CHAPTER III

RESEARCH METHOD

In this chapter, the researcher presents the research design, the population, sample and sampling, the research variable, research instrument, validity and reliability testing, normality and homogeneity testing, data collection method, data analysis, and hypothesis testing.

A. Research Design

This research is conducted in quantitative approach. According to Ary et al (2002:22), quantitative research uses objective measurement and statistical analysis of numeric data to understand and explain phenomena. In quantitative research there are experimental and non-experimental research design. Experimental research involves a study of the effect of the systematic manipulation of one variable on another variable and non-experimental research; the researcher identifies variables and may look for relationship among them, but does not manipulate the variables (Ary et al, 2002:24).

The experimental research design is classified into pre-experimental design, true experimental, and quasi-experimental. Pre-experimental research does not have random assignment of subjects to groups or other strategies to control extraneous variables. True-experimental research uses randomization and provides maximum control of extraneous variables. Whether quasi-experimental

research lack randomization but employ other strategies to provide some control over extraneous variables (Ary et al, 2002:302).

In this study the researcher uses pre-experimental design with the form of one group pre-test and post-test design without control variable. It is caused because this research does not have random assignment of subjects to groups or other strategies to control extraneous variables. The researcher only takes one group or class and uses pre-test and post-test to see the result of the treatment using semantic mapping as a strategy toward the students' vocabulary mastery. The result of the treatment is found by comparing the pre-test and post-test score.

According to Ary et al (2010:303), there are three steps in one group pre-test and post-test design, those are:

1. Administering a pre-test measuring the dependent variable
2. Applying the experimental X to the subjects
3. Administering a post-test measuring the dependent variable.

Table 3.1. The One Group Pretest- Posttest Design as follows:

Pre-test	Treatment	Post-test
Y_1	X	Y_2

Explanation :

Y_1 : Pre-test

X : Treatment on the experimental group

Y_2 : Post-test

The further explanation of one group pre-test and post-test in this research as follow:

1. Administering the pre-test. The students were given the pre-test. It is aimed to measure the students' vocabulary mastery in descriptive text before being taught by using Semantic Mapping Strategy. The pre-test had done on 13rd April 2019. The number of students who got pre-test was completely 45 students. After finishing the test, the students' score of pre-test was calculated by using scoring rubric to know the result of pre-test before being taught by using Semantic Mapping strategy.
2. Treatment

   After administering the pre-test, the researcher gave the treatment to the students. The first treatment had done on 13rd April 2019. The researcher shared the material about descriptive text and the introduction of using Semantic Mapping strategy. The second treatment had done on 16th April 2019. The researcher divided the students into groups and then the researcher gave one paper that consist of the topic about elephant with picture, and then the researcher asked the students made the semantic mapping based on the topic that was given by the researcher. Then the researcher let the students discuss with their group. In this activity, it gave them the chance to used their imagination in relating the vocabulary related to the topic and let them add the vocabulary as many as possible.

3. Post-Test

Post-test is given after the students get treatments taught by using Semantic Mapping strategy. Post-test had done on 20th April 2019. Post-test is aimed to measure the students' vocabulary mastery in descriptive text after being taught by using Semantic Mapping Strategy. The number of students who got post-test was completely 45 students. After finishing the test, the students' score of post-test was calculated by using scoring rubric to know the result of post-test after being taught by using Semantic Mapping strategy.

This research intended to investigate the effectiveness of Semantic Mapping strategy towards the students' vocabulary mastery in descriptive text of seventh grade at MTsN 7 Tulungagung. The use of the treatment is aimed at proving whether the increase scores possibly got by the researcher. Thus, the effectiveness of that treatment is known the significant score when the students taught by using Semantic Mapping strategy.

B. Population, Sample, and Sampling

1. Population

Population is a generalization area consisting of: objects/subjects that have certain qualities and characteristics set by the researcher to be studied and then conclusions drawn. The population is not just the number that exists in the object/subject being studied, but includes all the characteristics/properties possessed by the subject or object (Sugiyono,

2017:80). It can be concluded that the population is a whole of research subject. This research is conducted at MTsN 7 Tulungagung. The population of this research is the whole students of the seventh grade students of MTsN 7 Tulungagung in the academic year 2018/2019 which consists of 264 students. Those are divided into six classes, class A, B, C, D, E, F. It can be seen in table 3.2 below:

Table 3.2 The Population of Research

No.	Class	Gender		Total
		Male	Female	
1	VII A	20 students	25 students	45 students
2	VII B	18 students	28 students	46 students
3	VII C	18 students	27 students	45 students
4	VII D	17 students	28 students	45 students
5	VII E	19 students	26 students	45 students
6	VII F	20 students	18 students	38 students
Total students		264 students		

2. Sample

Selecting sample is very important in conducting a research. Sample is a part of the number and characteristics of the population. If the population is large, and researchers are unlikely to learn everything in the population, for example due to limited funds, energy and time, researchers can use sample taken from that population. Sample taken from population must be truly

representative (Sugiyono, 2017:81). In this research the sample is VII-A class, which consists of 45 students. There are 20 males and 25 females.

Table 3.3 Sample of Research

Class VII A		Total Participants
Male	Female	
20 students	25 students	45 students

3. Sampling

Sampling is a technique to take the sample (Sugiyono, 2017:81). To determining the sample in this research, the researcher used purposive sampling. Purposive sampling is a type of none probability sampling where the researcher consciously selects subjects for addition in a study so as to make sure that the elements will have certain characteristics pertinent to the study. Purposive sampling is sample which is taken because the researcher believes that it could give sufficient information. The researcher uses purposive sampling, the class chosen by the researcher is VII-A, the researcher chose VII-A class because based on the recommendation from Vice Head master of Curriculum in MTsN 7 Tulungagung and also based on the information and suggestion from the English teacher, the characteristics of the students in this class was homogeneous, means not good and not too bad.

C. Research Variable

Variable is the characteristics of something that will be researched. There are two variables in this research:

a. Independent variable (x) : Semantic Mapping Strategy

b. Dependent variable (y) : Students' Vocabulary Mastery in Descriptive Text

D. Research Instrument

Research instrument is a tool which is used to collect the data. The instrument used by the researcher was test. This test was used to measure the students' vocabulary mastery in descriptive text before and after being taught by using Semantic Mapping strategy. The students were given two kinds of test, first is pre-test and the second is post-test. The total items of the test were 20 in the form of fill in the blanks. In making the test, it must be considered to the core competence and also basic competence of curriculum. It was about descriptive text which suitable to the level of students in seventh grade. To know the result of the test, the researcher used the scoring rubric guide. Based on Afandi (2013:69), the scoring rubric as follow:

$$\text{Score} = \frac{number\ of\ correct\ items}{(number\ of\ questions)} \text{ X } \frac{100}{20}$$

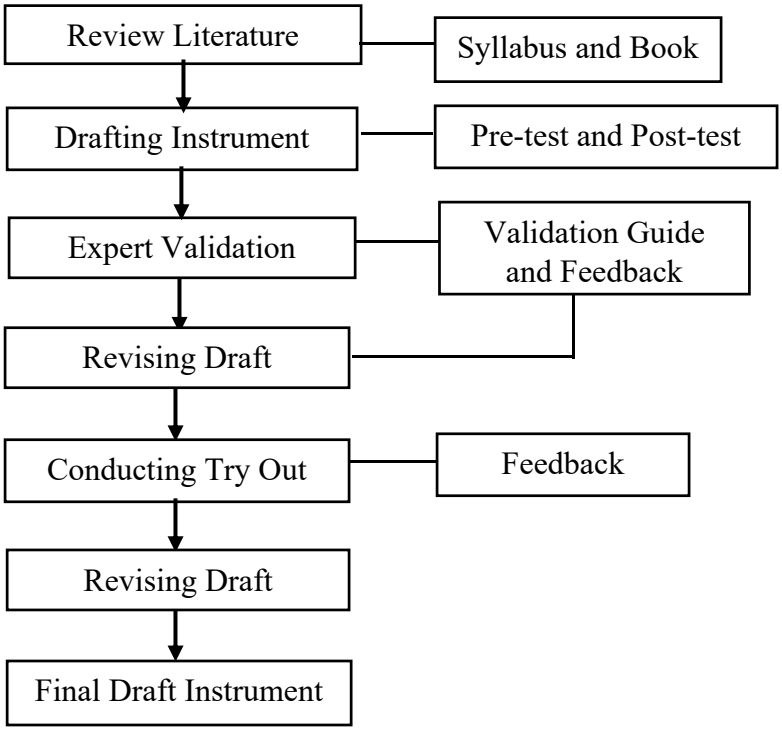
Table 3.4 The criteria of students' score:

No.	Criteria	Range Score
1.	Excellent	90 – 100
2.	Very Good	80 – 89
3.	Good	70 – 79
4.	Fair	60 – 69
5.	Fail	≤ 59

E. Validity and Reliability

In experimental research, the researcher had to check validity and reliability of the instrument. The researcher was adapted theory from Wilkinson and Birmingham (2003), the validity and reliability of the instrument developed through the following steps (see figure 3.1).

Figure 3.1 Process in making valid and reliable instrument



The steps of instrumentation, are:

1. Review Literature

   The first steps to get valid and reliable test is reviewing literature concerning with the descriptive text. Therefore, the researcher reviewed some literatures from syllabus and book used in seventh grade students in MTsN 7 Tulungagung to get some important information as sources to drafting instrument that related with the materials.

2. Drafting Instrument

   After get some information from reviewing literature, the researcher started to draft instrument that appropriate with the materials.

3. Expert Validating

   After finishing the drafting instrument, the instrument should be validated by the expert like English teacher or lecturer. The purpose of the expert validating is to know how much valid the instrument is either related with its construct validity, face validity, or content validity. So, in this steps the researcher will be get feedback and validation guide.

4. Revising Draft

   In revising draft of the instrument, the researcher uses feedback collected from the expert validation.

5. Conducting Try- Out

   After revising the draft of the instrument, the researcher conducted try the instrument out to the students in different class as the sample to get

feedback. The researcher conducting the tryout in class VII B which consist of 46 students, there are 18 males and 28 females.

6. Revising

   After conducting try out, then revising the instrument again after getting input or feedback from the Try out and based on that term the researcher gets final draft to test to class VII A as a sample of population of this research. So, the researcher will revise the instrument to make the questions ideal or not easy or too easy, difficult or too difficult.

7. Final Draft Instrument

   The last step is final draft instrument means that the instrument has good or best quality where the instrument is appropriate.

To get more information, the researcher described both validity and reliability as below:

1. Validity

   The validity of test as extent to which it is measure what is supposed to be measure. The results of research valid if there are similarities between the data collected and the data actually occurring on the object under study. Valid instrument means that the measuring instrument used to obtain the data (measure) is valid. Valid means that the instrument can be used to measure what should be measure (Sugiyono, 2017:121).

   Before conducting the research, the researcher will make sure that the instrument had three kinds of validity as follows:

a. Content Validity

For instruments in the form of tests, testing content validity can be done by comparing the contents of the instrument with the subject matter being taught. Technically the content validity can be helped by using an instrument grid, or instrument development matrix. In the grid there are variables studied, indicators as benchmark and number of items (item) questions or statements that have been described from the indicator (Sugiyono, 2017:129). The instrument of this research was designed based on standard and basic competence in K13 since the school implements K13 curriculum. In this research, the content of question in testing about descriptive text which was suitable to be mastered to the students of seventh grade at Junior High School. Therefore, this is valid in term of content validity.

b. Construct Validity

The construct validity of test which is capable of measuring certain specific characteristic in accordance with a theory of language behavior and learning. According to Adnan Latief (2017:238), the construct defined will lead to what tasks the instrument requires students to do. The correct definition of construct will lead to the correct selection of the task, which will result in correct data, which has strong validity. It means that the task should be match between the purpose of the assessment. Here, the researcher used construct validity in administering

vocabulary test based on the form of fill in the blanks, with the purpose to measure the students' vocabulary about descriptive text and therefore, it is valid in term of construct validity.

c. Face Validity

The researcher used face validity by consulting with the advisor and English teacher to make sure that the test measures what must be measured. In this case, the test has measured vocabulary mastery in descriptive text.

2. Reliability

Reliability refers to the consistency of the scores resulted from the instrument. According to Brown Ary et al (2002:250) stated that reliability is concerned with the effect of such random errors of measurement on the consistency of scores. The reliability of the test or instrument can be seen from the result of conducting Try out instrument in different class, in this research the researcher used VII B. To measure the reliability of the score obtained from pre-test and post-test, the researcher calculated by using IBM SPSS 24.0 version using the formula Alpha Cronbach. This formula is used because requires test scoring is one correct answer was given one point, while incorrect answer was given zero point.

According to Ridwan (2004:118), the criteria of reliability are divided into 5 classes as follows:

1. If the alpha Cronbach score 0.00 – 0.20 : less reliable

2. If the alpha Cronbach score 0.21 – 0.40 : rather reliable
3. If the alpha Cronbach score 0.41 – 0.60 : enough reliable
4. If the alpha Cronbach score 0.61 – 0.80 : reliable
5. If the alpha Cronbach score 0.81 – 1.00 : very reliable

The result of the reliability score of the instrument can be seen in the following table (3.5 and 3.6), while the score of the reliability can be seen in appendix 4.

Table 3.5 Reliability Statistic of Pre-test

Reliability Statistics	
Cronbach's Alpha	N of Items
.730	20

From the table 3.5 above, it shows that Cronbach's Alpha score of pre-test is 0.730. It means that the instrument of test is categorized into reliable because the Alpha Cronbach's score is between 0.61 – 0.80.

Table 3.6 Reliability Statistic of Post-test

Reliability Statistics	
Cronbach's Alpha	N of Items
.634	20

From the table 3.6 above, it shows that Cronbach's Alpha score of post-test is 0.634. It means that the instrument of test is also categorized into reliable because the Alpha Cronbach's score is between 0.61 – 0.80. So, it can be concluded that both instruments of the test (pre-test and post-test) are reliable.

F. Normality and Homogeneity Testing

1. Normality Testing

Normality testing is conducted to know whether the data which is taken has been normal distributed or not. The computation of normality testing in this research using SPSS 24.0 version with the formula One-Sample Kolmogrov-Smirnov Test by the value of significance (α) = 0.050. Data normality testing is conducted by the rules as follow:

a. If α > 0.050, it means that the distribution of data is normal.
b. If α < 0.050, it means that the distribution of data is not normal.

If the data distribution is normal, next the researcher analysis the homogeneity testing.

2. Homogeneity Testing

Homogeneity testing is conducted to know whether the data which is taken has a homogeneous variance or not. The computation of homogeneity testing using SPSS 24.0 version with the formula One-Sample Kolmogrov-Smirnov test by the value of significance (α) = 0.050. The hypothesis is the data is homogeneous if the significant value (α) is more than 0.050 (α >

0.050). Meanwhile, the data is not homogeneous if the significant value is more less than 0.050 (α <0.050).

G. Data Collection Method

The data collection method is the way how researcher gets the data which is needed. The researcher collected the data from the students' score of pre-test and post-test. The technique of collecting data was clarified as follow:

1. Pre-Test

   The students were given the pre-test. It is aimed to measure the students' vocabulary mastery in descriptive text before being taught by using Semantic Mapping Strategy. The pre-test had done on 13rd April 2019. The number of students who got pre-test was completely 45 students. After finishing the test, the students' score of pre-test was calculated by using scoring rubric to know the result of pre-test before being taught by using Semantic Mapping strategy.

2. Post-Test

   Post-test is given after the students get treatments taught by using Semantic Mapping strategy. Post-test had done on 20th April 2019. Post-test is aimed to measure the students' vocabulary mastery in descriptive text after being taught by using Semantic Mapping Strategy. The number of students who got post-test was completely 45 students. After finishing the test, the students' score of post-test was calculated by using scoring rubric to know the result of post-test after being taught by using Semantic Mapping strategy.

From the score of this test, the researcher is intended to find out the effectiveness of using Semantic Mapping strategy towards students' vocabulary mastery in descriptive text. The result of the score then compared with pre-test. In this case, the researcher knows how far is the effectiveness of Semantic Mapping strategy towards students' vocabulary mastery in descriptive text.

H. Data Analysis

Data analysis is used by the researcher to analyze the collected data which is taken from the students' pre-test and post-test score. The data obtained from the results of students' test were analyzed quantitatively. Quantitative analysis was done using statistics which is called statistical analysis or inferential statistics. The quantitative data of this research is analyzed using statistical computation. In this research, the researcher used Paired Sample T-test in IBM SPSS 24.0 version to analyze the data to know whether there is significant different score on the students' vocabulary mastery in descriptive text before and after being taught by using Semantic Mapping strategy.

I. Hypothesis Testing

The criteria of hypothesis testing were as follow:

a. When the significant value > significant level, the null hypothesis (H_0) is accepted and the alternative hypothesis (H_a) is rejected. It means there is no significant difference score on the students' vocabulary mastery before and after being taught by using Semantic Mapping Strategy.

b. When the significant value < significant level, the alternative hypothesis (H_a) is accepted and the null hypothesis (H_0) is rejected. It means there is significant difference score on the students' vocabulary mastery before and after being taught by using Semantic Mapping Strategy.