

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

This chapter focused on research methods used to conduct the study. First a review of the research design is introduced. Next a description of the research population and sample is provided followed by an explanation of the study procedures. Data collection methods are then explained, instruments used are identified, and a description of the data analysis is given.

#### **3.1 Research Design**

In this study, a one-group pretest-posttest pre-experimental design was used. As this study was an exploratory study to investigate the effectiveness of the using songs to enhance English vocabulary achievement of Prathomsuksa 5 students, Khetkarnthangsongkroh 5 School, a small scale study (one-group design) was conducted. This single group of students was pretested before getting any training. Then they received the comprehension strategies instruction training for 10 songs. After the completion of the training, they were posttested. The impact of the instruction was determined by comparing pretest and posttest scores.

#### **3.2 Population and Samples**

##### **3.2.1 Population**

The study was conducted at an elementary school, which was part of a large

population were 52 Prathomsuksa 5 students in total, who enrolled in the first semester of academic year 2010 of Khetkarntangsongkroh 5 School in Muang District, Buriram Province under Buriram Educational Service Area Office 1.

### **3.2.2 Samples**

The samples of the study were 26 Prathomsuksa 5 students who enrolled in the first semester of academic year 2010 of Khetkarntangsongkroh 5 School in Muang District, Buriram Province under Buriram Educational Service Area Office 1, selected by using the simple random sampling technique from 2 classes consisting of a mix of low, moderate and high proficiency students.

## **3.3 Research Instruments**

In order to address the research questions, three instruments were made use of; two CD Songs, the English vocabulary lesson plans by using CD songs, and English vocabulary achievement test. The details of each instrument and how they were implemented were briefly described as follows:

### **3.3.1 CD Songs**

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

3.3.1.2 The researcher studied the limitations and details of contents in curriculum based on English learning for Prathomsuksa 5 students of Khetkarntangsongkroh 5 school in Muang District, Buriram Province under Buriram Educational Service Area Office 1.

3.3.1.3 Constructed by choosing words and sentences from the content, then arranged them into the familiar melody; Thai traditional, pop song, etc.

3.3.1.4 CD songs were examined by advisors and three research experts for comments on the appropriateness between lyrics and contents, lyrics and objectives. Then the researcher analyzed the scores from experts to find out the mean scores. The meanings of scores were below (Thaweerat, 2000, p. 117):

<b>Score</b>	<b>Opinion Level</b>
+ 1 means	The most appropriate
0 means	Average appropriate
- 1 means	Less appropriate

Then the researcher kept the songs with IOC 0.75- 1.00 and revised the others again and returned them back to the experts to check them. The suitable scores at 0.75 and upper were considered that songs can be used. The researcher improved and revised the songs with weak points and after that returned them to the experts to check again.

3.3.1.5 Modify some lyrics as expert's suggestions. Then record songs on CD: The songs with lyrics in part A and only tunes without words in part B.

3.2.1.6 Take the complete songs to try out with Prathomsuksa 5 students at Anubarn Buriram as in the following;

First Step: Experimental groups One - to- One Try Out (1:1:1) consists of a mix low, moderate and high proficiency out of control group students of Anubarn Buriram school.

**Table 3.1****The Result of the Trial (n=3)**

List	Participants (n)	E1 (Efficiency of Process)	E2 (Efficiency of Product)	Efficiency (E1/E2)
CD Song	3	60.00	70.83	60.00/70.83

As shown in Table 3.1 above, the efficiency of the process CD songs for teaching English vocabulary achievement was prescribed criteria of 75/75. The researcher found that some parts of lyrics are not complete, so the researcher improved them again.

Second Step: Experimental, Small Groups Try Out (3:3:3) consists of a mix low, moderate and high proficiency out of group of students at Sensirianusorn school. The researcher expected that the mean achievement scores at 75/75. The result showed that mean scores were higher than the first step as showed in Table 3.2.

**Table 3.2****The Result of the Trial (n = 9)**

List	Participants (n)	E1 (Efficiency of Process)	E2 (Efficiency of Product)	Efficiency (E1/E2)
CD Song	9	65.56	74.17	65.56/74.17

As exhibited in Table 3.2, the result of post-test scores showed at 65.56/74.17, it was below prescribed criteria of 75/75. The researcher improved the lyrics again.

Third step: Experimental big groups (Field Try out): 31 students from 1 class of Prathomsuksa 6 at Khetkarthangsongkroh 5 school who have ever learned those contents. The researcher expected that the mean achievement scores were at 75/75. The percentage of scores was higher than in the first and second steps. The result showed in Table 3.3 below:

**Table 3.3**

**The Result of the Trial (n = 31)**

List	Participants (n)	E1 (Efficiency of Process)	E2 (Efficiency of Product)	Efficiency (E1/E2)
CD Song	31	71.61	84.31	71.61/84.19

According to Table 3.3, all students from experimental group got 71.61 for the efficiency of processes and 84.31 for the efficiency of the product, which resemble the criteria of 75/75.

Then the researcher took the complete songs to try out with 26 group samples which were selected from 2 classes by simply random sampling of Prathomsuksa 5 students at Khetkarthangsongkroh 5 School comprising of low, moderate and high proficiency students. The scores are calculated to find out the percentage of achievement test.

### **3.3.2 English Vocabulary Lesson Plans Using CD Songs**

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

3.3.2.2 The researcher studied the limitation and details of contents in curriculum based on English learning for Prathomsuksa 5 students of Khetkarthaangsongkroh 5 School Muang District under Buriram Educational Service Area Office 1

3.3.2.3 The researcher studied the guidebooks and course books of Prathomsuksa 5 for learning English language.

3.3.2.4 The researcher studied the methods employed the steps of songs in class from the Basic Education Core Curriculum B.E. 2544 (A.D.2001) and technique of constructing lesson plans for teaching (Ragsuttee, 2001)

3.3.2.5 The researcher constructed 10 lesson plans for improving English vocabulary learning focusing on teaching through songs comprising of objectives, contents, activities, material, evaluation, and suggestions.

3.3.2.6 Lesson plans were examined by 3 experts about IOC of lyrics and contents, appropriateness of lyrics and objectives, activities, learning media and learning assessment to give comments about the content validity quality.

3.3.2.7 The researcher analyzed the scores from specialists to find out the mean scores and the interpretation of mean scores are from Srisa-ard's (2002)

The appropriate mean scores 0.75-1.00 were interpreted that lesson plan can be used. The researcher improved and revised the lesson plan, if they have weak points and returned them to the experts to check them again. After that the researcher took them to try out again.

### **3.3.3 English Vocabulary Achievement Test**

A 40-item multiple choice achievement tests was conducted and tried out as follows:

3.3.3.1 The researcher studied the documents and books, such as “Testing English as a Second Language” by Harris (Harris, 1969, pp. 58-67) and “Testing and Assessment of Teaching English” by Wongsothorn (1995, pp. 131-208).

3.3.3.2 The researcher conducted the test consisting of 60 multiple choice questions with four alternatives to measure English vocabulary achievement based on 10 units (125 words containing in lyrics of 10 songs).

3.3.3.3 The test was checked for validity by the advisor and three experts by using IOC formula as follows:

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

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

- 1 = When it is sure that items of the test are not coincident with objectives.

3.3.3.4 The researcher calculated IOC index, and choose the questions which have IOC index at 0.5 to 1.00.

3.3.3.5 The completed test was piloted with 150 non-sample Prathomsuksa 5 students who study English in the first semester of academic year 2010 of Anubarn School in Muang District, Buriram Province under Buriram Educational Service Area Office 1.

3.3.3.6 An item analysis is carried out from the data obtained. Each question is analyzed for the level of difficulty ( $p$ ) and the discrimination power ( $B$ ) by Bennan method with the software programmed. The criteria used to select the test items are level of difficulty ( $p$ ) at 0.2-0.8, and the discrimination power ( $B$ ) at 0.2-1.0 (Srisa-ard, 2002).

3.3.3.7 The reliability of the test is determined by using the Lovett's method. The software programmed is used to calculate the data, the reliability of the test will be accepted at  $\geq 0.7$  (Srisa-ard, 2002).

3.3.3.8 The researcher selects 40 items which have level of difficulty ( $p$ ) at 0.2-0.8 and the discrimination power ( $B$ ) at 0.2-1.0 as a pre-test and a post-test (achievement test).

### **3.4 Data Collection Procedures**

This research is experimental research using one group pre-test and post-test design. The data collection procedures are as follows:

3.4.1 The researcher gave the orientation to students before they begin doing the test. This orientation involves letting the students know about the learning method, students role, learning objectives and the assessment procedures.

3.4.2 The researcher applied the pre-test for 150 sample students by using a Multiple Choice test of 40 items.

3.4.3 The researcher taught through the 10 lesson plans. Each lesson covered 2 periods and each period was 1 hour.

3.4.4 After completing the 10 lesson plans, the researcher let students do the posttest.

### **3.5 Data Analysis Procedures**

The collected data were analyzed as follows:

3.5.1 In order to evaluate students before and after being taught through songs, the pretest and posttest were computed for the mean, and standard deviation.



3.5.2 The scores obtained from the exercises and a posttest were calculated to find out the efficiency of process (E1) and the efficiency of outcomes (E2), respectively.

3.5.3 Dependent samples t-test was used to compare the difference between pretest and posttest to detect a significant differences set at .05.

### 3.6 Statistics Used to Analyze the Collected Data

#### 3.6.1 Instrument Analysis Quality Statistic

##### 3.6.1.1 Validity, using Index of Congruence (IOC)

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

IOC = Validity of the Test and Objective

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

N = Number of Experts

##### 3.6.1.2 Difficulty of the Achievement Test

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

P = Level of Difficulty

$P_U$  = Ratio of Correct Answer in High Group Students

$P_L$  = Ratio of Correct Answer in Low Group Students

##### 3.6.1.3 Discrimination Index

$$r = \frac{u}{n_1} - \frac{L}{n_2}$$

R = Discrimination Index

u = Number of Correct Answer in High Group Students

L = Number of Correct Answer in Low Group Students

n<sub>1</sub> = Number of High Group Students

n<sub>2</sub> = Number of Low Group Students

#### 3.6.1.4 Reliability

$$r_{cc} = 1 - \frac{k \sum X_i - \sum X_i^2}{(k-1) \sum (X_i - C)^2}$$

r<sub>cc</sub> = Reliability of the Test

K = Number of Items

x<sub>i</sub> = Students' Scores

∑x<sub>i</sub> = Total of Students' Scores

∑x<sub>i</sub><sup>2</sup> = Summation of Squared Scores

C = Midpoint of the Test of 60 %

### 3.6.2 Basic Statistics

#### 3.6.2.1 Percentage

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

P = Percentage

f = Total of Frequency to Transform to Percentage

N = Number of Frequency

### 3.6.2.2 Mean

$$\bar{x} = \frac{\sum x}{N}$$

$\bar{x}$  = Mean

$\sum x$  = Total of Score in Group

$N$  = Number of Scores in Group

### 3.6.2.3 Standard Deviation

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

S.D. = Standard Deviation

$X$  = Score of Each Item

$\sum x$  = Total of Scores in Group

$N$  = Number of Scores in Group

### 3.6.3 Statistics Used to Examine the Difference of Pre-test and Post-test

#### Score Using Independent Samples T-test

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

$t$  = Statistic to Compare with Crucial

$D$  = Difference between Scores

$n$  = Number of Samples

### **3.7 Summary of the Chapter**

To sum up, this chapter has presented in detail the methods and instruments adopted in the research. They have exercised caution and deliberation in the design of the present study. In the process, this research exercised care in dealing with threats to validity and reliability. In the next chapter, Chapter Four, the researcher will turn to the most interesting and significant parts of this research, which are the major findings and results gained through the various instruments illustrated in this chapter.

มหาวิทยาลัยราชภัฏสุราษฎร์ธานี  
Buriram Rajabhat University