ကျးလွန်မိကလြဖစ်ံး
ေလသည်။ ကေလးကလာြဖစ်ေနက သည်ကံသည် ြဖစ်ဖိ ့၊ သည်ကံကိ ကျးလွန်ဖိ ့ လွယ်သည်ဟေတွးမိ၏။ သိ ့လင်ကီးပွားလမ်းလည်းပိတ်မည်ကိြမင်၏။ ၎င်းြပင် ေဒမမေလးတိ ့စကားကိ ပယ်ားက မမေလးတိ ့ မကည်မသာ ိမည်ကိလည်း စိးရိမ်သည်ထက် တဏာအေမာင့်ဘီလးရန်က မခခံိင်ဘဲ အကျင့်သီလမိ၊ မိက်မဲေသာ ဇနီးသည်ကိ ေတွေနကအက်တကွဲ အကျိးနည်းမည်ကိ ေကာက်မိ၏1

ဟ၍ စိတ်ဝင်စားဖွယ်ေကာင်းလာေအာင် ဖန်တီးေရးသားထားသည်။ ဦးေမာင်ေမာင်ခင် ေဒမမေလး တိ ့က မင်င�်အိမ်ေထာင်ချေပးရာတွင် လက်ခံခဲ့သည့် ြဖစ်ရပ်မန်ကိ မဆန့်ကျင်ဘဲလိက်ေလျာ ညီေထွ ြဖစ်ေစမည့် အာပိင်မအကွက်အခင်းကိ ထည့်သွင်းမွမ်းမံေရးသားထားြခင်း ြဖစ်သည်။

ကံကမာင့်အားပိ င်မသည် ဇာတ်ေဆာင်၏ဘဝဇာတ်လမ်းကိ တစ်ဆစ်ချိးြပာင်းေပးိင် သည့် ဇာတ်လမ်းဆင်ပံတစ်မျိး ြဖစ်ပါသည်။ ဆရာလွန်းအတ ပတိတွင် ထိအားပိင်မမျိး အရန်သင်ပါဝင်နပါသည်။ မိသားစငိမ်းငိမ်းချမ်းချမ့်ြဖင့် ေပျာ်ရွင်စွာေနေနရချိန် ငယ်ငယ်ရွယ်ရွယ်င့် ဇနီး ေသဆံးသွားမသည် ကံကမာင် ့အားပိင်မမျိးြဖစ်ပါသည်။ ဆရာလွန်းမာ (၁၁)စ်အရွယ် သမီးငယ် ကေလးကိ ပခက်အတွင်း ထည့်လွဲရင်းထမင်ချက်ရ၊ ကျန်ကေလး(၃)ေယာက်အတွက် အိမ်မကိစေဆာင်ရွက်ရင် ဒကများစွာရင်ဆိင်ရေတာ့သည်။

ကံကိ့ကံ့ခံ ရင်ဆိင်ရင်းစိတ်ဓာတ် မပျက်မြပား၊ ခိင်မာေသာ ဇွဲ၊ ဉာဏ၊ လံ ့လ၊ သတိတရားများြဖင် တည့်မတ်ေဖာင့်ြဖတ်ေကျာ်ိင်ခဲ့သည့် ဆရာလွန်း၏ စိတ်ဓာတ်င့်အြပအမကိ အတယ်လးစားဖွယ် ေတွြမင်ဖတ်ိင်သည့် အာပိင်မတစ်ခြဖစ်ပါသည်။

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1  - မျှအပ် - ရှား
ယူဆောင်ရွက်သည် “အသေဘ်ကြားထားမွှေ့” အခြေခံ၍ အားလုံးကို ဆိုက်ကပ်သွားရာ ဒေသရက်ဒစ်အတွင်း အခြေခံစီးသော ရူများသည် အကောင်အထည်များနှင့် အခြေခံစီးသော ပြဿနာများစွာ အကောင်အထည်များဖြင့် အကူအညီ စိတ်ဝင်စား၍ ကျင်းပခြင်း များကို ဖျင်ရာ ကျော်လွှာသော ဆရာက်အနေဖြစ်သည်။ ဆရာက်၏ ဝတ်ပိုင်းဆိုင်ရာ ဇာတ်လမ်းဖန်တီးမှု မှတ်တမ်းများသည် အရာအသားကေလာင်စွမ်းထက်မတိ့ေကာင့် ဆရာက်သခင်ကိယ်တာမိင်း အတွင်းပတိများ ဟာကွက်မိဘဲ ဝတ်ေကာင်းတပ်ကိုဖတ်နရသည် အလားစိတ်ဝင်စားမှုများလာစပါသည်။ ဇာတ်လမ်းဖန်တီးမှုနည်းပညာအရ ဝတ်သဖွယ်ဖန်တီးရာတွင် သခင်ကိယ်တာမိင်းအတွင်းပတိအစပျိးပံသည် “အချိန်ကာလကိဖော်ပေ၍ ဝတ်စပံ” နည်းကိုအသံးပြုချိန်တွင်လည်း စာဖတ်သည်မွမ်းမံချိတ်ဆက်မင့်အတွင်းပတိဖစ်စမာ အံဝင်ခွင်ကျမ်နေပါသည်။ အတွင်းပတိင်၏ မွမ်းဖွားချိန်ကာလအနေဖြင့် ေွဦးကာလရာသီသဘာဝသပ်ကိစ်သက်ကည်းလွမ်းေမာဖွယ်ေကာင်းလာအောင် ကယ်ခယ်မန်းေရးသားထားသည်။ ဇာတ်လမ်းအဖွင်းေကာင်းဖင့်ပက်ချပီးချိန်တွင်လည်း စာဖတ်သည်မွမ်းမံချိတ်ဆက်မင့်အတွင်းပတိဖစ်စကိဝတ်အသွင် ဇာတ်ိန်မကျေအာင် ဇာတ်ေဆာင်ဗဟိြပိုင်မေထာင့်စံဖော်ထားကိုများသည် မွမ်းမံဖန်တီးေရးသားထား၍ ပါသည်။ နိဂံးစာတမ်းတွင်အတွင်းပတိစာပေဘာင်အတွင်းမေန၍ ဝတ်ဟန်ဖန်တီ်တင်းပခဲ့သည့် သိန်းေဖြမင့်၏ ဇာတ်လမ်းအသွင်မွမ်းမံေရးသားဟန်များကို အေလ့လာေဖာထတ်ထားပါသည်။
ကျမ်းကိးစာရင်း

ခင်မင်၊ ဗုဒ္ဓဗုဒ္ဓ (၁၉၉၄) စကားဗျူသေဘာတရား စကားဗျူအတတ်ပညာ။ ရန်ကန်၊ စာဗျူလောကစာအပ်တိက်။

ဗျူဂျီ၊ ဗုဒ္ဓ (၁၉၈၄) သိန်းင့်ကျားဋီကာ။ ရန်ကန်၊ မာမာစာဗျူ၊

မိးဗျူ၊ မွှေ (၂ဝဝ၉) ဝတ်သေဘာတရား ဝတ်သေလျာနည်း၊ ရန်ကန်၊ ဗျူလောကစာဗျူ၊

မင်းယေဝ၊ (၁၉၇၈) ဝတ်သေဘာတရား ဝတ်သေလျာနည်း၊ မာမာစာဗျူ၊

မင်းယေဝ၊ ဗုဒ္ဓဗုဒ္ဓ (စီစသ) (၁၉၈ဝ) သိန်းဗျူပံလွာ၊ ရန်ကန်၊ သစာစာဗျူ၊

ဗျူကည်၊ ဦး (၁၉၉၈) ဝတ်သေဘာတရား ဝတ်သေလျာနည်း၊ မာမာစာသေတသနဂျာနယ်၊ ဗျူမာစာအဖွဲ့၊ ရန်ကန်၊

လက်ချောင်၊ (ပါရဂ) ငါးများ (၁၉၇၁) အတွဲပတ်စာဗျူ၊ ရန်ကန်၊ ကျားစာဗျူ၊

သိန်းဗျူ (၁၉၆၄) သခင်ကိေယ်တာ်မိုင်း (ဗုဒ္ဓဗုဒ္ဓ) အတွဲပတ်စာဗျူ၊ ရန်ကန်၊

သိန်းဗျူ (၂ဝဝဝ-၁၉၉၈) တစ်ချိန်သေငွရတသဘင်င့်ဘိးဘိးဘွားဘွားအချစ်ပွား၊ ရန်ကန်၊ သစာစာဗျူတိက်။

သိန်းဗျူ (၂ဝဝဝ-၁၉၉၈) သတ်ဖြစ်သေခတ်သတ်ဖြစ်သေအရိပ်၊ ရန်ကန်၊ စာအပ်ဗာမာပံုစံကျော်တိက်။

ဟတ်စိန်၊ ဦး (၁၉၉၉) ပါဠိ-မာစာသေတသနဂျာနယ်။ ရန်ကန်၊ ချမ်းသာစာဗျူ၊