CHAPTER III
RESEARCH METHODOLOGY

3.1 Research Design

This research was an experimental research. The experimental research is a research method used to find a specific treatment effect against the other in uncontrolled conditions (Mubarok 2015). The researcher used experimental research to find out the impact of Semantic Mapping Strategy in mastering English vocabulary.

Quasi experimental research was taken by the researcher, where the researcher defined the respondents randomly and divided them into experiment group and control group. According to White & Sabarwal (2014) Quasi-experimental designs identify a comparison group that is as similar as possible to the treatment group in terms of baseline (pre-intervention) characteristics.

According to Mubarok, (2015:102) stated that in this design, both the experimental and control group are compared, although the group is selected. The experimental group was be more concern by the researchers to see the level of difference between control group who did not receive a treatment (circle the sage method) and experiment group received a treatment. Mubarok (2015:102) drew the design of quasi-experimental in the named nonequivalent control group design as follows:

Group	Pre-test	Treatment	Post-test
Experiment	O1	X	O_2
Control	O3	-	O_4

Where:

O1 : Pre-test for experiment class

X : Using treatment with SMS

O_2 : Post-test for experiment class

O3 : Pre-test for control class

O_4 : Post-test for control class

Thus, in the beginning the students of two classes were offered by giving pre-test. In the middle, they were treated but by applying different treatment. For experimental class, the students were treated with semantic mapping strategy. In other hand, the students of control class were applied without semantic mapping strategy. At the end, they were given post-test and the result of post-test and pre-test counted at the end of the meeting by using statistics.

For the treatment between experimental and control groups were explained clearly bellow;

1. Experimental Group

Experimental Group	
Treatment 1	- The researcher explained the material about vocabulary. - The researcher asked to the student about semantic mapping strategy. Were the students have ever teach by the strategy before? - The researcher gave some examples of the strategy. - After that, the researcher explained about the strategy. - Next, the researcher gave assignment to the students to find some words using the strategy by group discussion.
Treatment 2	- The researcher asked about the previous material. - The researcher gave some examples of semantic mapping strategy to the students. - After that, the students and teacher analyzing the example together. - Next, researcher gave assignment individually to the students.

2. Control Group

Control Group	
Treatment 1	- The researcher explained the material about vocabulary. - The researcher gave assignment to the students to find some words by group.

Treatment 2	- The researcher asked about the previous material. - Next, researcher gave assignment individually to the students.

a. Independent variable :

The presumed causes in an experimental study, all other variables that may impact the dependent variable were controlled. The values of the independent variable were under experimenter control. In this research, Semantic Mapping Strategy as an independent variable because it was affects the dependent variable.

b. Dependent variable :

The presumed effect in an experimental study, the values of the dependent variable depend upon another variable. In this study the score of teaching vocabulary of the students as a dependent variable. Because it influenced by independent variable.

3.2 Population and Sample

According to Mubarok (2015), population was a unit of the object or subject that has certain qualities and characteristics which were studied by the researchers then be deduced. That was to say the population of this research was those who have qualities and characteristics carried out by the researcher in order to lay on the research. The population of this research was the entire of the eighth grade students of MTs N 1 Jepara in the academic year of 2018/2019.

Sample is a limited numbers of elements from a proportion to deputize population. Thus, the sample of this research was the eighth grade students. For this research, the researcher used simple random sampling. In this technique, the researcher took samples in a simple regardless of the

strata and areas that exist in the population which was studied (Mubarok 2015: 43). The sample of this research was the students from two classes of MTs N 1 Jepara in the academic year of 2018/2019.

3.3 Instrument

According to Merriam Webster dictionary, instrument is a tool or device is used for a particular purpose or to measure something. In this study, the researcher only used test as the instrument of the research.

Test is a series of questions or exercises that are used to measure knowledge, skills, intelligence or ability possessed by individuals or groups (Mubarok 2015: 68). The instrument that researcher used was in the form of multiple choice test. In the multiple choice test there were 25 questions totally that students should be answered. This test used in the pre-test and post-test for the students to measure their vocabulary mastery.

3.4 Techniques of Collecting Data

Based on the research, there were pre-test, treatment and post-test that conducted by the researcher. The explanation of the technique was explained below:

a. Pre-test

   In the first meeting, the researcher gave a pre-test for the students to measure students' vocabulary. There were 25 questions that students should be answered.

b. Treatment

   In the middle of meeting, the researcher taught how to find the vocabularies with the semantic mapping strategy.

c. Post-test

   Next meeting, the researcher conducted a final test after the treatment. So the result was calculated to measure whether there was positive effect or no after used semantic mapping strategy.

3.5 Techniques of Analyzing Data

Data analysis is used to answer the research question stated in the problem statements (Mubarok, 2015:35). The aim of this research desired to find out whether there was or not the effect of semantic mapping strategy on students' vocabulary mastery. So, to analyze the data after conducted pretest and post test, the writer analyzed and comparative the statistically, then the researcher analyzed the scores of post-test between control and experimental class by using the formula and the analysis was done by using SPSS.

3.6 Trying Out of the Instrument

a. Validity

Validity was arguably the most important criteria for the quality of the test. The technique of analyzing data, this research used t-test because this research compared the result of test between pre-test and posttest from experimental group and control group.

The writer used the product moment formula,

$$r_{xy} = \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{\sqrt{\{n(\Sigma X^2) - (\Sigma X)^2\}\{n(\Sigma y^2) - (\Sigma y)^2\}}}$$

In which;

r_{xy} : the item of test reliability

N : the number of respondent

X : total score of each item

Y : individual total score

X^2 : total for square for each item

$(X)^2$: the square of the total score for each item

$(Y)^2$: the total of the individual total score

The validity computation was consulted to the r-table of product moment by determining the significances level 5% and n

which was according to the data. The instrument was valid if the r_{xy} > rtable for α= 5%.

b. Reliability

Where the reliability of measuring instrument was the degree of consistency with which it measured whatever it was measuring. According to Korb (2010:4) said that the researcher used the formula of Split HalfKR 20 for finding reliability.

Th formula of split half KR 20

$$rKR_{20} = \left(\frac{K}{K-1}\right)\left(1 - \frac{\Sigma pq}{\alpha^2}\right)$$

RKR20 was the Kuder-Richardson formula 20

K = was the total number of test items

Σ = indicated to sum

P = was the proportion of the test takers who pass an item

q = was the proportion of test takers who fail an item

o^2 = was the variation of the entire test

3.7 Hypothesis of Statistic

The hypothesis of statistic that was used in this research as follows:

Ho : μ1 = μ2

Ha : μ1 ≠ μ2

Where :

Ho : Null hypothesis

Ha : Alternative hypothesis

μ1 : Achievement of student development in vocabulary mastery by using Semantic Mapping Strategy

μ2 : Achievement of student development in vocabulary mastery without using Semantic Mapping Strategy

The assumption of the hypothesis was:

1. If $t_o > t_{table}$: Ho was rejected and Ha was accepted. That meant there was a significant difference between the student score using Semantic Mapping Strategy and without using Semantic Mapping Strategy in vocabulary learning. ($\mu 1 \neq \mu 2$)
2. If $t_o < t_{table}$: Ho was accepted and Ha was rejected. That meant there was not a significant difference between the student score using Semantic Mapping Strategy and without using Semantic Mapping Strategy in vocabulary learning. ($\mu 1 = \mu 2$)