## CHAPTER III

## METHODOLOGY

This chapter will be discussed the method that the researcher uses in conducting the study. It involves the research design, Population and Sample, Data Collection and Data Analysis.

### 3.1 Research Design

The research design of this study is experimental design. Quasi experimental research design is chosen for this study concerning with the purpose of the study. Latief (2010) states that quasi experimental is an empirical study to estinate the causal impact of an intervention on target population without random assignment. Quasi-experimental research is the research which takes from two different classes in the same grades which has similarity. The purpose of the study is to find the effect of using mind mapping to the students idea in speaking descriptive text. The researcher uses quasi-experimental design because this design is more generally used appropriate with school schedules and logistical problems (Cohen, Manion, & Morrison, 2007 in Alshumaimeri, 2011). The purpose of experimental research is to examine the theory, so the aim of this study is to examine the effect of using mind mapping technique to increase speaking idea.

There are two variables in this study. The first is Speaking and second is mind mapping method. The dependent variable is speaking and independent is mind mapping method. There were two groups, those are the control group and experimental group. The control group becomes group which without the treatment. In addition, for the experimental group is a group which has a treatment

about mind mapping method. This study will provides test to collect the data. The

data is gotten from the participants which is eleventh grade of senior high school

students. There are two tests, the first is pre-test and the second is post-test. The

test will be given to the participants after explainning the course content. The

researcher uses experiment research design because it is appropriate with the

purpose of this study which is testing mind mapping technique to speaking idea.

So that, the researcher tries to find out the result between pre-test and post-test of

students in control group and experiment group and to know the effect of using

mind mapping in speaking idea at eleventh grade SMA YPI Darussalam Cerme.

The design chart can be seen in figure below:

| Group | Pre-test | Treatment | Post-test |
| --- | --- | --- | --- |
| Experiment | Y1 | X | Y2 |
| Control | Y1 | - | Y2 |

*Table (a) Quasi Experimental design*

Where:

Y1      : The pre-test which is administered before the treatment

X        : The treatment

Y2      : The post-test which is administered after the treatment

In this case, the researcher will conduct with two groups from two classes.

They are experimental group and control group. The research will give the same

pre-test and post-test for the two group. The experimental group will be given

treatment by using Mind mapping to promote students speaking idea but for

control group is without giving treatment. Before applying the research, the

researcher will give the same pre-test for both to know or to measure the students speaking idea before the treatment is given. Then the researcher will give treatment to the experimental for four times. After giving the treatment to the experimental group, post-test will be given to the experimental group and control group then the result of pre-test and post-test will be analyzed to compare both the experimental group with treatment and the control group without treatment by using t-test formula.

## 3.2  Population and Sample

### 3.2.1   Population

Population is whole of subject in the research. According to Ary et al (2010:148) "a population is defined as all members of any well defined class of people, events, or objects". The population of current study is consist off all male and female students from Senior High School in the summer semester of 2017/2018. There are three classes in eleventh grade of SMA YPI Darussalam Cerme. Therefore, the researcher has interviewed the teacher and the teacher said that in this school the teacher did not teaching English using technique of Mind mapping the teacher just using traditional method, but when she teach the students still less effective in the class and the students do not understand about the topic given by the teacher. So therefore, the researcher wants to develop this technique to make the students more active with their own idea in the class and enjoy when they learn English lessons with use Mind mapping technique with the given more treatment for students eleventh grade at SMA YPI Darussalam Cerme.

| No. | Class | Number |
|---|---|---|
| 1. XI IPA 1  21 | | |
| 2. XIIPA 2 | 21 | |
| 3. XI IPS21 | | |
| **Total** | | **63** |

*Table (b) Student's Number*

Based on the table totaling the students of eleventh grade in SMA YPI Darussalam Cerme is 63 students.

**3.2.2 Sample**

According to Lehman and Perry (2005:55) a sample is the source from which data are drawn to answer the research questions and to test any hypothesis that might be made. In this research, the technique of selecting sample is simple random sampling. In eleventh grade of Senior High School in SMA YPI Darussalam Cerme, the number of students is 21 student's of mathematical and natural sciences  1 (IPA 1) as a experimental group and 21 student's of mathematical and natural sciences  2 (IPA 2) as a control group so the total number of students is 42 students, they are male and female students as the participants. So, the researcher will use the technique of simple random sampling because the majority of the students who learn speaking are in the same grade.

**3.3   Data Collection**

**3.3.1   Instrument**

According to the data, developing an instrument is one of steps in conducting this research. The objective of this research is to investigate the students activate prior knowledge of using Mind mapping toward speaking idea. The instruments are of this study are tests.The test will be distributed to the

participants after getting the material. There are two kinds of test, they are pre-test and post-test. The researcher uses test as the instrument to collect the data. In this research, researcher uses pre-test and post-test as the instruments. Pre-test will be given before applying Mind mapping strategy, and post-test will be given after researcher applied Mind mapping strategy.

### 3.3.1.1  Test

The most important point in this research is to collect the data. Research instrument is a tool to collect the data. So, the research instrument playes an important role in determining the research quality. Instrument can determine whether the research successful or not.

### 3.3.1.2 Pre-Test

The student will be given a pre-test in collecting the data to identify the student's achievement in speaking test, automatically the test is about speaking test. The items of the test are taken from teachers hand book for XIth grade students with several modification and additional detail questions. There are some questions for the students after the students got the material from the teacher. The teacher will give the intructions to the students related to the topic orally and the students have to doing orally too.

### 3.3.1.3 Treatment

Before conducting  the treatment, the reseacher prepares and arrange teaching design that will be done by the researcher. The design is uses to facilitate the reseacher in doing research especially in teaching

speaking by using Mind mapping technique before the students do in

speaking task. This treatment will be conducted four times.

### 3.3.1.4 Post-Test

For the experimental group, speaking skill was used in Mind

mapping and for control group.

## 3.4 Validity

Before doing pre-test and post-test as an instrument of the research, the

test have to be tried out in terms of validity. In this study, the test will be analyzed

by using content validity. The content validity is measured by relating the content

of the instrument in Indonesia curriculum. To test the content validity, the

researcher compares the content of instrument to the subject based on English

curriculum and English syllabus. If the test content reflects the curriculum guides

and syllabus, the test can be said have content validity.  Then the item of the tests

is valid.

| Standart Competence | Basic Competence | Questions | |
|---|---|---|---|
| | | Pre-Test | Post-Test |
| 4. Mengungkapkan makna dalam teks fungsional pendek dan monolog yang berbentuk *descriptive, narrative* dan *analytical exposition* dalam konteks kehidupan sehari-hari**.** | 4.2 Mengungkapkan makna dalam teks monolog dengan menggunakan ragam bahasa lisan secara akurat, lancar dan berterima dalam berbagai konteks kehidupan sehari-hari dalam text berbentuk: descriptive. | 1. Please describe about anything (person, place, animal, thing, ect.) that you want to describe! | 1. Compose a short story by your ideas based on one of the following topics! And then describe in front of class! 1. Describe about your family! 2. Describe about your idola! 3. Describe about your favourite animals! |

|  | 4. Describe about your favourite things! |
| --- | --- |

*Table (c) Analyzing Content Validity*

## 3.5    The Procedure of Collecting the Data

The way to collect the data for this research is by giving the students some performance test which has the goal  to measure the students knowledge relate with their speaking of idea which use mind mapping technique before they try to speak. The researcher uses some procedures; the first is the researcher makes English speaking test for pre and post-test which is about making a descriptive text. Second, the researcher devides a subject into two groups as experimental and control group. Third, the researcher gives the treatment to the experimental group by using mind mapping method while for control group the researcher teaches them using their teacher method (Traditional method). The treatment will be done four times. In each meeting, the researcher will give the evaluation. In the evaluation process, the researcher will discuss with the English teacher about the meeting. The fourth, researcher gives the post-test to control and experiment group. The last is analyzing the data from pre-test and post-test by using SPSS16.0 program.

| No | Meetings | Topic | Total Students |
| --- | --- | --- | --- |
| 1. | 1st Meeting | Family | 21 |
| 2. | 2nd Meeting | Idola | 21 |
| 3. | 3rd Meeting | Animals | 21 |
| 4. | 4th Meeting | Things | 21 |

*Table (d) The schedule of meeting*

**3.6 Data Analysis**

After collecting the data, the researcher will analyze the data. Analyzing the data is very important in a research because is to answer the research problem with the data taken from pre-test and post-test. The researcher analyzes the data by using t-test from SPSS program especially by using Independent sample t-test. Moreover, the samples are small and the groups are independent, the t-test for independent samples is carried out to determine whether there is any significant between experimental and control group.

The first data of pre-test were data of students score before being taught by using Mind mapping strategy. The second data of called post-test were data of students score after being taught by using Mind mapping strategy. To know the significant difference on the students' speaking idea before and after taught by using mind mapping strategy, the researcher in this research uses paired sample T test at SPSS 16.00 version.

**3.7 Scoring**

The scoring is used to guide the teacher to correct the students' performance in speaking of idea. To correct the test of this research, the researcher will use three correctors. They are researcher and two teacher of English. First corrector is researcher, second corrector is the teacher of Eleventh grade that is Ms. Iis Nayda Suganda and the third corrector is the teacher of Tenth grade in SMA YPI Darussalam Cerme.The researcher adapts the rubric fromDianne and Kathy. According to Kathy Schrock (2017) an idea is usually generated with intent, but can also be created unintentionally. In other hand, according to Dianne

Mckay (2009) devide idea into some criteria consist of information of idea,

support of detail, support inference.

Here, researcher determines the rubric with consideration related those

aspects. The table of rubric can be seen in the following below:

| Aspect | Weight | Criteria | | | | Score |
|---|---|---|---|---|---|---|
| | | **Need Improvement** 1 (20-40) | **Average** 2 (41-60) | **Good** 3 (61-80) | **Excellent** 4 (81-100) | |
| **Main Ideas** | **20 %** | The ideas is not correct, but is attempted | The ideas gives detail instead of main idea | The ideas is accurate but not complete | The ideas is complete, specific and correct | |
| | | ☐ | ☐ | ☐ | ☐ | |
| | | 1 (20-40) | 2 (41-60) | 3 (61-80) | 4 (81-100) | |
| **Information of Ideas** | **20 %** | Does not information, arguments, ideas | Few information, develop ideas and uses a style inappropriate to the purpose (may be too much or too litle information) | Attempt to select information, develop ideas and use a style to the purpose | Selects information, develop ideas and uses a style appropriate to the purpose | |
| | | ☐ | ☐ | ☐ | ☐ | |
| | | 1 (20-40) | 2 (41-60) | 3 (61-80) | 4 (81-100) | |
| **Support of idea** | **20 %** | May contain few, incorrect or irrelevant details | Much of the idea is copied directly from the text. May contain major inaccuracies | The idea is spoken mostly in the student's own words. May contain minor inaccuracies | The idea is spoken in the student's own words | |
| | | ☐ | ☐ | ☐ | ☐ | |
| | | 1 (20-40) | 2 (41-60) | 3 (61-80) | 4 (81-100) | |

| **Support inference** | 20 % | Fails to make an inference, or makes an inference which is illogical or irrelevant | Makes a general inference about description with few/no supporting details or uses irrelevant details | Makes a general inference about description with some supporting details, or uses irrelevant details | Makes logical and relevant inferences about description. Details from the speaking support the inferences made |
|---|---|---|---|---|---|
| | | ☐ | ☐ | ☐ | ☐ |
| | | **1** (20-40) | **2** (41-60) | **3** (61-80) | **4** (81-100) |
| **Interaction** | 20 % | The student does not cooperate with each other | The student cooperates deficiently with eache other | The student cooperates partially with each other | The student cooperates actively with each other |
| | | ☐ | ☐ | ☐ | ☐ |

**Students Score**

*Table (e)Scoring rubric*

| Excellent 81-100 |
|---|
| Good 61-80 |
| Average 41-60 |
| Need improvement 20-40 |

*Table (f)  Standard of performance*

## 3.8 Normality Distribution Test

To analyze the normal distribution, this study uses Kolmogorov Smirnov Sample Test in SPSS version 16.0. It is aim to find whether or not the distributions of pre-test score in two groups are normally distributed. In this case, the result of the normality distribution is also used to find out whether or not the hypothesis that has determined is accepted. The first step in calculating the

normality distribution test state that the hypothesis: H0: the score of the experimental and control group are normally distributed.

The second step is calculating the normality distribution test tried to compare the Sig. with the level of significance for testing the hypothesis. If the sig. is more than the level significance (0.05) the null hypothesis is accepted; the score normally distributed. On the other hand if the sig. is less than the level of significance (0.05) the null hypothesis is rejected. The procedure analyze is press menu, click Analyze, click Descriptive Statistic, click Explore and move all variable to Dependent List box, click Plots and tick Normality Plots with Test then Continue.

## 3.9 Homogeneity Test of Variance

Homogeneity test of variance uses to know whether two groups are in the same position. For homogeneity test, the researcher uses Levene's test of homogeneity in SPSS 16.0 version because Levene's test of the homogeneity uses to assess the equality of the variance for a variable calculates for two or more groups. In this study has two groups; experimental and control groups. So, in this study uses Levene's test.  The test of Levene's test, or P, defined as follow:

$$P = \frac{(N - k) \sum_{i=1}^{k} N_i \, (Z_i - Z..)^2}{(k - 1 \sum_{i}^{k} \sum_{j=1}^{Ni} (Z_{ij} - Z_i)^2}$$

The symbols defined as follow:
P            : the result of the test
K            : the number of different groups which the sample belong
N            : the total number of sample

Ni            : the number of sample in the ith group
Yij           : the value of the jth sample from ith group

$$Z_{ij} \quad : \begin{cases} \left(|Y_{ij} - \bar{Y}_i|\bar{Y}_i\right) \text{is a mean of } i^{th} \text{ group} \\ \left(|Y_{ij} - \bar{Y}_i|\bar{Y}_t\right) \text{is median of } i^{th} \text{ group} \end{cases}$$

The significance of P is tasted a gained F ($\alpha$,k – 1, N – k ) where F is a quintile of the test distribution, with k – 1 and N – k its degrees of freedom, and $\alpha$ is the chosen level of significance (0.05). To analyze the homogeneity, the researcher uses SPSS 16.0. The homogeneity will check in SPSS by Levene's test with the following procedure. First, a procedure is inserting the pre-test score of both groups using data view. The second is going to the analyze menu, selecting compare means and the choosing independent sample t-test. The last procedure is interpreting the homogeneity test output, the researcher looks (sig.) at the Levene's test columns to know whether the quality of variance in group of scores was homogeneity or not. If the sig. > $\alpha$ (0.05), two populations of variance were homogenous or equal but if sig. < $\alpha$ (0.05) two populations of variance were not homogenous or not equal.

**3.9 Hypothesis Testing**

Independent t-test uses to find out the significant difference of using mind mapping method for increasing student's speaking idea between experimental and control group. The steps of t-test calculation are: First, the tests the hypothesis of the research and the setting $\alpha$ (alpha) level at 0.05 (two-tailed test). The hypothesis in this research could be formulated as follow:

H0  :  There is no significant difference of using Mind mapping on

        Student's Idea of Speaking Descriptive between experimental and

control group.

H1 : There is significant difference of using Mind mapping on

Student's Idea of Speaking Descriptive between experimental and

control group.

The second step is finding t-value using Independent - Sample T-Test and comparing the probability with the level of significance for testing the hypothesis. After the scores compute in SPSS 16.00 version, then see the output of Independent- Sample T-Test and interpret the output that if sig. (2-tailed) $> \alpha$ (0.05), the researcher should accept the H0, but if sig. (2-tailed) $< \alpha$ (0.05), the researcher can be rejected the H0, it means H1 is accepted. T-test calculates to find out the comparison of two means between pre and post test score of experimental and control group. In analyzing the data, the researcher uses independent t-test formula.

In calculating t-test, the researcher uses SPSS 16.00 version. The first steps, input the data of post-test in SPSS program between experimental and control group, then click Analyze then Compare Mean Then Independent Sample T-Test. In Independent Sample T- Test, input the score variable into Test Variable column, and group variable Grouping Variable column, then clicks Define Group, Choose group 1 (for experimental) and group 2 (for control), then click OK.