CHAPTER III

RESEARCH METHODOLOGY

This chapter is intended to describe the research method use in the study which covers: research design, research variable, population and sample of study, research instrument, data collection, the procedure of treatment, and data analysis.

A. Research Design

In this part discuss about the technique of the research. The researcher decide to use a quasi-experimental research design because researcher give the treatment or manipulation one variable to another variable (Sudjana, 2009: 19). It is conducted to know the effect of using mind mapping technique by comparing two groups of the study that experimental group using by mind mapping technique and control group without mind mapping technique.

The quasi-experimental study consists of three main characteristics, they are: (1) the manipulated variable is called the independent variable, (2) the control or control all other variables except the independent variable, and (3) the observation or measurement of the dependent variable as the effect of independent variables (Sudaryanto 2009: 19).

The research design chosen by the researcher is a quasi-experimental research design which is divided into two types of designs; they are time series design and nonequivalent control group. This study uses a

nonequivalent control group. The table below is a design pattern nonequivalent control group.

Table 3.1 Research Design

Group	Pre-test	Treatment	Post-test
Experimental Group	T1	Xm	T2
Control Group	T1	Xmm	T2

Note:

- T1 = Pre-test given before process learn to teach to be started, given both group (control and experiment)

- Xm = giving process learn to teach for the group of experiment using mind mapping technique

- T2 = Post-test given after process learn to teach to take place and given both group (control and experiment)

- Xmm = control group given study with conventional method

B. Research Variable

Variable is important thing to know and to be observed in every research. Before the researcher determines the variable of the research, it is better to know the meaning of variable.

As stated by Ary et al (2010:37) that "A variable is a construct or a characteristic that can take on different values or scores". In quantitative research, variables used to specify how variables measured in the study. Ary (2010:39) also stated that "There are two major types of variables: independent and dependent". Variable that antecedent to another variable

called by independent variable, on the other hand variable is the consequence of another variable, it is the dependent variable. Based on the title, this research also has two variables, independent and dependent variable.

In this research that have title "The Effectiveness of Mind Mapping Technique in Improving Students' Writing Skill at SMAN 1 Purwoasri". The researcher formulates two variables which are independent and dependent variable. The independent variable is mind mapping technique. For the dependent variable in this research is writing. Writing is one of important aspect in English skill.

C. Population and Sample

Before arranging the research to get the data, the researcher is going to mention both population and sample. Both of them have an important role in doing this research. Ary (2010:148) stated that "A population is defined as all members of any well-defined class of people, events, or objects. It means that population is a group or element of area that interest to observe. The researcher choose two classes from the tenth grade of SMA Negeri 1 Purwoasri. Those are X-MIA 3 as experimental group and X-MIA 4 as the control group that will be taught without Mind Mapping Technique. Each class consist of 34 students.

Sample is a small group that is observed. Ary (2010:148) said that "A sample is a portion of a population". It means that sample is direct target of experiment that will be observed. The researcher choose two classes as the

sample of the research. The research take the students from two classes as the sample of the study.

D. Research Instrument

This research use a test as the instrument. "Test is a method of measuring a person's ability, knowledge, or performance in a given domain" Brown (2003:3). Type of test that is used by researcher is written test and the form of test is picture-cued story-telling. Brown (2003:180) picture-cued story-telling is one of the most common technique for eliciting oral production is through visual as: pictures, photographs, diagrams, and charts.

The written test need to be measured its validity and realibility in determing the quality of the instrument:

1. The Validity of the Research Instrument

The first element that is used to measure the test is validity. There are several types of validity, such as content validity, construct validity, and criterion validity. The type of validity that is used in this research is construct validity. So, the judgement expert is used to examine the construct validity. In this case, the researcher has already consulted the test with English teacher at school.

2. Reliability of the Research Instrument

The second element is reliability. Johnson and Christensen (2008: 144) state that reliability relates to the consistency or stability of the test scores. Afterwards, the researcher used inter-rater reliability to measure the reliability of the instrument. To calculate inter-rater reliability, the

researcher used *Pearson product moment correlation coefficient* among two raters (Interclass Correlation Coefficient). Inter-rater reliability is the degree of agreement between two or more raters or scorers, (Johnson and Christensen, 2008: 150).

E. **Data Collection**

In this research, the technique of collecting the procedure is done by the researcher to collect the data, the researcher do some steps there are:

1. Pre-test

In this step, the researcher gives the students a test to know the students' score before being given a treatment. The researcher will give the pre-test to both of of groups, experimental group and control group. The material about recount text, they should make a paragraph recount text in free topic well by using simple past and good vocabularies / phrase.

2. Treatment

In this step, the researcher use mind mapping technique for supporting student's preparation before writing (recount text). Researcher shows some material in the class about paragraph recount text, such as: content, organization, vocabulary, language use and mechanic. After that students are asked to learn the teacher material recount text. They should understand how to arrange the words to make a good paragraph for past experience.

3. Post-Test

In this step, the researcher gives the students a test to know the students' score after being given a treatment. The researcher will give the post-test to both of groups, experimental group and control group. The students must make a recount text paragraph that has chosen by the examiner. So the students can chose one topic which one they like to make a paragraph recount text well by using simple past and good vocabularies / phrase.

4. Scoring Rubric

The researcher measure the score at the time by looking at scoring rubric after getting the result of pre-test and post-test to the experimental and control group. The scoring rubrics were adopted by Jacob, et al (1980). Students' writing were assessed by the researcher. There are several aspects to be assessed in the students' writing, namely, content, organization, vocabulary, language use, mechanics. *(See Appendix 3)*

F. The Procedure of Treatment

This study use true experimental that use experimental research, pre-test, post-test and design. Dealing with this experiment, the teaching activities are divided into three parts, they are pre-teaching activity, main teaching activity, and post teaching activity. In this case, the experimental group and the control group have separated class session. Each group has different methods.

Table 3.2 The Difference Procedure of Treatment Between Control Group and Experimental Group

No.	Control Group	Experimental Group
1.	Firstly, the researcher introduce about what is recount text and how to make it (pre-test).	Firstly, the researcher introduce about what is recount text and how to make it (pre-test).
2.	Afterwards, researcher asks the students to pay attention to the explanation about the definition and general structure of recount text.	Afterwards, researcher asks the students to pay attention to the explanation about the definition and general structure of recount text.
3.	Then, researcher explains about the process of writing test and gives the example of recount text.	Then, researcher explains about the process of writing test and gives the example of recount text.
4.	Next, researcher asks the students to do exercise about recount text.	Next, researcher explains about the Mind Mapping Technique.
5.	Finally, researcher asks the students to make recount text. (post-test)	Finally, researcher asks the students to make recount text by using Mind Mapping Technique. (post-test)

The research begins on 11th of April 2019 and finish on 18th of April 2019. It is based on the English lesson schedule of the tenth grade, especially in X-MIA 3 and X-MIA 4. The following table shows the schedule of activities during the research.

Table 3.3 The Schedule of Research

Activities	Experimental Group	Control Group
Pre-Test	11th of April 2019	11th of April 2019
Treatment	15th of April 2019	15th of April 2019
Treatment	16th of April 2019	17th of April 2019
Post-Test	18th of April 2019	18th of April 2019

G. Data Analysis

The data analysis is a process of analyzing data. The data will be obtained from the score of the test is quantitative data. The data are got from the pre-test and post-test of the experimental and control group. The researcher use ANCOVA (analysis of covariance) to analyzes and compares the data. ANCOVA is used to know the effect of Mind Mapping Technique on students' writing ability. Following are some stages of the process of analyzing data:

1. Descriptive analysis.

Descriptive analysis takes the result of the mean and the standard deviation. Hatch and Farhady (1982: 39) asserted that descriptive analysis is statistics used to summarize data. The mean is same as average of score.

Hatch and Farhady (1982: 57) state that standard deviation is used to measure variability. The larger the standard deviation, the more variability from the central point in the distribution and the smaller the standard deviation, the closer the distribution is to the central point.

2. Inferential Analysis

Inferential statistics is one of the main point to answer the question of the formulation of the problem, which is whether there is a significant difference in writing between the students who are taught by using mind mapping technique and those who are taught without using mind mapping technique. The statistics used in this computation are normality test, homogeneity test, and hypothesis test.

a.   Normality Test

Normality test aims to determine whether the distribution of responses has a normal distribution or not. Normality test was using Kolmogorov Smirnov formula. The interpretation of the test of normality can be concluded as follows the value of Asymp. Sig. (2-tailed) is greater than the rate of 5% Alpha (Asymp. Sig. (2-tailed)> 0.05) it can be concluded that the data derived from populations that are normally distributed.

b.   Homogeneity Test

Homogeneity test aims to determine whether the sample taken from the population have the same variance or do not show any significant differences from each other. Interpretation of the results of

the homogeneity test is by looking at the value of Sig. (2-tailed). The interpretation can be concluded as follows that the test is pondered homogeneous if the level of significance is more than 0.05 (Sig. (2-tailed) >0.05).

c. Hypothesis Test

The researcher employed ANCOVA (analysis of covariance) to analyze the data of pre-test and the data of post-test scores. The purposes of this test are:

1. To increase the precision of comparisons between groups by accounting to variation on important prognostic variables;

2. To "adjust" comparisons between groups for imbalances in important prognostic variables between these groups.

In SPSS Statistics, the researcher entered three variables: (1) the dependent variable (posttest scores); (2) the independent variable (treatment), which has two categories: "mind mapping technique" (representing the experimental class), and "no mind mapping technique" (representing the control class); and (3) the pretest scores, which represents the covariate. To process the data, ANCOVA is done by using SPSS 2.0 program.