

CHAPTER III

RESEARCH METHOD

In this chapter the researcher describes the method that is used to conduct the study. The researcher describes the research design, subjects of the study, data collection technique, data collection instrument, and data analysis.

3.1 Research Design

The research method is basically a scientific way to get data with a specific purpose and usefulness (Sugiyono, 2009: 2). The research method which is used in this research is Ex Post Facto.

The reasons of researcher takes an Ex Post Facto method are : there was unable to take the experimental one because the role of researcher at that time was not possible to make any treatment, because of some preparation of final assessment in this school. So the researcher can only keep track of English learning methods which is applying by the teachers.

The second reason is that the researcher found two different methods which was applying in the two classes especially in learning vocabulary. It makes the researcher curious whether there is a significant difference of vocabulary mastery between those two classes.

The third reason is that the researcher wants to track back and analyse the vocabulary mastery of students between using pictures and audiovisual media. Then the researcher decided to make an ex post facto analysis of comparison of vocabulary mastery between using pictures and audiovisual media at those two classes. Because pictures was used as a media in teaching vocabulary in many schools in Thailand.

3.2 Subject of the Study

Subjects in this study were students of class 7 Nahdhatul Islahiyah School, Narathiwat, Thailand. Based on the data collected before, the students of class 7 is divided into three classes with the same numbers of students, they are 30 in each class.

The three classes of 7th grade in this school has been taught by two different media especially in learning vocabulary. Unlike 7.1, that is using pictures, 7.2 and 7.3 are using audiovisual media.

The researcher makes some analysis that is: normality and homogeneity test, and an independent sample T-test. validity test, reliability test, t-test, normality and homogeneity test to decide which two classes are properly analysed.

The researcher found 7.1 and 7.2 have normally distributed, homogeneous, and they have no significant difference in vocabulary mastery before getting two different methods, pictures and audiovisual media. So the researcher decide to

make an ex post facto analysis and comparing vocabulary mastery between class 7.1 and 7.2.

3.3 Data Collection Technique

To collect the data, the researcher takes the results of vocabulary learning from two classes. Then they are compared. A class is taught using pictures and another is audiovisual media.

3.4 Data Collection Instrument

3.4.1. Test

The test was held in class 7.1 and 7.2 of Nahdhatul Islahiyah School. This test held to get the score to know the vocabulary mastery of students in two topics, My Body and Daily Life. The kind of the test was multiple choice and the number of test was 50.

In this study, researcher only takes the results of the test. From those two classes, researcher get two sets of score then they are compared and analysed to know the difference of vocabulary mastery between two classes which are taught by different media. One is taught by using audio-visual media and another is using pictures.

3.4.2. Validity

The validity of the test is the extent of the test in measuring something. Tuckman (1975:229) states that test validity refers to whether a test measures what we intend to measure. It means that validity is an instrument of the research that made as a measurement in in evaluating or measuring items are valid or not valid.

In this research, the researcher uses content validity and construct validity. To determine the content validity, the researcher asked to the English teacher and checked the instrument validity as syllabus, lesson plan, and score criteria. The score of multiple choices, there are 50 item and every correct answer could 2 point, totally 100 point. Whereas to determine the construct validity, the researcher uses the assistance of SPSS version 14.0 programs to compute descriptive statistics. The instrument validity was examined by analyzing item is good or not. The researcher uses:

$$r_{xy} = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{\{n\sum x^2 - (\sum x)^2\}\{n\sum y^2 - (\sum y)^2\}}}$$

Which:

r : the coefficient of correlation x and y variable or validity of each item.

n : the number of students/subject participating test.

$\sum x$: the sum of x scores

$\sum y$: the sum of y scores

$\sum y$: the sum of total score for each student

$\sum x$: the sum of total score in each item

$\sum xy$: the sum of multiple score from each student with the total score in each item

$\sum x^2$: the sum of the square from each item

$\sum y^2$: the sum of th total score from each student

According to Andresen (2000), the validity criteria are as follows:

Excellent : correlation coefficient > 0.6

Adequate : correlation coefficient $0.31 - 0.59$

Poor : correlation coefficient < 0.30

3.4.3 Reliability

The researcher uses the reliability in which it is an important part to measure the quality of the test. The researcher should know the consistency of the test score. In addition, the researcher takes data from another class, that is 7.3. To determine reliability of the test, the researcher uses Cronbach Alpha with formula (Arikunto, 2002) :

$$\alpha = \left[\frac{k}{(k-1)} \right] \left[1 - \frac{\Sigma \sigma_b^2}{\sigma_1^2} \right]$$

Which:

α = reliability

k = the number of items

$\Sigma \sigma_b^2$ = the number of variant items

σ_1^2 = total variant

Reliability test using Cronbach Alpha that is when $\alpha < 0,6$ so it is unreliable.

3.5 Data Analysis

In this research, after the data is collected, the researcher analyzes the data that the researcher got. In analyzing the data, the researcher uses the independent sample t-test in SPSS version 20.00. Independent sample t test is used to compare the score of the picture media class and audiovisual class. The researcher used SPSS version 20.00 to compare a significant difference whether there is a better vocabulary mastery of picture media and audiovisual one.

3.5.1. Normality Test

Normality test is conducted to determine whether the samples studied are normally distributed or not. So that writer is testing normality using test Shapiro Wilk and Lilliefors and kolmogorof-Smirnov test with SPSS 20.00

Table 3.1
Normality Test

| | | Tests of Normality | | | | | |
|--------------|-------------------|---------------------------------|----|-------------------|--------------|----|------|
| Pembelajaran | | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
| | | Statistic | df | Sig. | Statistic | df | Sig. |
| Pretest | Audiovisual Media | ,105 | 30 | ,200 [*] | ,960 | 30 | ,315 |
| | Picture Media | ,111 | 30 | ,200 [*] | ,966 | 30 | ,437 |

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 3.1 shows the results of Shapiro Wilk and Kolmogorof smirnov tests before the subjects using two different media. The p value (Sig) of Shapiro wilk 0,315 in Audiovisual Media group and 0,437 in Picture Media group with sig value > 0,05 then based on Shapiro wilk test, the data of each group is normally distributed. The p value (Sig) of Kolmogorof smirnov 0,200 in Audiovisual Media group and 0,200 in Picture Media group with sig value > 0,05 then based on Kolmogorof smirnov test, the data of each group is normally distributed.

3.5.2 Homogeinity Test

The homogeneity test declared to ensure that the data group having the same variant. The homogeneity test was performed by Levene's Test. Homogeneity test can be seen in the following tables.

Table 3.2

Homogeneity Test

| | Levene Statistic | df1 | df2 | Sig. |
|--|------------------|-----|--------|------|
| Based on Mean | ,145 | 1 | 58 | ,705 |
| Based on Median | ,132 | 1 | 58 | ,717 |
| Pretest Based on Median and with adjusted df | ,132 | 1 | 57,626 | ,717 |
| Based on trimmed mean | ,165 | 1 | 58 | ,686 |

Levene value of the test is shown on the line of Value Based on Mean, ie with p value (sig) of $0.705 > 0.05$ which means there are similarities between variables or the variables are homogeneous.

3.5.1. Hypothesis Testing

In this research, independent t-test is used to find out the difference of average between picture media class and audiovisual media class. The researcher also uses SPSS 20.0 Program. And the steps of t-test calculation are below:

1. The first step is stating the hypothesis and setting the alpha level at 0.05 (two tailed test).
2. The second is finding t-value using independent sample t-test formula and comparing the probability with the level of significance for testing the hypothesis.
3. The last is write the results of the tests were subjected to the following statistical procedures.

The hypothesis can be formulated as follow:

H0 : (null hypothesis) is $\mu_1 - \mu_2 = 0$ ($\mu_1 = \mu_2$)

H1 : (Alternatives hypothesis) $\mu_1 - \mu_2 \neq 0$ ($\mu_1 \neq \mu_2$)

H1 : vocabulary mastery using pictures media and audiovisual media

H0 : vocabulary mastery without using pictures media and audiovisual media.

Hypothesis testing in this research was:

H0 : There is no significant difference between two groups using picture and audiovisual media in vocabulary learning

H1 : There is a significant difference between two groups using picture and audiovisual media in vocabulary learning.

In analyzing the data , the researcher uses independent t-test formula. In calculating t-test, the formula as follow :

$$t = \frac{(x_1 - x_2) - (\mu_1 - \mu_2)}{S_{x_1 - x_2}}$$

Where :

t is t value

x_1 is average group 1

x_2 is average group 2

$\mu_1 - \mu_2$ is always defaults to 0

Where :

$$S_{x_1-x_2} = \sqrt{\frac{S^2 \text{ pooled}}{n_1} + \frac{S^2 \text{ pooled}}{n_2}}$$

$S_{x_1-x_2}$: is standard error of two group

$S^2 \text{ pooled}$: is variants of the two groups

n_1 : is number of sample group 1

n_2 : is number of sample group 2

Pooled variance: the average of the two sample variances, allowing the larger sample to weight more heavily.

Formula:

$$S^2 \text{ pooled} = \frac{(df_1)s^2_1 + (df_2)s^2_2}{df_1 + df_2} \quad \text{or} \quad S^2 \text{ pooled} = \frac{SS_1 + SS_2}{df_1 + df_2}$$

$$df_1 = df \text{ for } 1^{\text{th}} \text{ sample; } n_1 + 1$$

$$df_2 = df \text{ for } 2^{\text{th}} \text{ sample; } n_2 + 1$$

Estimated standard error of the difference:

$$S_{x_1-x_2} = \sqrt{\left(\frac{SS_1 + SS_2}{n_1 + n_2 - 2}\right)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}$$

Clearly, the results of the tests were subjected to the following statistical procedures. To calculate t-test, the researcher used SPSS (Statistical Product and Service Solutions) version 20.00.