CHAPTER III

RESEARCH METHOD

A. Research Design

In this research, the writer conducted an experimental research. An experimental research involved two groups: experimental group and control group. An experimental group received a new treatment while control group a usual treatment. An experimental research is a research which has the purpose to find the cause-effect relationship among variables in a controlled condition. The essential feature of experimental research is that investigators deliberately control and manipulate the conditions which determine the events, in which they are interested, introduce an intervention and measure the difference that it makes³⁵.

There are several types of Experimental research design:

- 1. Pre experimental design
- 2. True experimental design
- 3. Factorial design
- 4. Quasi experimental design³⁶

According to Nunan, experiment is designed collect data in such as a way that treats to the reliability and validity of research are ministered.³⁷ In order word,

³⁵ Prof. Dr. sugiyono, *metode penelitian kuantitatif kualitatif dan R&D*(Bandung: ALFABETA,2011),72.

³⁶ Prof. Dr. sugiyono, *metode penelitian kuantitatif kualitatif dan R&D*(Bandung: ALFABETA,2011),73.

³⁷ David Nunan, *Research Method in Language Learning*(Cambridge: University Press, 1992), 47.

experiment is the way to find the causal relationship between two factors which are raised by the researcher in purpose by reducing or eliminating any distracting factors.

B. Population And Sample

1. Population

Population is the whole subject of research.³⁸ In the research, population of this research is fourth grade of MI Islamiyah Sukodono in academic year 2014-2015. The fourth grade of MI Islamiyah Sukodono is divided into two classes. There are 24 students each class. The total number of population is 48 students.

2. Sample

Sample is taking of part population using certain procedure. So, that can be expected to represent its population. In this connection, Arikunto states that sample is a part of research population.³⁹ Sample in this research are class IV A as a experimental class. And class IV B as a control class.

C. Procedure and time line

In collecting data, the researcher needs four weeks and done some steps as follows:

³⁸ Suharsimi Arikunto, *Procedur Penelitian:Suatu Pendekatan Praktik*(Jakarta:PT Rineka Cipta, 2010), 130.

³⁹Suharsimi Arikunto, *Procedur Penelitian Suatu Pendekatan Praktik*(Jakarta:PT Rineka Cipta, 2010),134.

- 1. 1st weeks asks permission and meet to headmaster and the English teacher of the school.
- 2nd week, the researcher gives pre test to both control and experiment class (class IV A and IV B).
- 3. 3rd week, the researcher gives treatment to experiment class (class IV A).
- 4. 4th week, the researcher gives post test to both control and experiment class.

Table 3.1

No	Activity	Date			
		21 st May	28 th May	4 th June	11 th June
1	Asks permission	1			
2	Pre test		\checkmark		
3	Treatment				
4	Post test				\checkmark

List of time of the research

D. Research Instrument

Research instrument refers to any equipment used to collect the data.⁴⁰ As an experimental research, the instrument used in this research was tests.

⁴⁰ Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktik*(Jakarta: PT Rineka Cipta,2010),192.

1. Observation checklist

The observation checklist is use to know the activities during the teaching learning process, such as how the teacher carried out the material, what the teacher did to manage the classroom and the student's response.

2. Item test

Item tests are use to know the ability of the student in pre test and post test. The item test adapted from New headway English course – beginner test by Julia starr keddle.

3. Field note

Field notes are use to observe and to know the situation and the activities during the teaching and learning process, such as how the teachers carry out the material and the students' response.

E. Data Collection Technique

1. Documentation

It refers to the archival data that the researcher to collect the needed data. The researcher function the document related to the object research such as students name list and the English subject schedule.

2. Observation

Observation technique is the main technique in collecting the data about the teacher's performance, condition of class, students' response concerning the use of games. It deals with the activities of the English teacher in presenting English materials to the students. 3. Test

Test is a question which is used to measure competence, knowledge, intelligence, and ability of talent which is possessed by individual or group to collect data. Test used in this study is pre test and post test.

a. Pre test

Before taught new material by Alphabet game, the researcher gave test to the students. Pre test was given to the experimental and control classes in same way. This test was given before the experiment was run.

b. Post test

Post test was given to the experiment class and control class. It was given in order to know the score of students' achievement after they taught using by Alphabet game (experiment class) and without using by Alphabet game (control class).

F. Data Analysis Technique

In this research, researcher using a true experimental design. Because there are experimental group and the control group. The extraction is done at random. This can be illustrated as follows:⁴¹

⁴¹ Prof. Dr. sugiyono, *metode penelitian kuantitatif kualitatif dan R&D*(Bandung: ALFABETA,2011),159.

- R : experimental and control groups were taken randomly.
- O_1 dan O_3 : both groups observed the pre-test to determine the ability of the start, which is expected to begin with the same abilities.
- O₂ : the ability of the students who had been given method alphabet game.
- O₄ : the ability of students without being given method alphabet game.
- X : treatment. over the group as the experimental group were given treatments, which are used in learning English alphabet game method. while the bottom group were not given treatment / control group.

In this case there are two analysis. The first analysis to examine differences in the ability of the initial experimental group and the control group (O_1 : O_3). The test using t-test. The results are expected no significant difference initial ability between the experimental and control groups.

The second analysis to test the hypothesis. The statistical technique used is the t-test for two related samples. It is to determine the difference between O_2 and O_4 . If there is a difference which is O_2 greater than O_4 , so the alphabet game a positive influence, and when O_2 smaller than O_4 , it is the negative effect.⁴²

⁴² Prof. Dr. sugiyono, *metode penelitian kuantitatif kualitatif dan R&D*(Bandung: ALFABETA,2011),159.

Test "t" or "t" test is one test statistic used to test the truth or falsity of the null hypothesis states that the mean between two samples taken at random from the same population, there are no significant differences.⁴³

Furthermore, the researcher give rating students vocabulary to interpret the score of the student.

Table 3.2
Rating scale
Criteria
Excellent
Good
Average
Poor
Very poor

1. Normality test

Many step to examine differences in the ability of the initial experimental group and the control group are follows:

d. Determine the mean of variable I(X), with formula:

$$M_x \text{ or } M_l = \frac{\sum X}{N_1}$$

⁴³ Prof. drs. Anas Sudijono, pengantar stastik pendidikan(Jakarta: PT Raja Grafindo Persada, 2009),278.

e. Determine the mean of variable II(Y), with formula:

$$M_y \text{ or } M_2 = \frac{\Sigma X}{N_2}$$

f. Determine the standard deviation of variable X, with formula:

$$SD_x \text{ or } SD_1 = \sqrt{\frac{\sum x^2}{N_1}}$$

g. Determine the standard deviation of variable Y, with formula:

$$SD_y \text{ or } SD_2 = \sqrt{\frac{\sum y^2}{N_2}}$$

h. Determine the standard error of variable X, with formula:

$$SD_{M_{\chi}}$$
 or $SE_{M_1} = \frac{SD_1}{\sqrt{N_1 - 1}}$

i. Determine the standard error of variable Y, with formula:

$$SD_y$$
 or $SE_2 = \frac{SD_2}{\sqrt{N_2 - 1}}$

j. Determine the difference of standard error between men variable I and mean variable II, with formula:

$$SE_{M_1-M_2} = \sqrt{SE_{M_1}^2 - SE_{M_2}^2}$$

k. Determine t_o by using the formula:

$$To = \frac{M_1 - M_2}{SE_{M_1 - M_2}}$$

- 1. Provide interpretation of " t_o " with working procedures as follows:
 - 1. Formulate the alternative hypothesis (Ha): there is a significant different mean between variable X and variable Y.

- 2. Formulate the null hypothesis (Ho): there is not a significant different mean between variable X and variable Y.
- m. Make comparisons between t_o and t_t with the first set a degrees of freedom with the formula:

$$df = (N_1 + N_2) - 2$$

From the result of df, it can be seen t_t at the significance level 5% or 1%. If t_o higher than or equal to t_t then the null hypothesis is rejected. Conversely alternative hypothesis is accepted or approved. Means between the two variables that we are investigating the difference, significantly indeed there is a difference. If t_o lower than t_t null hypothesis approved or accepted. Conversely alternative hypothesis is rejected. I mean the difference between variable I and variable II was not a significant difference.⁴⁴

2. Hypothesis test

Many step to test the hypothesis are follows:

a. Determine D (difference) between the scores of variable I and the score variable II. if the score of variable I we give symbol X being variable II we give the symbol Y, then:

$$D = X - Y.$$

- b. Summing D, in order to obtain ΣD .
- c. Determine the mean of the difference, according to the formula:

⁴⁴ Prof. drs. Anas Sudijono, pengantar stastik pendidikan(Jakarta: PT Raja Grafindo Persada, 2009),314.

$$MD = \frac{\sum D}{N}$$

- d. Squaring *D*, and then summed to obtain ΣD^2 .
- e. Determine the standard deviation of the difference (SD_D) , using the formula:

$$SD_D = \sqrt{\frac{\Sigma D^2}{N} - \left(\frac{\Sigma D}{N}\right)^2}$$

f. Determine an error of the mean of difference (SE_{M_D}) , using the formula:

$$SE_{M_D} = \frac{SD_D}{\sqrt{N-1}}$$

g. Determine t_o by using the formula:

$$t_o = \frac{M_D}{SE_{M_D}}$$

- h. Provide interpretation of " t_o " with working procedures as follows:
 - 1. Formulate first alternative hypothesis (Ha) and null hypothesis (Ho).
 - 2. t_o significansi test, by comparing the magnitude t_o , with the first set degrees of freedom (*df*), which can be obtained by the formula:

$$df = N - l$$

- 3. Looking for prices criticism "t" listed in the table value of "t" by adhering to the df which have been obtained, either from the significance level of 5% or 1% significance level.
- 4. Make comparisons between t_o with t_t with the benchmark as follows:

- a) If t_o higher than or equal to t_t then the null hypothesis is rejected. Conversely alternative hypothesis is accepted or approved. Means between the two variables that we are investigating the difference, significantly indeed there is a difference.
- b) If t_o lower than t_t null hypothesis approved or accepted. Conversely alternative hypothesis is rejected. I mean the difference between variable I and variable II was not a significant difference.⁴⁵



⁴⁵ Prof. drs. Anas Sudijono, pengantar stastik pendidikan(Jakarta: PT Raja Grafindo Persada, 2009),306.