CHAPTER III

RESEARCH METHODOLOGY

In this chapter, there are several parts to discuss. They are research design, population and sample, instruments, variable of the research, the method of collecting data, and the method of data analysis.

3.1 Research Design

The research method is basically a scientific way to get the data with specific purposes and uses (Sugiyono, 2017: 2). The method of research design in this research was Quasi Experimental Research. According to (Mubarok, 2015), experimental research is one of the most powerful research methodologies that research can use to find a specific treatment effect against the other in uncontrolled conditions. In other words, experimental research was a study conducted by manipulating the object of study, and controling a particular variable (Hasan, 2013:12). The research design aimed to give the responsibility for setting the next steps to make the result more accurate and objective. The subject of this research was tenth grade students of SMANegeri 1 Mayong which consist of two groups.

Mubarok (2015) stated that quasi experimental design is used because in fact difficult to obtain a control group that used for research. In this method, the research design had two groups, they

were an experimental group and a control group. The experimental group would be given effect or specific treatment with using test taking teams technique through mime game, while the control group would not be given any effect or special treatment so that the researcher would use direct method in the control group.

Based on the explanation above, the researcherdeterminedthe control group and the experimental group. Both groups would begiven pre-test and post-test but only the experimental group receivedthe treatment. This research used test, the researcher gave twenty questions in the form of multiple choices that be answered by students. To find out how effective the technique, the researcher used formula quasi experimental research as way to calculate it.

Table 1 Design of Quasi Experimental Research

Group	Pre-test	Treatment	Post-test
Experiment	O_1	X	O_2
Control	O_1	Y	O_2

Notes:

O_1 = Pre-test

O_2 = Post-test

X = Treatment of experimental group

Y = Treatment of control group

3.2 Population andSample

3.2.1 Population

In this research, the population were all of the students at tenth grade of SMA Negeri 1 Mayong in the academic year 2020/202. The total of the population were 324 students from 9 class. According to Mubarok, (2015) stated that population is a unit of the object or subject that has certain qualities and characteristic, which are studied by the researcher that be deducted.

Table 2 Population of the Research

Class	Total of the Students (X)
X MIPA 1	36
X MIPA 2	36
X MIPA 3	36
X MIPA 4	36
X IPS 1	36
X IPS 2	36
X IPS 3	36
X IPS 4	36
X IPS 5	36
∑X	324

3.2.2 Sample

According to (Mubarok, 2017) sample is past of quality and characteristic of the population. The purpose of sampling technique was to be able to make generalization about the population based on scientifically selected subject of that population. Sugiyono (2012) stated that purposive sampling is sampling determining technique through particular consideration. Considering about the big number of the population, the researcherused the

purposivesampling technique to choose the sample. The researcher divided into two groups of the sample, they were control group and experimental group. The researcher chose X MIPA 2 class in control group and X IPS 2 in experimental group as the sample of the research with the total of 36 students each.

Table 3 Sample of the Research

Class	Total of the Students (X)
X MIPA 1	36
X MIPA 2	36
X MIPA 3	36
X MIPA 4	36
X IPS 1	36
X IPS 2	36
X IPS 3	36
X IPS 4	36
X IPS 5	36
∑X	324

3.3 Variable of the Research

An attribute or nature or value of a person, object or activity which is have certain variations determined by researcher to be studied and then conclusions are drawn (Sugiyono, 2017: 39). There were two variables in this variables. They were independent variable and dependent variable. According to Sugiyono (2016) stated that there are two variables that are written in their book. Independent variable was affected or which were due. Then, dependent variable was the outcome variable that was the effect of independent variable. Independent variable in this research was the influence of test taking teams technique through mime game and dependent variable in this

research was vocabulary mastery.

3.4 Instrument

An instrument uses to measure natural phenomena as well social observed (Sugiyono, 2015: 102). Instrument of research was a tool used by researcher to collect the data. In this research to get an accurate the data, the researcher used instrument of test. The test used multiple choices consist of 20 items which the students had to choose the correct answer of questions by crossing A, B, C, D, or E.

The test as instrument to know the students' vocabulary mastery toward the material that was begiven for the students. The test be given in pre-test and post-test. It begiven to measure how far students' understand in English vocabulary before and after using test taking teams technique through mime game in this research.

3.5 Trying Out Instrument

3.5.1 Validity

The validity were an important quality of test that validity test was used to measure whether the obtained data of instrument was valid or not. According to Sugiyono, (2018: 193) stated that valid means the instrument can be use to measure what should be measured. Trying out the instrument of validity in this research using a product-moment correlation to identify item validity. The formula of the validity test is as follows:

$$r_{xy} = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{\{N\sum X^2 - (\sum X)^2\}\{N\sum Y^2 - (\sum Y)^2\}}}$$

Note:

r_{xy} : The validity of the item test

N : The total of the students

X : The total of the students who answer correctly

Y : The students' score

3.5.2 Reliability

Sugiyono, (2018: 193) stated that the valid and reliable are absolute requirement to get research result valid and reliable. To determine the reliability of test, the researcher used formula of K-R 21 (Kuder Richardson). The formula of reliability test was as follows:

$$r_1 = \frac{k}{(k-1)}\left(1 - \frac{M(k-M)}{kV_1}\right)$$

Note:

r_1 : The reliability instrument

k : The total item of questions

M : The mean of total scores

V_1 : The total variants

3.5.3 Homogeneity

Homogeneity test was used to know whether experimental group and control group that were decided, populationthat has relatively same variant or not. It was meant to get the assumption that sample of research came froma same condition or homogenous. According to Sugiyono, (2014: 164) stated that homogenity test is intended to determine whether the sample taken has the same variance

and does not show a significant. The homogenity test was analyzed by using One-Way Anova Test in IBM SPSS.

$$F = \frac{S_1^2}{S_2^2}$$

Note:

F : Coefficient of F test

S_1^2 : Variance of the control group

S_2^2 : Variance of the experimental group

3.5.4 Normality

Normality test was used to check the data that is going to be analyzed whether both groups have normal distribution or not. The data normality test was obtained from pre-test and post-test scores in experimental group and control group. In this research, normality distribution was analyzed by using *Shapiro Wilk*in IBM SPSS.With determining that the data is normally distribution if Asymp. Sig. > 0,05 (Asmarani, 2008: 234).

3.6 Methodof Collecting Data

In method of collecting data, Arikunto (2013: 265) explained that the method of data collection is a method used by researcher in collecting data of research. The researcher used test as a way to measure the students' vocabulary mastery that consist of pre-test, treatment, and post-test. Each technique to collect the data, the researcher conducted several steps:

1. Pre-Test

The test was be used to know the students' vocabulary ability before conducting the research and after conducting the research. This test will be used to know how the students' vocabulary mastery ability to get the data that be given before the treatment.

2. Treatment

Treatment wasbe done after pre-test. In this research, the researcher used test taking teams technique through mime game in experimental class and conventional method incontrol class. The treatment was be used to know the students' vocabulary ability in learning English after conducting the treatment.

Table 4 Treatment Procedure of Experimental and Control Group

1. Experimental Group

	Treatment 1	Treatment 2
Observing		
	➢ The researcher explain the material about descriptive text, especially focus on vocabulary ➢ The students observe the explanation from the researcher	➢ The students tell their assigment ➢ The students observe text of descriptive text given by the researcher
Asking		
	➢ The students are given a chance to ask about the material, especially focus on vocabulary	➢ The students are given a chance to ask about about the material, especially focus on vocabulary

	➢ The other students have a chance to answer the questions for their friends	➢ The other students have a chance to answer the questions for their friends
Association		
	➢ The researcher recheck students' understanding about the material ➢ The researcher divides the students into some groupsand explain the rules and how to playing the game	➢ The researcher recheck students' understanding about the material ➢ The researcher divides the students into some groupsto discuss
Exploration		
	➢ Every leader applies the game with gestures, expressions, or body language in front of each group member ➢ Group members analyze the vocabulary of applying mime game by discussing in groups	➢ The students read the material that given by researcher ➢ The students search some difficult vocabulary and try to look for the meaning
Communication		
	➢ Every group have to presents the result after they having playing game ➢ The researcher gives a feedback from the students ➢ The students make a conclusion the material as a individual assignment	➢ Every group have to presents the result after they having discuss ➢ The researcher gives a feedback from the students ➢ The researcher gives a motivation to the students

2. Control Group

	Treatment 1	Treatment 2
Observing		
	➢ The researcher explain the material about descriptive text, especially focus on vocabulary ➢ The students observe the explanation from the researcher	➢ The researcher reviewthe material in the previous meeting ➢ The students tell their assigment
Asking		
	➢ The students are given a chance to ask about the material, especially focus on vocabulary	➢ The students are given a chance to ask about the material, especially focus on vocabulary
Association		
	➢ The researcher gives a text related the material ➢ The students do the test that given by researcher	➢ The researcher gives a text related the material ➢ The students do the test that given by researcher
Exploration		
	➢ The students read the material that given by researcher ➢ The students search	➢ The students read the material that given by researcher ➢ The students search

	some difficult vocabulary and try to look for the meaning ➢ The reseacher will answer all of questions for the students	some difficult vocabulary and try to look for the meaning ➢ The reseacher will answer all of questions for the students
Communicating		
	➢ The students present the result of their work ➢ The researcher gives a feedback from the students ➢ The students concludes the material as an individual assignment	➢ The students present the result of their work ➢ The researcher gives a feedback from the students ➢ The researcher gives a motivation to the students

3. Post-Test

Each student had difference ability in English subject, especially in learning vocabulary mastery. After using the treatment with test taking teams technique through mime game. In this research, the researcher gave post-test to find out the result of the students' improvement in the vocabulary mastery after the students was being taught using test taking teams technique through mime game.

3.7 Method of Data Analysis

Sugiyono (2014: 147) said that data analysis is an activity after the data from all respondents or other data sources collected. The analyzed data was a process to find the data in a research. One of the

technique to analyze the data was using T-test. The researcher usedformula in *IBM SPSS.* The T-test was be usedto examine whether there was significant difference between experimental group and control group. The researcher analyzed the data using following steps:

1. Scoring the students' achievement of pre-test and post-test by using formula:

$$Score = \frac{the\ total\ of\ right\ answer}{the\ total\ of\ items} \times 100$$

2. Calculating the mean of pre-test score and post-test score.Determining mean with formula:

$$\bar{x} = \frac{\sum fixi}{\sum f}$$

$\bar{x}$: The average of variables score

$\sum fixi$: Sum of frequency multiply the students' score

$\sum f$: Number of the students

3. Calculating the standard deviation of pre-test score and post-test score.Determining standard deviation score with formula:

$$s = \sqrt{\frac{\sum(xi - \bar{x})^2}{(N-1)}}$$

s : Standard deviation of sample

xi : Each value in the data set

$\bar{x}$: The mean of all value in the data set

N : Total number of value in the data set

4. Calculating the T-test of pre-test and post-test score to find out the difference between them by using formula:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2} - 2r\left(\frac{s_1}{\sqrt{n_1}}\right)\left(\frac{s_2}{\sqrt{n_2}}\right)}}$$

t : Test of significance

$\bar{x}_1$: Mean score of control group

$\bar{x}_2$: Mean score of experimental group

s_1 : Standard deviation ofcontrol group

s_2 : Standard deviation ofexperimental group

s_1^2 : Sample variance of control group

s_2^2 :Sample variance of experimental group

n_1 : Number of students in control group

n_2 :Number of students in experimental group

r : Correlation between two groups

After analysing the data using formula in *IBM SPSS 24,* the researcher compared the scores between control group and experimental group. The method of analysis data was be used to know the effectiveness of using test taking teams technique through mime game in tenth grade students of SMA Negeri 1 Mayong. It was be used to prove there was significant difference or not in pre-test and post-test.