CHAPTER III

RESEARCH METHODOLOGY

This chapter consists of research design, population and sample, research variable, instrument of data collection, trying out instrument, procedure of collecting data, and technique of data analysis.

3.1. Research Design

In this research, the researcher used quantitative research. Quantitative research is a means for testing objective theories by examining the relationship among variables. These variables. in turn, can be measured. typically on instruments, so that numbered data can be analyzed using statistical procedures (Creswell, 2009:145)

There are four kinds of experimental design such as pre-experimental, true-experimental, factorial design and quasi-experimental (Sugiyono, 2016:108-116). In this research, the researcher used true experimental design. It was post-testonly control group design.There were two classes as the subject of the research which were chosen randomly. The first class was as the experimental class and the second was as the control class. The experiment class was taught by using scramble method only, word mapping only and the control class was taught by using conventional method.

Sugiyono (2016:112-113) the design of true experimental research post test only control group design can be described as follows:

Table 3.1.

Design of True Experimental research post test only control group.

R	**X**	**O_2**
R		**O_4**

Where:

R : Randomly

X : Treatment

O_2 : Post Test (Experiment Group)

O_4: Post Test (Control Group).

3.2.Population and sample

3.2.1. Population

Population is a generalization region consisting of objects/ subjects that have certain qualities and characteristics set by researcher be studied and then drawn conclusion (Sugiyono, 2016 : 117). The population of this study was the tenth grade students of MA Darul Hikmah Menganti in the academic year 2019/2020.

Table 3.2.

Table of the Population.

Class	Total of students
X IPS 1	39
X IPS 2	35

X IPA 1	40
X IPA 2	35

3.2.2. Sample

Sample is part of the number and characteristics possessed by that population (Sugiyono, 2016:118). Sample refers to delegation from the population in the research. The delegation is used to present the whole population. In this research, the researcher took the sample by using random sampling. In doing this research, the research got three classes as the sample which taken randomly by using lottery technique. They were 110 students coming from three classes consisting of 35 students of X social 2 and 35 students from X science 2 as the experimental group and 40 students of X science 1 as the control group.

3.3. Research variables

In this study, the researcher used scramble method and word mapping to improvestudents'vocabulary. Hence, the variables in this research were:

3.3.1. Dependent variables

Are those that depend on the independent variables; they are the outcomes or results of the influence of the independent variables. Other names for dependent variables are criterion, outcome, and effect variables. (Creswell, 2009:50). The dependent variable of this research was students' vocabulary.

3.3.2. Independent variables

Are those that probably cause, influence, or affect outcomes. They are also called treatment, manipulated, antecedent, or predictor variables. (Creswell,2009:50). The independent variable of this research was scramble method and word mapping in teaching vocabulary.

3.4. Instrument of data collection

In this study, the researcher used test as the instruments. According to (Arikunto, 2013:149)states that research instrument is a kind of tool used by researcher to collect the data or to get the data. Meanwhile, Brown, (2004:3) states that test is a method of measuring a person's ability, knowledge, or performance in a given domain.

Based on the research experimental design that used by the researcher was post test only control group design, so the researcher used, treatment and post test as the instrument. The types of the test that used by the researcher were multiple choice, fill in the blank, and rearrange words. Total of the test was 50 questions. The instruments of the test were available on appendix.

3.5.Trying out the instrument

3.5.1. Validity

Validity is the most important components in evaluating theinstrument to be tested. Arikunto (2013:168) states that validity is a measurement that indicates the levels of an instrument. An instrument isvalid when it has high validity while it is un-valid when it has a lowvalidity. In this study, the researcher used the item validity. To

identity theitem validity, the researcher used the formula of product moment correlation as argued by Widoyoko (2016:238). The validy can be known by this following equation:

$$rxy = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{\{N\Sigma X^2 - (\Sigma X)^2\}\{N\Sigma Y^2 - (\Sigma Y)^2\}}}$$

Note:

X = item score

Y = total score

r_{xy} = correlation coefficient between variabel X and variable Y

(Widyoko, 2016:239)

3.5.2. Reliability

Reliability is a component in making an instrument that could be trusted as a tool for collecting data. Widoyoko (2016:252) states that instrument test can be reliable if it gives the consistency result although it is tested repeatedly. It meant that the instrument test which was reliability but it had not been valid. To identify the reliability, the researcher used the Split – half method in which this method is developed by Spearman-Brownas agrued by Widoyoko (2016:258). The equation of reliability can be known as follow:

$$r11 = \left(\frac{k}{k-1}\right)\left(1 - \frac{\Sigma\sigma_b^2}{\sigma_t^2}\right)$$

Note:

r11 = reliability of instrument

k = quantity of the questions

$\sum \sigma_b^2$ = total of variant item

σ_t^2 = variant total

(Widyoko, 2016:263-264)

3.6. Procedure of Collecting Data

Related to the research which used by the researcher in this study in collecting the data, the students as the object of the research got two activities those were treatment and post-test.

3.6.1. Treatment

In true experimental research, treatment is usually done in finding out the significant difference between groups experiencing different method.Treatment was given before the post test. The students were treated by the researcher based on group. The group was divided into two groups, experimental group and control group. The experimental group was treated by scramble method only, word mapping only and the control group was treated by convensional. The treatment was done in two meetings for both experimental group and control group. The detail can be seen as follows:

Table 3.3

The schedule of implementing the research.

No	Date	Time	Activity
1.	March, 6th 2020	07.00 – 08.00	First meeting in scramble class

		08.00 – 09.00	first meeting in word mapping class.
		10.00 – 11.00	First meeting in control class
2.	March, 10th 2020	07.00 – 08.30	Second meeting in scramble class
		08.30 – 10.00	Second meeting in word mapping class
		10.30 – 12.00	Second meeting in control class
3	March, 13rd	07.00 – 08.00	Post test in scramble class
		08.00 – 09.00	Post test in word mapping class
		10.00 – 11.00	Post test in control class

Table 3.4

Treatment procedures of experimental group and control group

Treatment	Experimental group	Control group
Meeting 1	**Observing** • Students observe the picture that teacher gave. **Questioning** • Students try to identify the picture.	**Observing** • Students observe the picture that teacher gave. **Questioning** • Students try to identify the picture.

	• Students ask about the relation about the picture with the material. **Exploring** • Students read the material that the teacher gave in power point. • Students try to find out the social function, generic structure, and gramatical features on the text.	• Students ask about the relation about the picture with the material. **Exploring** • Students read the material that the teacher gave in power point. Students try to find out the social function, generic structure, and gramatical features on the text.
Meeting 2	**Associating** • Teacher devide students into some groups. • Teacher give students some scramble sentences about descriptive text. • Students try to	**Associating** • Teacher devide students into some groups. • Teacher give the different topic in every groups. • Students try to make a descriptive text based

	rearrange the sentences and answered the questions quickly. **Communicating** • Students have a discuss with their members. • The group who answer the question correctly would be the winner.	on the topic. **Communicating** • Students present about the result of their text in front of class.

3.6.2 Post-test

After having the treatment, the the students was asked to do the post test. This test has purpose to find out the improvement between the students' vocabulary after the treatment. By using Scramble Method and word mapping, the researcher hoped the students could improve their vocabulary and got higher score if the result compared to pre- test.This test was also aimed to see whether or not there was significant difference between the group taught by using scramble and the group taught by using word mapping.

3.7. Technique of Analyzing Data

Data analysis was used to answer the research question stated in problem statement. The type of data analysis will be depended on technique and tool in collecting the data (Mubarok, 2015:35). Hence, the data in this study

analyzed by using ANOVA Statistical with SPSS 20.0 version. The result from SPSS was interpreted to answer the research questions.