

## **CHAPTER III**

### **METHOD OF RESEARCH**

This chapter will discuss about research method that consists of type of research, objective study, subject of study, research, location research procedure, and method of collecting data and technique for analyzing of data.

#### **A. Research Method**

In this research, the researcher use quantitative method with experiment design. According to Fraenkel and Wallen (2009, p.7) ‘Experiment research is the most conclusive of scientific methods. Because the researcher actually establishes different treatment and the studies their effect, results from this type of research are likely to lead to then to the most clear-cut interpretations’. Consequently, experiment research is used in this research.

Quasi-experimental research will be used in this research. According to Freankel and Wallen (2009, p.9) quasi-experimental incudes experimental group and control group on a certain variable. Experiment group receives a treatment, while the control group receive no treatment Freankel and Wallen (2009, p.10). Based on Campbell and Stanley (1963, p.54) in Seliger and Shohamy (1989, p.105) quasi-experiment desings are constructed from the situations which already exist in the real world, and are probably more representative of the conditions found in ducational context. The control group or the comparison group is crucially important

in II experimental research, for it enables the researcher to determine whether the treatment has had an effect or whether one treatment is more effective than another. Both of the groups, control group and experiment group will given pre-test and pos-test. In this case, the experiment group is taught English by using Piaget and Bruner theories and the controlling group is taught without using Piaget and Bruner theories. The design is called The Non equivalent Control Group Design Emzir (2008, p.102).

Quantitative data are that have been collected and put into numeric form, so that they can be counted. For instance, the information gathered for a large – scale survey can be added up and examined numerically, usually using percentages.

Analyzing quantitative data involves the use of statistic to describe, summarize and compare the data (Rebeca, 2010: 100). Quantitative research is including having a quick easy method of analysis and having concentrated mathematically based finding. Quantitative research method involved analyzing number, such as statistic that are generated via survey research. The experiment here is how does students achievement which is use Piaget and Bruner theories.

## **B. Population and Sample**

### **1. Population**

A research population is generally a large collection of individuals or group objects that is the main focus of a scientific

query. It is for the benefit of the population that researchers are done. However, due to the large sizes of populations, researchers often cannot test every individual in the population because it is too expensive and time consuming Castillo (2009, p.94). The population used in this research was third grade of SD Negeri 1 Marabahan Year 2017/2018.

Table 3.2 population of the Research

| No    | Class | Population |
|-------|-------|------------|
| 1     | A     | 22         |
| 2     | B     | 24         |
| Total |       | 46         |

## 2. Sample

In statistics, a sample is a subset of a population that is used to represent the entire group as whole. When doing research, it is often impractical to survey every member of a particular population because the sheer number of people is simply too large. In order to make inferences about characteristic of a population, researchers can use a random sample Kendra (2012, p.25).

A random sample is a subset individuals that are randomly select from a population. Because researcher usually cannot obtain data from every single person in a group, a smaller portion is randomly selected to represent to entire groups a whole. The goal is to obtain a sample that is representative of the large population

Kendra (2012, p.26). The sample was students third grade of class A is control class and B is experiment class. All the students considered that English difficult learning the language.

### **C. Instrumentation**

In the research ,the research instrument will use test and documentation. In this research, for class experiment the researcher teach them about pet and wild animals every tuesday the reasearcher teact in class III B SDN 1 Marabahan until 1 month. In the first meeting do pre – test until 70 minutes. In the second meeting, last week before the researcher teach the researcher adhere on the wall some pictures about pet and wild animals, the researcher teach them with gesture and the students guess and corrected about pronunciation too. In the third meeting the researcher continue the lesson teach them about pet and wild animals, in the third meeting the researcher teach in form a sentence and traslate the new vocabulary as difficult, one by one the students read the sentence there is a book without the researcher give an example and corrected the pronunciation and finally the researcher do game ” throw the ball”. In the last meeting the researcher do post- test until 70 minutes.

For class control in this resear, the researcher teach them about pet and wild animals every wednesday the reasearcher teach in class III A SDN 1 Marabahan until 1 month. In the first meeting do pre – test until

70 minutes. In the second meeting teach use some pictures about pet and wild animals and the researcher don't adhere some pictures on the wall, the researcher direct teach them with gesture , pronunciation and meaning. In the third meeting the researcher continue the lesson teach them about pet and wild animals, in the third meeting the researcher teach in form a sentence and traslate the santencea and than after the researcher give an example how to read the sentence and they repeat after me, and than one by one the students read the sentence there is a book and corrected the pronunciation. In the last meeting the researcher do post- test until 70 minutes. The researcher considered documentation will take some picture to know located and how students conditions.

#### **D. Setting of research**

In the research, the researcher choose SD Negeri 1 Marabahan to be the site of this study. This school is located on Pahlawan street No 26, Marabahan.

#### **E. Data Collection Procedure**

Data collection is a series of interrelated activities aimed at gathering good information to answer the question (Creswell, 2007: 20) the method is a means that is used to solve problems. There are some methods of collecting data. In this case the data are taken from the source by employing observation, test, and documentation.

The are several things that the researcher should do in this research :

First, the researcher will meet the headmaster of SDN 1 Marabahan to ask permission for doing research. She gives a proposal and the letter of Culture and Education Department as the condition to do this research.

Second, meet the English teacher for discussing the research and arranging some lesson plan. The researcher and the teacher select the material, prepare media of teaching and provide test.

For pre test and post test, the student answer 20 items of multiple choice question about animal related vocabulary. If the students can answer all question correctly, they will get score 100. The time allotment provides for the students was 70 minutes.

After counting up all the two aspects, will be gotten the highest score all of question is 100 and lowest is 0. The students' scores are interpreted as their mastery in vocabulary.

In this research, the students will pass two kinds of the test :

1. Pre Test

In pre test, all of third grade class A and class B students at SD Negeri 1 Marabahan, experiment class and control class will answer 11 T/F ( true or false ) items and 9 crossword puzzle items . It means the writer wants to know their mastery in vocabulary before the teacher teaches vocabulary about things around them to them.

2. Post Test

In the post test, all third grade class A and class B students at SD Negeri 1 Marabahan, experiment class and control class will

answer the similar questions with pre test. It means that the writer wants to know the students' mastery of vocabulary after teacher teaches them about things around them.

Third, both the experiment class and control class were given the same materials but with the different theory that used. The experiment class is use the Vigotsky theory and the control class is use Piaget and Bruner theories. The last step in the experiment is giving the post-test to the two classes, class A and class B. post-test giving after the lesson is finished, to know students taught.

The data is processed in this research was the data that comes from score of early test ( pre – test ) and score of last test ( post – test ). After the data is retrieved, then conducted the data processing with the details as follows:

All of test result data is processed. Amount of each true question has given automatically by computer for pre – test and post – test. And it was calculated with:

$$\frac{20 ( \text{true question that students get} ) \times 100}{20 ( \text{all questions} )}$$

After that, scores are categorized into five levels based on

Anas Sudijono as follows ( 2011: 35):

|            |           |
|------------|-----------|
| 80 – 100 : | Very Good |
| 66 – <80 : | Good      |
| 56 – <66 : | Fair      |
| 46 – <56 : | Low       |
| 0 – <46 :  | Very Low  |

## F. Data Analysis

After obtaining the individual scores of the two group, the writer process the data score with the following steps :

1. The data from the test result namely the students individual score is analysis statistically following the procedurer below :

To know mean of pre – test and post – test results, the writer used the calculating of mean score as follow Murdan (2012, p.164)

- a. **Find out the mean score of the each treatment by using the formula.**

$$M = \frac{\sum f}{N}$$

$M_1$  and  $M_2$

Where :

$M_1$  = Mean score of experimental group.

$M_2$  = Mean score of control group.

$\sum$  = Sum of data

$N$  = Number of sample

- b. **Standard Deviation**

Standard deviation is the particular set of score under study, when attempting to estimate the population. The function of standard deviation are to correct for this statisticians have generated aan equation for an unbased estimate of a popularizing.



Which when applied to small samples and to increase the value of sample.

Find out the standard deviation of each treatment by using the formula:

Standard deviation .

$$SD = \sqrt{\frac{\sum f_{ixi}^2 - \frac{(\sum f_{ixi})^2}{\sum f_i}}{\sum f_i - 1}}$$

Where :

$SD_1$  = Standard deviation of experimental group.

$SD_2$  = Standard deviation of control group.

$\sum$  = Sum of

$f_i$  = frekuensi data-i

$x_i$  = data -i

### c. Normality Test

It will test the normally data that will be tested in this study.

Researcher uses Chi-Square test of Sudjana (2005, p.273) as follow :

1. The significance Level

The significance level used  $\alpha = 5 \%$

2. Statistic test  $\chi^2 = \sum_{i=1}^k \frac{(o_i - E_i)^2}{E_i}$

Explanations :

$O_i$  : Frequency of hope

$E_i$  : the expected Frequency

$K$  : the number of observations

This test used Microsoft Excel. With the provisions if the significance is greater than 0.05 then it can be inferred.

#### **d. Homogeneity Test**

Is used to know whether experimental group and control group, that are decided, come from population that has relatively same variance or not.

The formula is :

$$F = \frac{V_b}{V_k}$$

Notice :

$V_b$  : bigger variance

$V_k$  : smaller variance

Test Criteria as follow :

If  $t_h \leq t_0$ ,  $H_0$  accepted.

If  $t_0 > t_h$ ,  $H_0$  ignored.

#### **e. Significant of Hypothesis test**

Determine the significant standard  $\alpha = 0,05$ . Then, looking for t table with a pattern  $df = n - 1$ .

Test Criteria as follow :

If  $t_h \leq t_0$ ,  $H_0$  significant.

If  $t_0 > t_h$ ,  $H_0$  not significant.

**f. t – test**

t – test is use to examine the truth or false hypotesis whetheter experiment class and control class.

with the formla :

$$t \text{ count} = \frac{M_x - M_y}{\sqrt{\frac{\frac{\sum x^2}{N_x} + \frac{\sum y^2}{N_y}}{2} - \left(\frac{1}{N_x} + \frac{1}{N_y}\right)}}$$

Notice :

$M_x$  : Mean score of experiment class

$M_y$  : Mean score of control class

$N_x$  : Sum of experiment class

$N_y$  : sum of control class

Test Cresteria as follow :

If  $t_h > t_0$ ,  $H_0$  accepted.

If  $t_0 > t_h$ ,  $H_0$  ignored.

**g. Gain score**

To anlyze the effectiveness of using the Piaget and Bruner theories in teaching English for young learners, the researchers used gain score formula. Gain score is a good method to analyzed the results of a pretest and posttest, and indicates the effectiveness. Meltzer in his research joulrnal sait that (g) is found by using theme a pretest score and mean posttest score of all students in the class (2002:

1268). Gain score be determined with the formula according to Meltzer (2002, p.1260) as follows:

$$\text{Gain Score} : \quad \langle g \rangle = \frac{\text{xpost} - \text{xpre}}{\text{Gmax} - \text{xpre}}$$

Descriptions :

$\langle g \rangle$  : gain score

xpost : mean of post test

xpre : mean of pretest

Gmax : maximum scores

According Meltzer (2002, p.1260) after gain score obtained, than researcher interpreted the data to these categories. The level of the obtained the data to these categories. This level add the obtained gain score is divided into three categories, namely :

|   |             |      |
|---|-------------|------|
| 1 | $\geq 0.7$  | High |
| 2 | $0.3 - 0.7$ | Fair |
| 3 | $\leq 0.3$  | Low  |