CHAPTER III
RESEARCH METHODOLOGY

This chapter presents a discussion on the methodological aspects applied to answer the research questions previously mentioned in Chapter 1. The description in this chapter involved: (1) Research Design. (2) Research Subject, (3) Research Instrument, (4) Research Procedures, and (5) Data Analysis.

3.1. Research Design

Research design is the specific features employed in a study and can be used to collect, analyze, and interpret data using quantitative or qualitative method (Cresswell, 2008, p. 297). According to Cresswell (2008), there are several research design which is commonly used in educational research, such as the following: Experimental Designs, Correlational Designs, Survey Designs, Grounded Theory Designs, Ethnographic Designs, Narrative Research Designs, Mixed Method Designs, and Action Research Designs (p. 297). This study employed the experimental designs for quantitative research.

There are a number of types of experimental designs commonly used in educational research. These types divided into two groups. The first group is between-group designs, consist of: (1) True Experiments, (2) Quasi-experiments, (3) Factorial designs. The second group is within-group or individual designs, consist of: (1) Time series experiments, (2) Repeated measures experiments, (3) Single-subject experiments. This study applied quasi-experiments designs of between-group designs. Quasi-experiment design was used because the writer needs to use intact group, or in other word, the writer cannot artificially create a group for the experiment.

To answer the research questions of this study, pre-test and post-test employed to measure the impact of paper-based feedback and e-feedback on students' writing. The impact of both types of feedback can be perceived from the reduction of errors from student's drafts. Finally, the post-test can help to find out the result of the impact of both types of feedback.

According to Cresswell (2008), the pre-test and post-test design in quasi-experimental designs was describes as follows:

Table 3.1

Pre-test and Post-test design

Time

Selected Control Group	Pre-test	No treatment	Post-test
Selected Experimental Group	Pre-test	Experimental treatment	Post test

Adopted from Cresswell (2008, p. 314)

3.2. The Variables

Cresswell (2008) mentioned that variable is a characteristic or attribute of an individual or an organization that (a) researchers can measures or observe, and (b) varies among individuals or organizations studied (p.123). Commonly, in educational research there are two kinds of variables, dependent variable and independent variable. Dependent variable is the variable that is influenced by the independent variable. Independent variable is the variable that influences or affects the outcome.

In this study which observed the impact of paper-based feedback and electronic feedback to improve students' writing skill in writing a descriptive text, the variables are:

- Dependent variable: Student's writing skill in writing a descriptive text.
- Independent variable: paper-based feedback and electronic feedback.

3.3. Research Subject

3.3.1. Population

Fraenkel J.R. et.al (2012) cited that population is the group of interest as the destination that the researcher would like to generalize the result of the study

(p.92). they also mentioned that in educational research, population is usually a group of persons (students, teachers, or other individuals) who posses specific characteristic and in some cases it can be defined as a group of classroom, schools, or even facilities (2012, p.92). Cresswell (2008), defined population is a group of individuals who have the same characteristic.

The first grade students of a senior high school in Cimahi are taken as population since it is done to the fact that in curriculum 2006, descriptive text is taught at the first semester of junior high school. It is also assumed that they have applied genre-based approach to English language teaching.

3.3.2. Sample

Fraenkel, J. R. et. al (2012) explained that sample is the smaller group of population, or the group on which information is obtained in the research study (p.91). The sampling technique used in this study was cluster random sampling technique. Cluster sampling was applied because there was difficulty in selecting the random sample of individuals due to the administrative of the school. Additionally, the cluster random sampling can be used when it is difficult to select random sample of individuals, besides, it is often easier to implement in school and also frequently less time-consuming (Fraenkel, J. R. et. al, 2012, p.96).

Based on that explanation, this study took three classes randomly as sample. Those three classes will be divided into two groups, 2 classes as experimental group, one class to apply paper-based feedback, one class to apply electronic feedback. The rest group will have no treatment or as a control group.

3.4. Research Instrument

In this study, there are some instruments that were used to collect the data. The device (such as pencil and paper test, a questionnaire, or a rating scale) the researcher uses to collect data is called an instrument (Fraenkel, J. R. et. al., 2012, p. 111). Thus, the instruments for this study were writing task and questionnaire. Writing task was used to measure student's ability in writing descriptive text. First of all, all the students were given the pre-test to measure their basic ability in

writing descriptive text before they receive either paper-based feedback or electronic feedback. after that, students received feedback from their teacher in different media. From the post-test, researcher can draw the result of the study. Then, questionnaire, it was distributed after conducting the post test to collect the information about students' responses toward the use of paper-based feedback and electronic feedback in teaching descriptive writing.

3.5. Research Procedure

The procedures of this study were gained by several steps that can be described as follow:

3.5.1. Trying out the research instrument by conducting the pilot test

The pilot test was conducted before the pre-test in order to observe the writing test as the instrument whether it is valid or not. Students who involved in this pilot test were assumed that they have already learned descriptive text.

3.5.2. Conducting the pre-test

The pre test was conducted in both experimental and control groups as the first meeting. This test aims to gather the data of students' basic writing sill and to ascertain that both groups have similar capability in writing skill before they receive the treatment. As Cresswell (2008) mentioned that pre-test provides a measure on some attribute or characteristic that researcher assess for participants in an experiment before they receive the treatment.

3.5.3. Conducting the treatment

After conducting the pre-test, the treatment was given to the experimental group only. The treatment is the implementation of paper-based feedback and electronic feedback. Time allocation for each meeting consisted of two hours instruction in which one hour instruction is forty minutes.

3.5.4. Conducting post-test

The next step of this study is conducted the post-test which aimedto measure the student' achievement in writing skill after receiving the paper-based feedback and electronic feedback. This post-test aimed to measure the differences of students' score between the experimental and control group.

3.5.5. Administering questionnaire

In questionnaire, the participants of this study were asked to respond to the questions by writing or, more commonly, by marking an answer sheet and it can be given to large numbers of people at the same time (Fraenkel et al., 2012, p. 125). The questionnaire was distributed for the experimental group only after performing the post-test. This purposed to collect the information of students' responses toward the use of paper-based feedback and electronic feedback in teaching descriptive text.

3.6. Data Analysis

The data of this study were analyzed through qualitative analysis. The data analysis were conducted to gain data in the form of writing performance test. Besides analyzing the data from the result of pre-test and post-test, the writer also analyzed 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 represents the basic aspect of writing. They are content, organization, vocabulary, language use, and mechanics aspects. In this study the scoring only focuses on organization aspect. Second, the score were calculated by applying the statistical analyses 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 computer programme of Statistical Product and Service Solution (SPSS)

After calculating the data from pre-test and post-test, the data from questionnaire were analyzed. The data were analyzed based on frequency students' answers. The result was calculated and interpreted into percentage.

3.6.1. Scoring Sheet for Writing Test

Students' writing text were analyzed using "The ESL Composition Profile" by Jacobs et.al. (1981). The scoring guide chosen as the criteria of scoring represents the basic aspect of writing. according to this scoring system, the appraisal towards students' composition work was based on five aspects of writing: content, organization, vocabulary, language use, and mechanics aspects. The score for each aspect ranges differently each other and it is classified into some criteria, such as the following:

a. Content

   The score for this aspect is ranging from 30 (the highest score or excellent) to 13 (the lowest score or very poor).

b. Organization

   The score for this aspect is ranging from 20 (excellent) to 7 (very poor).

c. Vocabulary

   The score is ranging from 20 (excellent) to 7 (very poor).

d. Language use

   The score for this aspect is ranging from 25 (excellent) to 5 (very poor).

e. Mechanics

   The score for this aspect is ranging from 5 (excellent) to 2 (very poor).

For more details, the table below provides the scoring standard of ESL Composition Profile from Jacobs, et. al (1981)

Table 3.2

The Scoring Standard of ESL Composition Profile

Aspect of Writing	Range	Score	Criterion
organization	20-18	Excellent to very good	Fluent expression. - Ideas clearly stated/supported - Succinct - Well-organized

			- Logical sequencing cohesive
	17-14	Good to average	Somewhat Choppy - Loosely organized but main ideas standout - Limited support - Logical but incomplete sequencing
	13-10	Fair to poor	Non-fluent - Ideas confused or disconnected - Lacks logical sequencing and development
	9-7	Very poor	Does not communicate - No organization - Or not enough to evaluate
Language Use	25-22	Excellent to very good	- Effective complex construction - Few errors of agreement, tense, number, word order/functions, articles, pronouns, prepositions
	21-18	Good to average	- Effective but simple construction. - Minor problems in complex constructions, several errors of agreement, tense, number, word order/functions, articles, pronouns, prepositions, but meaning seldom obscured.

	17-11	Fair to poor	- Major problems in simple/complex construction. - Frequent errors of negation, agreement, tense, number, word order/functions, articles, pronouns, prepositions, and/or fragments, runs-ons, deletions - Meaning confused or obscured.
	10-5	Very poor	- Virtually no mastery of sentence construction rules - Dominated by errors - Does not communicate - OR not enough to evaluate

Adopted from Jacob et al. (1981)

In this study, students' writing texts were analyzed specifically on the organization aspect. The organization aspect assesses the students' ability to introduce the beginning, establishes the connection and/or relationships between events, actions, details, and/or characters, and brings closure to the writing.

3.6.2. Pilot Test Data Analysis

In collecting the data, the researcher used a test as the research instrument. The test which was given before conducting the pretest named pilot test. This test aimed to examine the validity and reliability of the instrument used in this study. it was conducted before the pre-test. If student in the pilot test were able to complete the test and write based on the given instruction then it can be concluded that the instrument can be used as pre-test and post-test.

3.6.3. Pre-test and Post-test Data Analysis

The pre-test and post-test were given in the same procedures to the experimental and control group. A hypothesis was started with alpha level at 0.05. the data collected from the pre-test and post-test were computed using IBM SPSS Statistic for Windows. The result from the test in experimental group and control group were used to know the effectiveness of using paper-based feedback and electronic feedback in improving students' descriptive writing. it meant that the writer aimed to find a causative relationship between the independent variable and the dependent variable. In this study the writer involved a large group of participants and randomly assigned them into either experimental group or control group in order to minimize unequal variances.

There are several conditions that need to be fulfilled in analyzing the result of the research. Those are the normality of data distribution, the homogeneity of the data and the calculation of t-test.

3.6.3.1. Normality of Distribution Test

Normal distribution test was calculated in purposed to investigate whether or not the distribution of pre-test and post-test scores in groups were normally distributed. Saphiro-Wilk test formula in SPSS for Windows was used to analyze the normality of distributions. The steps are as follows:

1. Stating the hypothesis and setting the alpha level at 0.05 (two tailed test),
   H0 = The score of the experimental group and the control group are normally distributed.
   H1 = The scores of the experimental group and control group are not normally distributed.
2. Analyzing the normality distribution using Saphiro-Wilk test formula in SPSS for Windows.
3. Comparing the Asymp Sig. (probability) with the level of significance to test the hypothesis. If the Asymp Sig. is more than

the level significance (0.05), the null hypothesis is accepted; the score are normally distributed.

3.6.3.2. Variance Homogenity Test

To examine whether or not the score of the research was homogeneous variance, the homogeneity of variance test was conducted. The statistical calculation of variance homogeneity test used ANOVA Lavene test formula in SPSS for Windows by following these steps:

1. H0 = the variance of the experimental group and the control group are homogenous.
   H1` = the variance of the experimental group and control group are not homogenous
2. Analyzing the normality distribution using Lavene formula in SPSS for Windows.
3. Comparing the Asymp Sig. (probability) with the level of significance to test the hypothesis. If the Asymp Sig. is more than the level significance (0.05), the null hypothesis is accepted; the variance of the experimental and control group are homogenous.

3.6.3.3. T-test Calculation

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

1. Stating the hypothesis and setting alpha level at 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.
2. Calculating t-test score using SPSS Statistics.
3. Comparing t-obtained and t-critical. If t-obtained > t-critical, it means that the hypothesis is rejected, there is a significant

difference between two groups. In contrast, if t-obtained < t-critical, the hypothesis is not rejected; there is no significant difference between two groups.

3.6.3.4. Paired sample T-test

Paired t-test was used to find the differences between pre-test on post-test in each group. In this study, the paired sample t-test was analyzed using computation SPSS Statistics for Windows. The steps are as follows:

1. Stating the hypothesis and setting alpha level at 0.05 (two tailed test).
   H0 = there is no significant difference between students' writing score in pre-test and post-test score
   H1 = there is significant difference between students' writing score in pre-test and post-test score.
2. Calculating t-test score using SPSS Statistics for Windows.
3. Comparing t-obtained and t-critical. If t-obtained > t-critical, it means that the hypothesis is rejected, there is a significant difference between the scores before and after treatment. In contrast, if t-obtained < t-critical, the hypothesis is not rejected; there is no significant difference between the score before and after treatment.

3.6.4. Data Analysis on Questionnaire

Questionnaire used in this study in order to clarify the information and elaborate the data concerning the research question about the students' responses toward the use of paper-based feedback and electronic feedback in teaching and learning descriptive text. The data collected from the questionnaire were classified into two major aspects. They are students' responses toward writing subjects and students' responses toward the use of paper-based feedback and electronic feedback in writing descriptive text. The data from questionnaire were analyzed

based on the frequency of students' answer. The result will be calculated and interpreted into percentage.

The formula of percentage used is as follow:

$$P = \mathbf{f/N\ x100\%}$$

P = percentage

f = frequency

N = the sum of the sample

100 = constant

This chapter has presented the methodology of the research including research design, the variable, research subject, research instruments, research procedures, and data analysis. Then the findings and the discussions of the data collected will be explained in more detail in the next chapter.