CHAPTER III

RESEARCH METHOD

In this chapter, the researcher presented about research design, population and sample, research variables, instrument of the research, technique of collecting data, and technique of analyzing data.

3.1 Research Design

In this research, the researcher used quantitative research as methode of the research. Sugiyono (2018:15) stated that quantitative methode is a research method based on the philosophy of positivism, used to examine a population or a specific sample, collecting data using research instruments, analyzing the data by quantitative or statistical and to describe and test the hypothesis that determined. The design of this research is quasi experimental design. Sugiyono (2018:120) stated that quasi experimental design is a developmental of true experimental design that difficult to implement. This design use because in reality it is difficult to get a control group used for research.

There are two kinds of quasi-experimental design namely Time Series Design and Nonequivalent Control Group Design. The researcher used nonequivalent control group design in this research. In this design the experimental group and the control group were not randomly selected.

The research conducted in two classes. A class will be an experimental group that given a treatment by using Fly swatter game and another one will be a control group which taught as usual using demonstration method. Both of

groups got pre-test and in the end of teaching learning process both of groups got post test after got treatment.

<div align="center">Design of Quasi Experimental Design</div>

$$O_1 \quad X \quad O_2$$
$$O_3 \qquad O_4$$
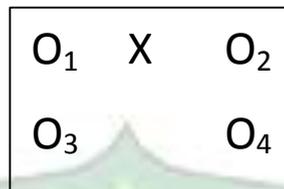
<div align="right">(Sugiyono,2018:122)</div>

Where :

O_1 : Pre-test for the experimental group

O_2 : Post-test for experimental group

O_3 : Pre-test for the control group

O_4 : Post-test for control group

X : Treatment using Fly Swatter Game

3.2 Population and Sample

3.2.1 Population

According to Sugiyono population is the generalization area consists of objects or subjects that have certain quality and characteristics which are studied by the researcher to be studied and then draw conclusions. Population is not only about a person or living creature, but also the natural object (Sugiyono, 2018:130). Arikunto (2010:173) population is all of subject in the research. Mubarok (2015:38) stated that population is unit of the object or subject that has certain qualities and characteristics which are studied by the researchers then be deduced.

The population had been chosen in this research were the seventh grade students of MTs Darul Ulum Purwogondo Kalinyamatan Jepara in academic year of 2020. The total of the population are 316 which were divided into 10 classes.

Table 3.1

Population

CLASS	TOTAL
VII A	32
VII B	31
VII C	31
VII D	32
VII E	32
VII F	32
VII G	32
VII H	32
VII I	31
VII J	31
The total of population	**316**

3.2.2 Sampling

Sampling technique is a technique for taking samples (Sugiyono, 2018:134). Sampling techniques can be divide into two groups, namely probability sampling and nonprobability sampling. In this research, the researcher uses non probability sampling because sampling members

from the population are carried out without random sampling which is the member of the population do not provide equal opportunities to be selected as a sample. The sampling technique of the research will use purposive sampling that the sample is not selected randomly from a population to create a sample but the sample is selected base on the judgment of the researcher. The researcher used purposive sampling because in MTs Darul Ulum Purwogondo the teaching process and the characteristic every class are different. In this research, the researcher taken two classes as the sample from the seventh grade students of MTs Darul Ulum Purwogondo Kalinyamatan Jepara in academic year of 2020/2021.

3.2.3 Sample

In the quantitative research, sample is the part of the quality and characterisctics of the population (Sugiyono, 2018:131). According to Mubarok (2015:40) samples taken must be truly representetive because the conclusions drawn from these samples will be generalized to the population. The sample of the research are two classes from seventh grade students of MTs Darul Ulum Purwogondo Kalinyamatan Jepara in academic year of 2020. Two classes which had been chosen would be an experimental class and control class. The VII H class as an experimental class and VII E as control class. Each class consisted of 32 students and the total of the sample were 64 students.

3.3 Instrument of the Research

Researcher needs instrument in doing their research. Instrument is a tool that use to measure a natural object or social that observed to collect the data. Research instrument is a device used by reseacher while collecting data to make her work become easier and get a better result complete and systematic in order to make the data easy to processed (Arikunto, 2010 : 192). This research used test as instrument. According Arikunto (2010), Test is a series of questions or exercises used to measure skills, knowledge, intellegences, abilities, or talents possessed by individual or group (Arikunto,2010:193).

In this research there were two tests, pre-test and post-test. Pre-test was test that doing before students get treatment at the first meeting and post-test was test that doing after students get treatment. The purpose is to know the effect before and after get treatment.

The researcher used multiple choice for pre-test and post-test because it is easier for the researcher because there are only one correct answer of students' test paper. The total number of the questions were 50 items before checking validitas of the test. After the researcher checked the validity of test, there were 20 items test that had been used in pre-test and post test. The questions would be given by the material given previously, namely daily verb, adjective and some addition questions about adverb, pronoun, noun and preposition according to the material at school.

3.4 Variabel of the Research

According to Sugiyono (2018:57), research variables are things that shape what is defined by the reseachers to be studied in order to obtain information about it and the conclusion drawn on next. There were two kinds of variables:

1. Independent Variable (X)

   Independent variable is variable which influences dependent variable. The independent variables of this research was Fly Swatter Game.

2. Dependent Variable (Y)

   Dependent variable is variable that the conditions are influenced by independent variable. The dependent variable of this research was Students' Vocabulary Mastery

3.5 Trying out Instrument

3.5.1 Validity

Based on Sugiyono (2018 : 193), Valid means the instrument can be use to measure what should be measured. If a measurement has a high degree of validity, it means the measurement can measure what it should be measured. High validity also means respondents can understand the question or statement in the question. In this research, the researcher used a product-moment correlation to identify item validity.

The formula of validity test :

$$r_{xy} = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{\{N\sum X^2 - (\sum X)^2\}\{N\sum Y^2 - (\sum Y)^2\}}}$$

(Sugiyono,2018:273)

Description :

r$_{xy}$: The correlation coeffician between X variable and Y variable

N   : The total of the sample

X   : The total of each item score

Y   : The number of total score

3.5.2 Reliability

Reliability is consistency. The research instrument has high reliability if it can produce consistent result. According to Sugiyono (2018:192), the reliability test use to measure the reliability of a research instrument. Instrument can called reliable when it can generate the same data or the result if it is use several times to measure the same object or phenomenon. Actually the ideal test should be both valid and reliable. The valid and reliable are absolute requirement to get research result valid and reliable (Sugiyono, 2018:193). In this research, the researcher will used reliability test using Cronbach's Alpha. Cronbach's Alpha is used to measure the multiple choice or essay items (Darmadi,2011:128). The criterion of the instrument test is reliable if Cronbach's Alpha $> 0,06$. The formula of reliability based on Sugiyono (2018:206) as follows :

$$r_1 = \frac{k}{(k-1)} \left(1 - \frac{\Sigma\, \sigma_i^2}{\sigma_t^2}\right)$$

Description :

r_1 : Reliability instrument

k   : The total item of question

M   : Mean of the total score

$S_t{}^2$: Total variants

3.6 Technique of Collecting Data

In collecting the data the researcher used two techniques there were tests (pre-test and post-test) and treatment. The techniques of collecting the data as follows :

1. Pre-test

    Pre-test had been given to both of the classes were experimental class and control class in the first meeting before implementing the game in learning process. The aims of this test was to know the capacity of students' knowledge especially their vocabulary in the class before they get a treatment. The students have to answer all of the item questions both of the class get the same test.

2. Treatment

    After doing the pre-test, the researcher had been given a treatment to both of classes (experimental class and control class) in different treatment. The experimental group had been taught by using Fly swatter game in learning process, while the control group teach by using demonstration method. There were some steps in giving treatment in experimental group. After doing the pre-test and get the result, the researcher taught the students relate to the material in VII class is verb and

adjective briefly. Before gave treatment the researcher recheck students'
understanding about material. Then, the researcher divided the number of
the class become two groups. The researcher explained the way to playing
the games and the rules of the game. Each group had a fly swatter game in
indonesia "*alat pemukul lalat*" and make two lines. The researcher gave
some questions to each students and the students had to answer the question
based on the instruction. The group that got high score is a winner. The
treatment for both groups would be given in two meetings. The detail of
treatment can be seen as follows :

Table 3.2 `

The Schedule of Implementing the Research

No	Date	Activities
1	July 21st, 2020	Asking permission for conducting the research
2	August 6th, 2020	Checking validity test
3	August 9th, 2020	Giving pre-test in experimental class and control class (online)
3	August 10th, 2020	First meeting in experimental class and control class
4	August 15th, 2020	Second meeting in experimental class and control class. Giving post test in in experimental class and control class

Table 3.3

Treatment procedure of Experimental Class and Control Class

Treatment	Experimental Group	Control Group
1	- The researcher explained the material briefly to the students. - The students mentioned some vocabulary that they known. - The researcher introduced the fly swatter game to the students. - The researcher divided the students become two groups. - The students have a chance to play the game and answered the question based on the researcher's instruction. - The students presented the result after they played the fly swatter game.	- The researcher explained the material briefly to the students. - The students opened their textbook and read the material. - The researcher showed some vocabulary and the meaning of the word. - The student looked for some difficult vocabulary. - The students translated the material. - One of the students read the material in front of the class. - The researcher gave an asssigment to the students.

	➢ The reseacher gave motivation to the students and closed the class by praying together.	
2	➢ The researcher reviewed the material in the previous meeting. ➢ The students gathered with their group. ➢ The researcher explained the next material briefly ➢ The students played the fly swatter game. ➢ The students had a chance to play the game and answer the question based on the researcher's instruction. ➢ The students who could answered the question got the score. ➢ In the last, a group who had a high score got award.	➢ The researcher reviewed the material in the previous meeting. ➢ The students collected the assigment that given by researcher in last meeting. ➢ The student looked for the difficult vocabulary on the textbook. ➢ One of the students read the material in front of the class. ➢ The reseacher gave motivation to the students and closed the class by praying together.

	➢ The reseacher gave motivation to the students and closed the class by praying together.	

3. Post-test

In the last meeting after got the treatment all of students of experimental class and control class got the post-test. The purposes of the post-test was to check students' vocabulary mastery and also to see the differences students' understanding related to the materials that had been learned and getting a treatment. It means the post-test is used to know the effectiveness of Fly swatter game in improving students' vocabulary mastery in seventh grade of MTs Darul Ulum in academic year 2020/2021.

3.7 Technique of Analyzing Data

3.7. 1 Normality Test

Normality test is one of the requirements in analyze the data, it means that before conduct the real analysis, the data of the research should be tested normality of distribution. The researcher used the students' score of pre-test and post-test to calculate normality. To know the normality, the researcher used *Shapiro Wilk* test by using SPSS 25 with the provision that if significant score (Sig.) > 0,05, The data is normal distribution. If significant score (Sig.) < 0,05, the data is not normal distribution (Asmarani, 2008:234).

3.7.2 Homogeneity Test

After doing the normality test, the researcher determined the homogeneity of the test. This test is intended to test whether the data obtained from the sample homogeneous or not. To know the homogeneity, the researcher used *One Way Anova* test with SPSS 25. Pallant (2011:206) stated that if a significant score (Sig.) > 0,05, it means that variances for the two groups are homogen. If a significant score (Sig.) < 0,05, it means that the variances of the groups are not homogen.

3.7.3 T–test

In this research, the researcher used statistical data analysis or SPSS 25 (Statistic Product and Statistic Solution) to analyzing the data. The researcher compared the result of the students' pre-test and post-test. T- test was used to analysis the differences the data which are students' pre-test and post-test who were taught by using fly swatter game and students' pre-test and post-test who were not teach by using fly swatter game. The formula of t-test as follows :

$$t_0 = \frac{\bar{X}_1 - \bar{X}_2}{S\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Description :

t   : t-value

S   : Standard deviation

$\bar{X}_1$: Mean of variable X (Experimental class)

$\bar{Y}_2$: Mean of variable Y (control class)

n_1 : Total of variable X (Experimental class)

n_2 : Total of variable Y (Control class)

(Sugiyono, 2018:291)

Through analysing the data by using SPSS, the researcher could determined the hyphothesis whether there was a significance difference between the students' score who were taught by using fly swatter game and the students' score who were not taught by using fly swatter game.