CHAPTER III

RESEARCH METHODOLOGY

This chapter provides a complete explanation about the research methodology. It begins with the method used to achieve the goal of this research. The explanation below involves: Research Design, Research Subject, Research Instrument, Research Procedures, and the last is Data Analysis.

3.1 Research Design

3.1.1 The Experimental Design

This research employed quantitative research design that correlates with statistical analysis of the data, which is typically in numeric form (Creswell, 2012, p.19).

The writer applied the quasi-experimental design because this research aimed to know the effectiveness of peer feedback in improving students' writing narrative text through e-mail. It took two groups as the investigated groups, namely experimental group and control group. Both groups got the different treatments. The experimental group receives feedback from their peer through e-mail, while the control group was doing their writing assignment without the feedback from their peer. In fact, both of groups have to submit their writing assignment through e-mail. Pre-test and post-test used to assess the effectiveness of the peer feedback.

According to Fraenkel J. R. et al. (2012), the design of quasi-experimental that applied in this study can be describes as follows:

Treatment Group	M	O^1	X	O^2
Control Group	M	O^1	C	O^2

Notes :

M = Matched subject

O^1 = Students' writing score in pre-test

O^2 = Students' writing score in post-test

X = Treatment using peer feedback technique

C = No treatment

3.1.2 The Variable

Variable is a characteristic of an individual or organization that can be measured by the researchers and also varies which has different value among different individual or organization (Creswell, 2012, p. 112). There are two variables, namely independent variable and dependent variable. Based on Sugiyono (2011), independent variable is a variable that influences the dependent variable. On the other hand, dependent variable is a variable which is influenced by the independent variable. According to the explanation above, this study also classified the variables into independent and dependent variable. Independent variable chosen was peer feedback technique that became the treatment. While dependent variable was students' writing score that became the outcome from independent variable.

3.2 Research Subject

3.2.1 Population

Population is the group of interest as the destination that the researcher would like to generalize the result of the study (Fraenkel, 2012, p.92). In the other word, population is usually a group of person such as students, teachers or other individuals who possess certain characteristics and in some cases it can be defined as a group of classroom, schools, or even facilities. Considering to the reason, the population of this study was five classes of the first grade students in one senior high school in Cimahi. In which they are enrolled in academic year 2015/2016.

The first grade students of senior high school is taken as the population in this study since curriculum 2006 put the narrative text for being taught in first grade of senior high school.

3.2.2 Sample

Creswell (2012) stated that sample is a subgroup of the target population and selected from individuals who represent the whole population that the researcher plan to study for generalizing about the target population. In line with Coolidge (2000) who mentioned that sample is a smaller group of scores selected from the population scores. The samples of research were two classes in which each class consists of 30 students. The first class would be treated as an experimental group and the other would be treated as a control group. The selection of the sample was not chosen randomly since the population technique was applied.

3.3 Research Instrument

According to Sugiyono (2011), instrument is a tool that is used to measure the data. In addition, Sugiyono (2011) stated that in the quantitative study, the quality of the instrument can be determined from the validity and reliability of the instrument, whereas the quality of gathering the data in line with the appropriate technique used.

In this study, some instruments were used to collect the data. A questionnaire and students' writing assignment are used by the researcher to collect data is called as an instrument (Fraenkel, J.R. et al., 2012, p.111). Therefore, the instruments used in this study were writing assignment and questionnaire. Writing assignments were used to measure the students' ability in writing narrative text. At the beginning, pre-test was administered to measure their initial ability in writing narrative in both groups; experimental group and control group before the peer feedback technique is given as the treatment. Post-test was held in the end. Then, questionnaire was distributed only to the experimental group after conducting the post-test to collect the information about students' responses toward the use of peer feedback technique in teaching writing a narrative text.

3.4 Research Procedures

3.4.1 Preparing the Lesson Plan

Before starting to teach in the class, teacher prepared the lesson plan. The lesson plan comprised standard competence, basic competence, indicators, aims of learning, teaching- learning methods, materials, learning step, and also the media used.

In this research, the material was focused on writing narrative text which it was organized for six meetings. The first and the last meeting were allocated to conduct the pre-test and post-test, while the other four meetings were allocated to implement the treatment by using peer feedback technique.

3.4.2 Trying out the research instrument by conducting the pilot test

The pilot test was conducted to measure the validity and reliability of the instrument and to know whether the instruments are appropriate or not for the experimental and control group. The pilot test is given to ten students in similar students which are not included in both experimental and control group. Students who are involved in this pilot test were assumed that they have already learned narrative text.

The test was in writing form. The students were asked to write a narrative text based on the topic that chosen by them.

3.4.3 Conducting the pre-test

As the first step of the study, pre-test was given in the beginning before the treatment. It was performed to both groups. It was aimed to measure the students' ability in writing a narrative text. Besides that, it was also done to investigate whether the students from both groups are equal in this skill and had the similar ability before receiving the treatment.

3.4.4 Conducting the treatment

After conducting the pre-test, the treatment was given to the experimental group only. As mentioned by Creswell (2012), in an experiment, the researcher physically manipulates with intervention in one or more conditions so that individuals experience something different in the experimental condition than in the control condition. The treatment is the implementation of peer feedback technique that using e-mail as the media. Time allocation for each meeting consists of two hours instruction in which one hour instruction is forty-five minutes. The treatment schedule can be seen in the table:

Table 3.1. Schedule of Conducting Research

No	**Experimental group**		**Control group**	
	Date	**Material**	**Date**	**Material**
1	2 May 2016	Pre-test Story of Keong Mas	2 May 2016	Pre-test Story of Keong Mas
2	3 May 2016	Peer feedback training And peer feedback 1	4 May 2016	Story of Sangkuriang
3	9 May 2016	Revised draft 1 and peer feedback 2	9 May 2016	Continue the story of well-known stories
4	10 May 2016	Final draft	11 May 2016	Continue the story of well-known stories
5	16 May 2016	Post-test Story of Malin Kundang	16 May 2016	Post-test Story of Malin Kundang
6	17 May 2016	Questionnaire		

3.4.5 Conducting Post-test

The post-test was conducted when the whole treatments were completed. This activity was aimed at finding the differences between students' score of both groups after the treatment. Creswell (2012) affirmed that after the treatment, the researcher could take another reading on the attribute or characteristic and a post-test is a measure on some attribute or characteristic that is assessed for participants in an experiment after a treatment (p. 297). Furthermore, the form of post –test was almost similar to the pre-test.

3.4.6 Administering Questionnaire

Fraenkel et al. (2012) explained that in questionnaire, the subjects respond to the questions by writing, or commonly, by marking the answer sheet and it can be given to large numbers of people at the same time (p.125). Questionnaire was employed after conducting pre-test and post-test. It was given to the experimental group only to investigate their responses toward the use of peer feedback in writing narrative text that they sent by e-mail. The close-ended questionnaire was used in this research.

3.5 Data Analysis

In this study, the collected data from pre-test and post-test would be analyzed by scoring sheet because test was in form of written test document. Whilst, the writer also analyzes the data gathered from the questionnaire. The procedures of analyzing the data comprised several steps. First, the data collected from students' writing performance in pre-test and post-test were analyzed using "The ESL Composition Profile" (Jacobs et al., 1981) the scoring guide chosen as the criteria of scoring represent the basic aspect of writing such as content, organization, vocabulary, and language use. In this study, scoring only focused on the grammatical error and generic structure of narrative text. Second, the scores were calculated by applying the statistical analysis of t-test to determine how mean of pre-test is different from the post-test score. The significance of the test was analyzed by using a computer program of Statistical Product and Service Solution (SPSS) 16.0 for Windows.

After calculating the data from pre-test and post-test, and also the data from the questionnaire, the data were analyzed based on the frequency students' answers. The last stage is calculating the result and interpreted them into percentage.

3.5.1 Pilot test Data Analysis

The researcher used a test as the research instrument in case in collecting data. It also involved a test which given before the researcher conduct the pre-test namely pilot test. Pilot test is given to ten students who do not involve to the control group or experimental group. If the students were able to write the narrative text based on the instructions given, it means the instrument can be used as a pre-test and post-test.

3.5.2 Pre-test and Post-test Data Analysis

After the pre-test on both group were held, the next was analyzing the output data. The output data were analyzed using independent t-test. The result from the experimental group and control group were used to know the effectiveness of using peer feedback technique in improving students' narrative writing through the e-mail. This research aimed to discover the causality of independent variable and dependent variable.

Based on Coolidge (2006), the output data of pre-test should be a normal distribution; the variance of the two groups must be homogenous; and also the participant must be different in each group.

3.5.2.1 Normality of Distribution Test

Normal distribution test was calculated to investigate whether or not the distribution of pre-test and post-test score in groups were normally distributed. Shapiro-Wilk test formula in SPSS was used to analyze the normality of distributions.

The first step in calculating the normality distribution test stated that hypothesis:

H0 = the scores of the experimental and the control groups are normally distributed.

H1 = the scores of the experimental and the control groups are not normally distribute.

The second step is analyzing the normality distribution using Shapiro-Wilk test formula in SPSS.

The last step is comparing the probability with the level of significance to the test hypothesis. In this step, the level of significance is in the level $\alpha = 0.05$. If the probability >0.05, H0 is accepted. Whereas, if the probability <0.05, H0 is rejected. That means if the probability is more than the level of significance (0.05), the null hypothesis is accepted and the score are normality distributed.

3.5.2.2 Variance Homogeneity Test

After knowing that the pre-test and post-test were normally distributed, the next step was to analyze its homogeneity. To examine whether the data are homogenous or not, the research used ANOVA Lavene test formula in SPSS. The steps mentioned below:

First step is to state the hypothesis and setting $\alpha = 0.05$ (two tailed test)

H0 = the scores of both experimental group and control group are homogenous.

H1 = the scores of both experimental group and control group are not homogenous.

The second step is analyzing the normality distribution using Lavene formula in SPSS.

The last step is comparing the probability with the level of significant to the test hypothesis. If the probability is >0.05, H0 is accepted. Whereas, if the probability <0.05, H0 is rejected. That means if the probability is more than the

level of significance (0.05), the null hypothesis is accepted and the scores of the experimental group and control group are homogenous.

3.5.2.3 T-test Calculation

In this study, the independent t-test in SPSS 16.0 for Windows was used to investigate the difference between the means of experimental and control group. The procedures of the test are as follows:

The first step is pointing out the hypothesis and setting $\alpha = 0.05$ (two tailed test).

H0 = there is no significant difference between pre-test mean for experimental group and control group.

H1 = there is significant difference between pre-test mean for experimental group and control group.

The second step is calculating the t-test score using SPSS Statistics for Windows.

The last step is comparing t-obtained and t-critical. If t-obtained > t-critical, it means the hypothesis is rejected. There is a significant difference between two groups. While, if

t-obtained < t-critical, the hypothesis is not rejected in which there is no significant difference between two groups.

3.5.2.4 Paired sample T-test

Paired t-test is used to discover the differences between pre-test and post-test in each group. In this study, paired sample t-test was analyzed using computation SPSS Statistics for Windows. Hereby the steps to complete the finding:

The first step is revealing the hypothesis and setting $\alpha = 0.05$ (two tailed test).

H0 = there is no significant difference between the students' writing score in pre-test and post-test.

H1 = there is significant difference between the students' writing score in pre-test and post-test.

The second step is calculating the t-test using SPSS Statistics for Windows.

The last step is comparing t-obtained and t-critical. If t-obtained > t-critical, it means hypothesis is rejected. There is a significant difference between the students' writing score before and after the treatment. While, if t-obtained < t-critical, it means hypothesis is not rejected. There is not significant difference between the students' writing score before and after the treatment.

3.5.3 Data Analysis on Questionnaire

Questionnaire is a set of questions that purposed to give the real information from the sample. In this study, questionnaire is used to clarify the information and elaborate the data concerning the research question about the students' responses toward the use of peer feedback technique in teaching to write narrative text. Since questionnaire does not take much time. The data collected from the questionnaire were classified into two major aspects which are declare the students' responses toward their writing assignment and students' responses toward the using of peer feedback technique in writing narrative. The data from the questionnaire were analyzed based on the frequency of students' answer. Then the result will be calculated and interpreted into percentage.

The formula of percentage that used is mentioned below:

$$P = \frac{F}{n} \; x \; 100\%$$

P = percentage

F = frequency

n = the sum of the sample

100 = constant