CHAPTER III

RESEARCH METHODOLOGY

This chapter explains about the methodology of research. It consists of research design, data of the research, techniques and instruments of collecting data, techniques of analyzing data, and research procedure.

A. Research Design

This research was quasi experimental research. It used quasi experimental method. Fisher (1925, 1935), as cited by Campell and Stanley (2015) explained that experimental is particular role of experimenter to have complete mastery which schedules the treatments and measurements for optimal statistical efficiency. It was seen with complexity of design and the goal of efficiency. It investigated whether there was any effectiveness of Monopoly game to young learners of vocabulary mastery skill by giving certain treatment for experimental group comparing to control group. It used two-test, pre -test (before experiment), post-test (after experiment) and gave treatment to the subject by using Monopoly game as a measurement test of research hypothesis.

B. Data of the Research

Data of the research included the source and the object of the research to take the data. The researcher described about place, population, sample, techniques of sampling and subject of the research.

1. Place

The data was taken to this research at MTs Negeri Pacitan in academic year 2021/2022. It is located in Jl. H. Samanhudi, Palihan, Pucangsewu, Pacitan sub-district, Pacitan regency.

2. Population

Population of this research was all of object that provides information for the researcher. It was first grade students of MTs Negeri Pacitan in the academic year 2021/2022.

3. Sample and Sampling

Sample was taken from population which has provided to support the research. The sample of this research was first grade students of MTs Negeri Pacitan in academic year 2021/2022. They were divided into two groups. Each group consisted of 20 students, 20 students were for control class and 20 students were experimental class. The total number of student was 40 students. In this case, the subject of the study was under 100 students. It was why the research took all of the subjects as sample and the study became population research, as follows:

a. The subjects of the research were taken in the same school.
b. The subjects of the research were at the same level.
c. The same researcher researched the same students.

To get the sample, it used cluster sampling techniques. It was cluster simple random sampling to determine students who belong to non-experiment, control class and experimental class.

4. Time and Schedule

In this part, the researcher formulated time and schedule in this research. It started in November to March. It was counted from preparation to the process of making report. Time and schedule could be seen through the following table.

Table 3. 1. Time and Schedule

NO	Activity	Nov				Dec				Jan				Feb				Mar			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	Constructing Title																				
2	Making plan																				
3	Collecting References																				
4	Arranging Research Proposal																				
5	Seminar Proposal																				
6	Revision																				
7	Collecting Data																				
8	Analyzing Data																				

NO	Activity	Nov				Dec				Jan				Feb				Mar			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
9	Research Report																				

C. Techniques and instruments of Collecting Data

1. The techniques were used to collect data in this research, as follows:

   a. Two Test

   To collect the data in this research, the researcher used pre-test and post-test to the experimental group and control group as a standard and indicator to compare first score before treatment and the last score after treatment. Pre-test was given before implementing Monopoly game. Post-test was given after applying Monopoly game. The researcher took 20 students to do 25 items of multiple choice test to analyze the validity of items. 25 items of multiple choices were validated through validity of items test before it was done by students. It also aimed to see how the students were able to pass the indicators of vocabulary mastery through Monopoly game.

   b. Treatment

   The treatment that was applied in this research to learn vocabulary mastery skill was Monopoly game. It used by students after doing pre-test. The researcher taught vocabulary through Monopoly game for

about 30 minutes in each meeting. The researcher delivered the rules to play the game and gave the example how to play it well.

c. Documentation

Documentation was used to see the process of applying Monopoly game in a form of pictures and assembling data in written form as names of population, sample, and the English score of second grade students in MTs Negeri Pacitan in academic year 2021/2022.

2. Instruments

In this research, the researcher used two- test which consisted of pre-test and post-test. The researcher implemented a treatment with Monopoly game. The researcher used Monopoly board, its cards, Monopoly money, dice, monopoly pions for the instrument. The wealthiest player who survived until the game was over was the winner. It meant that the player could pronounce word by word in cards correctly.

D. Techniques of Analyzing Data

After collecting all the data needed from pre-test and post-test, it was analyzed and processed by using mathematic calculation on t-test formulation. The data must be checked for the normality and the homogeneity test. The researcher combined the use of Excel and SPSS for two kinds of tests (*Liliefors and Shapiro Wilk*). The formulas for the data, as follows:

1. Normality test

$$L_{t(table)(0,5)} = \frac{0,886}{\sqrt{n}}$$

$$L_{O(observation)} = F(Z_i) - S(Z_i)$$

($L_{O(observation)}$ based on the maximum value)

As the alternative test, the researcher used *Shapiro Wilk* method due to the samples in each group were < 30. It needed to tested by using SPSS instead. It was the second test when *Liliefors* failed to use. The significance of its was 0.05. It meant that p > 0.05, the data would be normally distributed and vice versa.

2. Homogeneity test

$X^2 = (\ln 10)\{B - (n_i - 1)\log S_i^2\}$

Where:

X^2 =Chi square

B = Bartlet value

n_1 = The number of observation of each group

$\log S_i^2$ = Variance sample of each group

Homogeneity test was the next step that needed to do after the normality test showed normal distribution. It used *Levene*'s test. It was taken from the same population to know whether the samples were homogenous or not. It could be seen if the value of Sig. was <0.05 then the two groups had different variances. Meanwhile, if the value of Sig. > 0.05 then both of groups have the same variance.

3. T-test

$$t = \frac{\bar{X}_1 - \bar{X}_2}{S_{\bar{X}_1 - \bar{X}_2}}$$

The procedures of calculation:

a. Calculating mean Variable X_1 with formula:

$$M_1 = \frac{\sum X_1}{N_1}$$

b. Calculating mean Variable X_2 with formula:

$$M_2 = \frac{\sum X_2}{N_2}$$

c. Calculating deviation Variable X_1 with formula:

$$X_1 = X_1 - M_1$$

d. Calculating deviation Variable X_2 with formula:

$$X_2 = X_2 - M_2$$

e. Calculating t-table in significant level with df:

$$df = N_1 + N_2 - 2$$

E. Validity and Reliability

This chapter explains about the validity and reliability of instruments and data used in this research. The validity of instruments aimed to measure the consistency and accuracy of instruments that was used in this research. Syamsurizal (2020) states that validity of the instrument is the suitability of the instruments used to research results and the actual situation. It was called valid if the measuring instruments used were correct. The researcher used external validity and reliability as the measurement of the instruments' validity and reliability. The researcher did a test to get internal validity and external validity according to the result of non-sample from the same degree with the main sample.

The validity measures what it aimed to measure. It measured a consistency and accuracy of data towards the object in this research. The

validity and reliability of data source depended on the validity and reliability of the instruments and the result of analysis data. The valid instruments decided the accuracy of data. The researcher used statistical analysis to determine and measure the accuracy of data as validity and put the test of the data to be calculated and checked the data consistency as reliability that is used in this research.

The data was classified as valid if it had a coefficient correlation ≥ 0.3with formula: $r_{xy} = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y^2)}}$The reliability of data meant the consistency of scores from an instrument or one set of items to the other ones. The instrument was classified as reliable if it has coefficient value ≥ 0.7 with formula: $r_{nn} = \frac{2r_{xy}}{1+ (n-1)r_{xy}}$

Where:

r_{xy} = Validity

r_{nn} = Reliability