CHAPTER 3

RESEARCH METHODOLOGY

This chapter explains all procedures that the researcher conducted in this study. It includes the information of population and samples, instruments, data collection, data analysis, and statistics used to analyze the collected data.

3.1 Population and Samples

3.1.1 The population

The population of this study comprised 129 Pratomsuksa 4 students in all 7 primary schools of Lamplaimat group 8, Lamplaimat District, under Buriram Primary Educational Service Area Office 1, during the first semester of the 2013 academic year. The 7 primary schools consisted of 1.) Toobchang School, with 28 Prathomsuksa 4 students, 2.) Nong Koa Kha School, 26 students, 3.) Nong Waeng School, 17 students, 4.) Huay Ma Fai School, 6 students, 5.) Nong Song Hong School, 11 students, 6.) Muang Fak School, 17 students, and 8.) Nong Khun Prab School with 24 students.

3.1.2 The samples

The samples of the study were 12 Prathomsuksa 4 students at Nongkrok School, Lamplaimat District,under Buriram Primary Educational Service Area Office 1 who enrolled in the first semester of 2013 academic year. They were selected by simple random sampling technique.

3.2 Instruments

The research instruments were 12 lesson plans, a vocabulary achievement test, and a satisfaction questionnaire asking the students towards the vocabulary learning through the TPR approach. The details of each instrument and how they were implemented are briefly described as follows:

3.2.1 Lesson Plans

3.2.1.1 The researcher studied and analyzed the Basic Education Core Curriculum B.E. 2551 (A.D. 2008) about visions, principles, goals, learner's key competencies, desirable characteristics, learning standards of foreign languages, indicators, learning areas, strands and learning standards of foreign languages.

3.2.1.2 The researcher studied the limitation and details of the contents in the curriculum based on English learning for Prathomsuksa 4 students of Nongkrok School, Lamplaimat District under Buriram Educational Service Area office 1.

3.2.1.3 The researcher studied the theory of TPR strategy from The Complete Teacher's Guide Book: Learning Another Language through Actions, and Steps. In addition, the researcher studied how to teach by using the TPR from the guide book of The Children's Response TPR and Beyond, written by Caroline Linse.

3.2.1.4 The researcher constructed twelve lesson plans for improving English vocabulary learning focusing on teaching through TPR comprising of the concept, objectives, contents, learning and teaching activities, teaching materials, measurement and evaluation, and suggestions. The researcher set 90 English vocabularies into five main teaching points and twelve periods as in the following table.

Table 3.1 English vocabulary in each teaching point

Week / Teaching Points	Periods	Vocabulary (Nouns)	Vocabulary(Verbs)
1. My Body	1	head, eye, ear, nose, and neck	touch
	2	hand, arm, leg, knee and foot	hold
1. My Classroom	3	pen, pencil, book, eraser, and bin **Prepositions**: near, in front of, and between	put, and point to
	4	chair, school bag, blackboard, table, and clock	sit, and jump
2. My Pets	5	dog, cow, fish, cat, and pig	see, love, and hate
	6	duck, bird, chicken, rabbit, and buffalo	count, and afraid of
2. Food and Drinks	7	chicken, hamburger, fried rice, and sandwich.	has, have, and like
	8	cake, cookies, doughnut, and ice cream.	eat, dislike
	9	orange juice, milk, coffee, and water.	drink, like and dislike
3. Hobbies and Sports	10	reading, swimming, cycling, and drawing	read, swim, ride, and draw.
	11	cooking, collecting stamps, growing the plants, and jogging	cook, collect, grow, and run

Table 3.1 (Cont.)

Week / Teaching Points	Periods	Vocabulary (Nouns)	Vocabulary(Verbs)
3. Hobbies and Sports	12	football, table tennis, volleyball, and basketball.	can, and play

      3.2.1.5 The entire lesson plans were checked the contents by thesis advisors, after the researcher completed. Late the specialists examined the Index of Item Objective Congruence (IOC) of TPR and contents, the appropriateness of TPR and objectives, activities, materials and learning assessment. Then the researcher calculated the mean scores and interpretation of mean scores mentioned in Srisa-ard's book (2002).

      The interpretation of specialists' opinion was as follows :

      + 1 = It is certain that lesson plans' contents are coincident with objectives.

      0 = It is uncertain that lesson plans' contents are coincident with objectives.

      - 1 = It is certain that lesson plans' contents are not coincident with objectives.

      The IOC criterion content was set at 0.67 up. For this study, the mean scores of specialists' opinion was at 0.99 level.

      The lesson plans were adjusted in accordance with the advisers and then had been examined by the following three specialists:

1. Mr. Tanyawit Trirat, the director of Nongkrok school. He examined contents and processes.

2. Mrs. Ruengrai Promboot, a teacher of Khee Toon School, Lamplaimat District, Buriram Primary Educational Service Area Office 1. She examined the assessment.

3. Mr. Nipon On-nual, a teacher of Nongkrok School, Lamplaimat District, Buriram Primary Educational Service Area Office 1. He considered the innovations.

3.2.1.6 The researcher analyzed the scores from the specialists to find out the mean scores and interpretation of the mean scores.

The appropriate mean scores of the lesson plans which interpreted were set at 0.75-1.00. The researcher adjusted and revised the lesson plans as the specialist.

3.2.2 The Vocabulary Achievement Test

3.2.2.1 The vocabulary achievement test was used as the assessment tool in the pretest and the posttest phases of the study to investigate whether the TPR approach was effective on the development of lexicon knowledge of students. To conduct the test, the researcher studied the assessment principles from the documents and books such as "Testing and Assessment of Teaching English" by Wongsothorn (1995 : 131-208) and Harris's book "Testing English as a Second Language" (Harris. 1969 : 58-67)

3.2.2.2 The vocabulary items in the test were selected from the core curriculum for foreign language of Basic Education Curriculum (2008), Ministry of Education. The test was designed to assess the improvement of students' vocabulary

learning. They were conducted for 40 items from five teaching points which are the four-multiple-choice test.

3.2.2.3 The vocabulary achievement test was checked for the validity by thesis advisors and the experts. Then the IOC Form was used again with the following interpretation.

+ 1 = It is certain that items of the test are coincident with objectives.

0 = It is uncertain that items of the test are coincident with objectives.

- 1 = It is certain that items of the test are not coincident with objectives.

3.2.2.4 The IOC was analyzed and the accepted means are 0.67-1.00. In this study, the mean score of the IOC was at 0.95 level.

3.2.2.5 The test which met the IOC value was tried out with 12 Pratomsuksa 5 students in Toobchang School, and 18 Pratomsuksa 5 students in Nongkrok School.

3.2.2.6 An item analysis was completed, each of question was analyzed for the level of difficulty (p) and the discrimination power (r) with the software programmed. The criteria used to select the test items are the level of difficulty (p) at 0.2 – 0.8, and the discrimination power (r) at 0.2 - 1.0 (Sri Sa-ard. 2002).

For this study, the levels of difficulty (P) were at 0.44 - 0.62, and the levels of the discrimination power (r) were at 0.33 – 0.65, which higher than the criterion.

3.2.2.7 The reliability of the tests was determined by Kuder-Richardson's method (KR - 20). The software programmed was used to calculate the data, the discrimination power (r) at 0.33 – 0.65 criteria of reliability for discrimination power (r) of the tests will be accepted at ≥ 0.80 (Thaweerat, 2000 : 123 -124). The reliability of the tests in this study was at 0.87, could be interpreted the reliability was higher than the criterion.

3.2.2.8 The researcher selected only 20 items which are the level of difficulty (p) at 0.2 – 0.8, and the discrimination power (r) at 0.2 -1.0 as a pre-test and a posttest for the achievement test.

3.2.3 The Questionnaire of the Students' Satisfaction towards Vocabulary Learning through TPR Approach.

The questionnaire of this study was designed to find out the students' satisfaction towards vocabulary learning through the TPR approach. The 5-points in the Likert Rating scale was employed for assessing the satisfaction. The steps of the questionnaire construction are below.

3.2.3.1 The researcher studied the processes of questionnaire construction by Best. (Kuntung . 2007 : 22).

3.2.3.2 The researcher conducted the 20 item questionnaires of the students' satisfaction towards vocabulary learning through the TPR approach. The Likert-5 rating scale was used with the following interpretation:

5	=	"Most Satisfaction"
4	=	"More Satisfaction"
3	=	"Moderate Satisfaction"
2	=	"Less Satisfaction"
1	=	"Least Satisfaction"

The collected mean scores was interpreted by using Best criteria (Best.1970 ; cited in Kuntung. 2007: 22-23).

4.50 – 5.00	=	"Most Satisfaction"
3.50 – 4.49	=	"More Satisfaction"
2.50 – 3.49	=	"Moderate Satisfaction"
1.50 – 2.49	=	"Less Satisfaction"
1.00 – 1.49	=	"Least Satisfaction"

3.2.3.3 The questionnaire was examined by thesis advisors. Then the researcher adjusted them and sent the questionnaires to the same three experts to check the content validity quality, language using, and the correct of procession. All items of questionnaire was analyzed by the IOC. The reports' rating was analyzed and the accepted were set at 0.67-1.50. For this study, the mean of questionnaire's IOC rating was at 0.90.

The questionnaire items were calculated for the IOC index, and chose the ones which met the IOC at 0.67. Then the researcher adjusted the items..

3.2.3.4 The completed questionnaire was tried out with 18 non-sample Pratomsuksa 5 students in Nongkrok school and 12 Pratomsuksa 5 students in Toobchang school.

3.2.3.5 An item analysis was completed and each of question was analyzed for the level of discrimination power (r) by the software programme. The criteria used to select the questionnaire items were the level of the discrimination power (r) at 0.2 - 1.0 (Sri Sa-ard. 2002).

For this study, the level of the discrimination power (r) were at 0.66 – 0.97.The researcher selected 15 items which each item was appropriate to present good classification of students' satisfaction.

3.2.3.6 The selected questionnaires were calculated for the reliability by using the alpha-coefficient (α - Coefficient) by Cronbach's method (Ninkorn, 2001 : 77). The criterion of reliability was set at 0.80. For this, the reliability was at 0.96.

3.3 Data Collection Procedures

3.3.1 Research Design

This study is the experimental research using one group pre-test and post-test design. The research design of one group pretest – posttest is shown as the figure below.
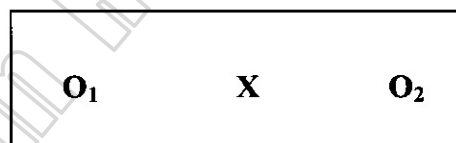
$$O_1 \qquad X \qquad O_2$$

Figure 3.3.1 The figure of one group pretest-posttest design. (Srisa-ard. 2002)

From the figure, one group pretest-posttest design shows the interpretation as follows:

O_1 = Pre-test

X = Treatment

O_2 = Post-test

3.3.2 Treatment Procedures

The researcher proceeded the treatment of this study with the following processes.

3.3.2.1 The researcher gave the specific directions to the students before the beginning of treatment. The specific directions told the students about the TPR learning method, teacher's role as a model, students' role, learning objectives, and assessment procedures.

3.3.2.2 The researcher gave out the pretest to 12 Pratomsuksa 4 sample students in NongKrok schools, Lamplaimat District under Buriram Primary Educational Service Area Office 1 before learning. The tests comprised 20 items, 4 multiple choices, and lasted in 30 minutes.

3.3.2.3 The samples were explicitly taught by the use of TPR strategy in learning vocabulary. The researcher taught with the 12 TPR lesson plans and 12 teaching periods lasted for 3 weeks. Each lesson plan covered 1 hour and each teaching point covered 2 hours. In the first week, the lesson plans taught were "My Body" and "My Classroom", the second week was "My Pets" and "Food and Drinks", and the third was only "Hobbies and Sports". The teaching points have been presented in the table below.

Table 3.2 TPR Teaching Points

Week/Period	Teaching Points	Objectives	Vocabulary
		Orientation **Pre-test**	
1 / 1	**My Body**	1. Indicate the parts of body. 2. Recognize the parts of body when somebody names it and react verbally and physically.	**Nouns** : head, eye, ear, nose, and neck **Verb** : touch
1 / 2	**My Body**	1. Indicate the parts of body. 2. Recognize the parts of body when somebody names it and react verbally and physically.	**Nouns** : hand, arm, leg, knee and foot **Verb** : hold
1 / 3	**My Classroom**	1. Students are able to specify for vocabulary in classroom. 2. Students perceive the meaning of vocabulary when they have heard its names or	**Nouns** : pen, pencil, book, eraser, and bin **Verbs** : put, and point to **Prepositions**: near, in front of, and between

Table 3.5 (Continued)

Week/Period	Teaching Points	Objectives	Vocabulary
		watched someone perform the consistent movement. 3. Students express position of things.	
1 / 4	**My Classroom**	1. Students are able to specify vocabulary in classroom. 2. Students perceive the meaning of classroom vocabularies when they have heard its names or watched someone perform the consistent movement.	**Nouns** : chair, school bag, blackboard, table, and clock **Verbs** : sit, and jump
2 / 5	**My Pets**	1. Students are able to define animals' vocabulary. 2. Students can do the activities as their comprehensions after they observe and imitate the model.	**Nouns** : dog, cow, fish, cat, and pig **Verbs** : see, love, and hate

Table 3.5 (Continued)

Week/Period	Teaching Points	Objectives	Vocabulary
2 / 6	My Pets	1. Students are able to understand the meaning of animals' vocabulary. 2. Students use their bodies to show activities which they recognize from models.	**Nouns** : duck, bird, chicken, rabbit, and buffalo **Verbs** : count, and afraid of
2 / 7	Food and Drinks	1. Students can specify the meaning of food. 2. Recognize for food when somebody names it and react verbally and physically.	**Nouns** : rice, egg, soup, banana, and orange **Verbs** : eat, like, and dislike
2 / 8	Food and Drinks	1. Students can specify the meaning of food and drinks vocabulary. 2. Recognize for food and drinks when somebody names it and react verbally and physically.	**Nouns** : cake, cookies, coffee, milk, and juice **Verb** : eat, dislike

Table 3.5 (Continued)

Week/Period	Teaching Points	Objectives	Vocabulary
2/9	Food and Drinks	1. Students can specify vocabulary of drinks. 2. Students become aware of the words about the drinks through physical response activities. 3. Students are able to tell like and dislike the drinks.	**Nouns** : orange juice, milk, coffee, and water. **Verbs** : drink, like and dislike.
3 / 10	Hobbies and Sports	1. Students are able to define the meaning of hobbies's vocabulary. 2. Students can do the activities about hobbies' vocabulary through physical response.	**Nouns** : reading, swimming, cycling, and drawing **Verbs** : read, swim, ride, draw
3 / 11	Hobbies and Sports	1. Students can define vocabulary of hobbies. 2. Students can act the activities about hobbies' vocabularies through physical response.	**Nouns** : cooking, collecting stamps, growing the plants, and jogging. **Verbs** : cook, collect, grow, run.

Table 3.6 (Continued)

Week/Period	Teaching Points	Objectives	Vocabulary
3/12	**Hobbies and Sports**	1. Students can define vocabulary of sports. 2. Students can act the activities about sports' vocabulary through physical response.	**Nouns**: football, table tennis, volleyball, and basketball. **Verbs** : can, and play.
		Post – test Taking Satisfaction's Questionnaires	

        3.3.2.4 The samples were treated with the TPR training model including the following steps:

        1.) Teacher warmed up and reviewed the lesson by demonstrating of key words, then commands and performs the action. Next, students listened and watched as the teacher commands and model the action again and again. This time the students performed the actions simultaneously.

        2.) When students understood the teacher's commands, they were acted in group without modeling action. Later, the teacher gave the command to an individual without modeling action.

        3.) Teacher modeled variations and combinations for the groups. Students performed variations and combinations. Some students were ready, they

gave commands to classmates. Teacher observed students' performing and admired them when they took the right way. In contrast, if they could not perform, teacher should introduce and demonstrate again. Both assessment and feedback were used all the period of students' action.

4.) The last step, the teacher summarized the lesson and students pronounced, spelt and gave the meaning of vocabulary. In addition, students were asked to do many exercises about grammars or sentence structures. Moreover, teacher took students do role-playing, storytelling, and drawing pictures to make them understand the lesson.

3.3.2.5 At the end of the treatment, the samples were tested with the post-test with 20 items of English vocabulary achievement test to investigate the effectiveness of students' English vocabulary learning through TPR. The researcher collected data to analyze with the statistics in the next step.

3.3.2.6 Finally, the researcher asked the samples to answer the satisfaction's questionnaire to find out the students' satisfaction towards their vocabulary learning through TPR. The questionnaires comprised of 15 items of questions and five rating scales. The researcher gathered the data for analysis the students' satisfaction.

3.4 Data Analysis

The collected data were analyzed by a statistical software package as follows:

3.4.1 To evaluate students before and after being taught through TPR, the pretest and posttest had computed for the mean ($\overline{X}$), and standard deviation (S.D).

3.4.2 To compare the difference between pretest and posttest, dependent sample t-test had used to determine significant differences set at .05.

3.4.3 The effectiveness Index (E.I.), Goodman, Fletcher and Schneider's method was examined.

3.4.4 The data from the questionnaire was calculated to find the discrimination power (r), the signification using t – test discrimination method. Finally, reliability was calculated by using alpha-coefficient (α - Coefficient) developed by Cronbach's method (Ninkorn. 2001 : 77).

3.5 Statistics Used to Analyze the Collected Data

The following statistic techniques were employed in analyzing the data for the research instruments.

3.5.1 Basis statistics

The basis statistics used to figure out the general data are as follows:

3.5.1.1 Means ($\overline{X}$) (Ritjamroon. 2001 : 300)

$$\overline{X} = \frac{\sum X}{N}$$

$\overline{X}$ = Mean

$\sum X$ = Total of Scores in Group

N = Number of Scores in Group

3.5.1.2 Standard Deviation (SD) (Ritjamroon. 2001 : 312)

$$S.D. = \sqrt{\frac{N\sum X^2 - (\sum X)^2}{N(N-1)}}$$

S.D. = Standard Deviation

X = Score of Each Item

$$\sum X \ = \ \text{Total of Scores in Group}$$

$$N \ = \ \text{Number of Scores in Group}$$

3.5.1.3 Percentage (%)

$$P \ = \ \frac{f \times 100}{N}$$

$$P \ = \ \text{Percentage}$$

$$f \ = \ \text{Total of Frequency}$$

$$N \ = \ \text{Number of Frequency}$$

3.5.2 Statistics for Analyzing the Quality of Instrument

3.5.2.1 Index of Item Objective Congruence (IOC) (Ritjamroon. 2001 : 272-273)

$$IOC \ = \ \frac{\sum R}{N}$$

$$IOC \ = \ \text{Index of Item Objectives Congruence}$$

$$\sum R \ = \ \text{Total Scores from the Experts' Determination}$$

$$N \ = \ \text{Number of Experts}$$

3.5.2.2 Difficulty Analyzing (Ritjamroon. 2001 : 281)

$$P \ = \ \frac{P_U + P_L}{2}$$

$$P \ = \ \text{Level of Difficulty}$$

$$P_U \ = \ \text{Ratio of Correct Answer in High Group Students}$$

$$P_L \ = \ \text{Ratio of Correct Answer in Low Group Students}$$

3.5.2.3 Discrimination (r) (Thaweerat. 2000 : 130)

$$r = \frac{R_U - R_L}{N/2}$$

r = Discrimination of Each Item

R_U = Number of Students in High Group who Answer

Correctly.

R_L = Number of Students in Low Group who Answer

Correctly.

N = Number of all Samples

3.5.2.4 Reliability (KR-20. Kuder – Richardson's method ; cited in

Srinak. 2007 : 55)

$$r_{tt} = \frac{n}{n-1}\left\{ 1 - \frac{\sum pq}{s_t^2} \right\}$$

r_{tt} = Coefficient reliability

n = Number of Questions

s_t^2 = Variable Scores of whole questions

p = Proportion of Students who answered correctly.

q = Proportion of Students who answered

incorrectly = 1- p.

3.5.2.5 Reliability using alpha-coefficient (α - Coefficient) by

Cronbach's method (Srinak. 2007 : 56).

$$\alpha = \frac{n}{n-1} \left\{ 1 - \frac{\sum S_i^2}{S_t^2} \right\}$$

α = Coefficient Reliability

n = Number of Items

S_i^2 = The Variable Scores of Each Item

S_t^2 = The Variable Scores of the Whole Items.

3.5.2.6 Effective Index (E.I.) (Kitjarakarn. 2003 : 31)

$$E.I. = \frac{P_2 - P_1}{Total - P_1}$$

E.I. = Effectiveness Index

P_1 = Total Pre-test Scores of Students

P_2 = Total Post-test Scores of Students

Total = Multiplication between Number of Students and

Full Scores

3.5.3 Hypotheses Testing Statistic

Statistic used to examine the difference of pretest and posttest scores using "dependent sample t-test" (Ritjamroon. 2001 : 339)

$$t = \frac{\sum D}{\sqrt{\frac{n\sum D^2 - (\sum D)^2}{(n-1)}}}$$

t = Statistic to test the difference of means

D = Difference between Scores

n = Number of Sample

3.6 Summary

This chapter mentioned the population and samples, instruments, data collection, data analysis, and statistics used to analyze the collected data. The next chapter will discuss about the findings of this study.