CHAPTER III

RESEARCH METHODOLOGY

This chapter explains the research methodology that contains type and design of the study; population and sample; variable of the study; technique of data collection; and technique of data analysis.

3.1 Type and Design of the Study

This study was an experimental research. Experimental research is a research method used to find the effect of certain treatments on others under controlled conditions (Sugiyono, 2015: 72). The aim of experimental research is to examine the hypothesis that relates to the causal interaction.

The design of the study was non-equivalent control group design. It uses two groups that are chosen randomly by the researcher. But, in this model, the groups do not choose random purely. The first group is the experimental group, also called by experimental class, and the second group is the control group or control class. This design is like a pretest-posttest control group design.

The researcher gave a pretest for these groups to know the condition between experimental group and control group before a treatment. The researcher held a treatment twice for each group. The experimental group was treated by the researcher using peer feedback technique in learning process. Meanwhile, the control group was treated without using peer feedback technique in learning process. Then, the researcher gave a post-test at the last. It was aimed to know about the students' writing skill improvement of the experimental group and control group.

The form of non-equivalent control group design is as the follow:

$$\begin{array}{c} O1 \times O2 \\ \hline O3 \quad O4 \end{array}$$

Taken from (Sugiyono, 2015: 79)

Where,

O_1 : The pre-test given for the experimental group

O_2 : The post-test given for the experimental group

X : Treatment that is only given for the experimental group

O_3 : The pre-test given for the control group

O_4 : The post-test given for the control group

3.2 Population and Sample

Population is the generalization area or whole of the research subject (Sugiyono, 2015: 80). Population of the research is whole of eleventh grade students in SMA Walisongo Pecangaan. There were four classes of eleventh grade that consists of 96 students.

Table 1 Population of Eleventh Grade

at SMA Walisongo Pecangaan

Class	**Students**		**Total**
	Male	**Female**	
XI IPA	10	12	22
XI IPS 1	12	10	22
XI IPS 2	10	15	25
XI IPS 3	13	14	27
Total	45	51	96

Sample is a part of whole population (Sugiyono, 2015: 81). For determining the sample of this research, the researcher was used simple random sampling by following some steps. The researcher put some pieces of paper. Then, she wrote the class on each piece of those papers. After that, she shake those papers and drop two of them. The first dropped paper became the experimental group and the second was be the control group. Therefore, the experimental group was in XI IPA and the control group was in XI IPS 1.

3.3 Variable of the Study

According to Kumar (2011: 71), research variable is an attribute variation of a research object that can be measured by researcher and will be concluded by the researcher.

There were 2 variables in this study. They were independent variable and dependent variable.

Independent variable is a variable that influences the others variable (Sugiyono, 2015: 39). In this study, the independent variable is peer feedback technique.

Dependent variable is a variable that influenced by the others variable (Sugiyono, 2015: 39). Dependent variable of this study is students' writing skill on explanation text.

3.4 Technique of Data Collection

For collecting the data, the researcher was done these following activities:

3.4.1 Pre-Test

Pre-test is a test that was conducted before giving the treatment. It was done on May 14th, 2019. The goal of the pre-test was to know the basic ability

of students' writing skill on writing an explanation text. The researcher gave the same topic for pre-test both of the experimental class and the control class. This test was a written paper-based test.

3.4.2 Treatment

The treatment was done on May 15th-19th, 2019. Every class treated twice with same material that was an explanation text for both classes. However, the experimental class was treated by using peer feedback technique in teaching writing. Meanwhile, the control class was not. The activity of treatment showed on the following table.

Table 2 The Activity of Treatment

Group	Treatment	Activity
Experimental Class	1	• Teacher explained the material about social function, generic structure and language features of explanation text. • Teacher gave the example of explanation text. • Teacher demonstrated of providing peer feedback • Teacher asked students to make a draft about Butterfly Metamorphosis. • Teacher asked them to give feedback to each other draft. • Teacher asked them to revise it based on the peer feedback.
	2	• Teacher explained the material about social function, generic structure and language features of explanation text. • Teacher gave the example of explanation text.

		• Teacher demonstrated of providing peer feedback • Teacher asked students to make a draft about Forest Fire. • Teacher asked them to give feedback to each other draft. • Teacher asked them to revise it based on the peer feedback.
Control Class	1	• Teacher asks students to discuss about the material. • Students identified the structure and social function of explanation text given. • Teacher gave the conclusion about the material.
	2	• Teacher asked students to discuss about the material. • Students identified the structure and social function of explanation text given. • Teacher gave the conclusion about the material.

3.4.3 Post-Test

Post-test is a test that was conducted after giving the treatment. It was done on May 21st, 2019. Post-test intended to examine the significances of learning outcome, especially in students' writing score. It examines whether any significant difference score of students' explanation text between their score before the treatment and after the treatment. The researcher gave the same topic for the experimental class and also the control class.

To ease the readers on understanding those activities of treatment above, the following table was given by the writer.

Table 3 Research Timetable

Meeting	Date	Class	Activities
1.	Tuesday, May 14th 2019	Experimental Class Control Class	**Pre-Test** Students ask to write the explanation text that entitled ***"Why Flood Occurs"***
2.	Wednesday, May 15th 2019	Experimental Class	**First Treatment** • The researcher asks students to make a draft about **Butterfly metamorphosis.** • The researcher asks students to discuss their own draft with their peer. • They give their feedback to each other's draft. • The researcher ask them to revise their draft based on their peer feedback.
3.	Thursday, May 16th 2019	Experimental Class	**Second Treatment** • The researcher asks students to make an explanation text about **Forest Fire.**

			• Then, the researcher asks students for having discussion with their peer. • They give their feedback to each other's draft. • The researcher ask them to revise their draft based on their peer feedback.
		Control Class	**First Treatment** • The researcher asks students to discuss about the material. • Students identify the structure and social function of explanation text given. • The researcher give the conclusion about the material.
4.	Sunday, May 19th 2019	Control Class	**Second Treatment** • The researcher asks students to discuss about the material. • Students identify the language features of explanation text given.

			• The researcher give the conclusion about the material
5.	Tuesday, May 21st 2019	Experimental Class	**Post-Test** Students ask to write the explanation text that entitled **"Pollution"**
		Control Class	

3.5 Technique of Data Analysis

The researcher analyze the students' score of writing and also analyze the students' explanation text. The students' score of writing include the average score, standard deviation and then calculate T-test. Meanwhile, the analysis of students' explanation text based on rubric assessment.

3.5.1 Analyze the Score

In this study, the researcher used SPSS 25 application to analyze the statistical data. The test that used for this study is t-test for testing the hypothesis. Although the researcher used the SPSS 25 application for analyzing the data, there were some following steps used for it.

According to Sa'idah (2017: 172), the formula of t-test for testing the hypothesis is:

$$t_0 = \frac{\bar{x} - \bar{y}}{\sqrt{\frac{(n_x - 1)Sx^2 + (n_y - 1)Sy^2}{n_x + n_y - 2}\left(\frac{1}{n_x} + \frac{1}{n_x}\right)}}$$

The calculation steps as the formula above are:

1. **Determining the Mean for Each Group**

Mean is the average from the students' writing score. The formula used is:

$$\bar{x} = \frac{\sum x}{n_x}$$

and,

$$\bar{y} = \frac{\sum y}{n_y}$$

Where,

$\bar{x}$: The Mean of experimental class

$\bar{\bar{y}}$: The Mean of control class

$\sum x$: The sum score of experimental class respondents'

$\sum y$: The sum score of control class respondents'

n_x : The number of experimental class respondents

n_y : The number of control class respondents

2. **Determining Standard Deviation for Each Group**

Standard deviation is the spread measurement data's value. The formula is:

$$S_x = \sqrt{\frac{\sum(x - \bar{x})^2}{n_x - 1}}$$

and,

$$S_y = \sqrt{\frac{\sum(y - \bar{y})^2}{n_y - 1}}$$

Where,

S_x : The Standard Deviation of experimental class

S_y : The Standard Deviation of control class

$\sum$: The sum of …

x : Each value in the data of experimental class

y : Each value in the data of control class

$\bar{x}$: The Mean of experimental class

$\bar{y}$: The Mean of control class

n_x : The number of experimental class respondents

n_y : The number of control class respondents

3. Calculating The t-test

After got the standard deviation value, the researcher calculating the t-test as the t-test formula above. If the result of t_0 is higher than t_t, it meant that there was significant difference. Meanwhile, if the result of t_0 is lower than t_t, it meant that there was no significant difference.

The statement above illustrated by this following table

1.	$t_0 \geq t_t$	H_0 was rejected	There is significant difference
2.	$t_0 \leq t_t$	H_0 was accepted	There is no significant difference

3.5.2 Analyze the Students' Explanation Text

In giving score to the students' explanation text, the researcher used rubric assessment. Rubric assessment is any level of detail instructions to carry out the task (Hyland, 2006: 101).. In this study, the writer used analytical rubric assessment that intended to capture closer association with instruction of classroom language According to Brown (2004: 243), analytical rubric assessment designed into five specific major categories that assessed; those

were content, organization, vocabulary, language use (grammar) and mechanic (capitalization, spelling and punctuation). Every category listed some evaluation factors which assigned the students' written grade. In giving students score, teacher sum all score that students got from each category. The calculation of those categories showed on the table below.

Table 4 Rubric Assessment of Scoring Students' Writing Task

No	Aspect of Assessment	Maximum Score
1.	**Content**	30
2.	**Organization the idea**	20
3.	**Vocabulary**	20
4.	**Grammar**	25
5.	**Mechanic**	5
Total Score		100