

CHAPTER III

RESEARCH METHOD

This chapter discusses the method of this research. Discussions include the research design, population and sample, data collection techniques and data analysis techniques.

A. Research Design

According to research problem proposed in the previous chapter, this study employed quantitative research. A quantitative research explains phenomena by collecting numerical data, then analyzed using mathematical methods, especially statistical method (Danial, 2004, p.3). The focus of this research was the effect of numbered head together in teaching vocabulary for fourth grade students. To deal with the focus, then quasi-experimental design was done. Quasi-experimental is a kind of experimental design, which establishes cause-effect relationship between independent variable (X) and dependent variable (Y) (Tuckman, 1999). The experimental design is designed to know the effect of independent variable which has been manipulated and controlled to dependent variable. Clarifying quasi-experimental design, Latief (2015) states that quasi-experimental design is employed if the researchers do not have access to select the sample randomly.

Cohen, Manion, & Morrison (2000, p. 213) represent the group pre-test and post-test design as cited below:

$$O_1 \times O_2$$

The design is illustrated as follows:

01: Pre-test

02: Post-test

X: Treatment

Pre-test (01) is given before treatment while post-test (02) is given after treatment. Treatments are assigned to manipulate the conditions that affect dependent variable (Latief, 2015). There are two treatments for experimental research namely, experimental treatment and control treatment. The experimental treatment, is given to experimental group and control treatment is given to control group. In this study, numbered head together was assigned into experimental treatment, while conventional method was assigned into control treatment. To get clear illustration, the table below is provided.

Table 3.1.

The Design of this Study

Group	Pre-test	Treatment	Post-test
Experimental Group	Pre-test	Numbering head together	Post-test
Control Group	Pre-test	Conventional method (flashcard)	Post-test

B. Variables

Variable is implied as a certain thing or value of an object which has particular variations which tend to differ from a subject into another. A research variable is an attribute of an object that distinguishes between individual to individual that specify what is being studied by a research to another research (Sugiyono, 2011; Latief, 2015). There are two main variables most commonly use in experimental research, they are independent variable and dependent variable Hatch &Farhady, 1982).

a. Independent Variable

This variable has an influence or is the cause of changes in other variables. Therefore, it can be said that the changes that occur in this variable are assumed to result in changes in other variables. In this research, the method of numbered head together as independent variable.

b. Dependent Variable

Dependent variable is a variable whose existence is a result due to the independent variable. It is also called related variable since the conditions or variations are related and influenced by variations of other variables. In this research, fourth grade students' vocabulary mastery is the dependent variable.

C. Population and Samples

Population is each group of individuals who have one or more of the same characteristics. According to Fraenkel and Wallen (1990), population reflects to group which the result of the study is going to be generalized to by

the researcher interest. The population of this research was the fourth grade students of elementary school in Krabi, Thailand. The fourth grade students were chosen based on the consideration that they were still improving their vocabulary to enrich their vocabulary mastery. They needed to understand the language element, vocabulary to ease their language skill comprehension.

Based on Creswell (2008, p.152), sample is a subgroup of the target population that researchers plan to study to generalize findings in the target population. The sample of this study was two groups of student who were at fourth grade of Ban Huailuek Elementary School KrabiThailand. In the process of selecting samples, the researcher used simple random group sampling. Mulyasa (2012) said that random sampling is a selection process in random without paying attention to student characteristics.

There were two classes employed as the sample of this study. Firstly, class 4/1, which were consisting of 30 students, which clustered as experimental group that was treated by numbered head together (NHT) technique. The second, students of class 4/2 consisting of 30 students. the second group took part as class control group who did not receive English vocabulary teaching using NHT techniques.

D. Research Instruments

The research instrument is a tool used to collect data or information that is useful for answering research problems, This is used to get primary data and supporting data . There are some of instruments can be used, they are test, questionnaires, observations and interviews. The type of use of research

instruments must be adapted to the research problem. In this study, a test was administered to obtain scores of students' achievement in participating in English learning focusing on vocabulary.

a. Pre Test

Pre-test was aimed to determine the ability of students in the experimental group who got teaching using NHT techniques and those who did not in teaching English focusing at vocabulary mastery before receiving any treatments.

To deal with validity and reliability of the instruments, try out was conducted . They are were 50 questions develop in the tryout . Then after checking the validity of the test , there were 30 questions were valid and the least, 20 questions were invalid . Because of that fact , the invalid questions were eliminated, so there were 30 questions would be used for the test. The complete result of validity test was presented in the table 4.1.

Then, to ensure that the test was reliable, reliability test using *Cronbach's Alpha* were calculated. The reliability statistic was showed .898. Sekaran (1992) in Priyatno (2018) states that if the degree of reliability is lower than 0.6, the test items are not reliable, while more than 0.7 is acceptable, and greater than 0.8 is good and reliable. So that, the test was reliable to measure students' English learning focusing at vocabulary. The complete results of reliability test was presented in the table 4.2 .

b. Post-Test

Post-test was aimed to determine the ability of students in the experimental group who got teaching using NHT techniques and those who did not in teaching English focusing at vocabulary mastery after receiving some treatments. The questions asked in the post-test were similar to questions which were provided in the pre-test. However, the researcher uses the participant to get the data not randomly.

E. Treatment Procedure

This part is used to explain the treatment procedures of how the research could be done. The procedures are presented in the table below.

Table 3.2

Treatment Procedure of Experimental and Control Group

No	Experimental group	Control group
1	Students get pre-test before treatment with multiple choice	Students get pre-test before treatment with multiple choice
2	Students are divided into groups and the teacher prepares the head number for each group.	Students are explained about the material english vocabulary with flashcard
3	Students begin to implement the NHT method in the learning process, by discussing with groups that have been divided to solve questions given by the teacher	Students listen and learn the material provided by the teacher.
4	Students play an active role in the treatment process and students have a turn to answer according to the serial number set by the teacher.	Teacher explain the material about English vocabulary worksheet
5	Students get postets about	Students get postets about English

	English vocabulary	vocabulary
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F. Data Collection

Before conducting research, the researcher consulted to the school teacher to conduct research and prepare instruments. Then, lesson plans based on the 4th grade syllabus from Ban Huailuek School were constructed. After that, the pretest was employed to measure students' ability before the treatments. After implementing the lesson plans and procedure (the whole procedures were presented in appendix 3), the posttest was administered. After getting the data, the pre-test and post-test were examined using this following formula.

$$value = \frac{result\ score}{10} \times 100$$

G. Data Analysis

After collecting the data, the data analysis is conducted. In this process, an appropriate and correct data analysis will determine high credibility of the result, and vice versa. Therefore, this stage must be done carefully in accordance to the procedures and characteristics of the research. Based on the research design, ANCOVA (Analysis of Covariance) by using SPSS 21.0 was done for analyzing the data. According to Donald, Lucy, and Chris (2010), ANCOVA is a statistical technique used to control the effects of independent variables that are correlated with dependent variables. The researcher used ANCOVA to statistically analyze the whether the techniques was effective or

not by looking at to the results of the analysis. If the significant value was lower than .05, it would be significant different between pretest and posttest of the students who were taught using numbered head together (NHT) techniques. In other word, the numbered head together was effective to enhance students' vocabulary mastery.