

CHAPTER III

RESEARCH METHODOLOGY

This chapter discusses research design, research hypothesis, population and sample, data collection techniques, research procedures, research instruments, and data analysis.

3.1 Research Design

Experimental design was used to find out whether indirect feedback can reduce the number of grammatical errors made by students in writing an analytical exposition text. According to Creswell (2012) experimental design is traditional approach to conducting quantitative study (p. 21). Quantitative views a relationship between variables either by comparing groups, or by relating variable directly (Punch, 2009, p. 211). It is in line with Creswell (2012) who mentioned that an experiment used to establish possible cause and effect between independent and dependent variables (p. 295).

According to Creswell (2012) an experimental design is divided into two types, true experimental and quasi experimental (p. 307). In this research, quasi experimental was applied because both experimental and control groups were not chosen randomly (Creswell, 2012, p. 309). Thus, the research design can be described as follows.

Table 3.1 Research Design

Group Category	Pretest	Treatment	Posttest
Experimental Group	T ₁	X	T ₂
Control Group	T ₁	-	T ₂

Based on the Table 3.1, T₁ is a symbol for pretest given to the experimental group and the control group. Whereas X is symbol for treatment

given to the experimental group, in this case X stands for indirect feedback given in writing an analytical exposition. Meanwhile, T_2 used as a symbol for posttest, both control and experimental group were given this test. Furthermore, the result of pre-test and posttest were compared and analyzed to find out the effect of the treatment given.

3.2 Research Hypothesis

Hypothesis is important to be proposed in a quantitative research, because hypothesis is a preliminary overview of the research. Mertler and Charles (2008) noted that hypothesis is prediction about future events, existing differences among groups, or existing relationship among variables, so a hypothesis is succinct statements that forecast the findings of the research (p. 51). Hypothesis was made based on researcher's assumption about the result of the research.

This hypothesis can be accepted or rejected, so it is important to define a null hypothesis. According to Hatch and Farhady (1982, p. 4), null hypothesis can predict neither a positive nor a negative relationship between two variables. Therefore, the hypothesis must first turn into null hypothesis (H_0) along with the alternative hypothesis (H_a). It means the hypothesis was stated as follows.

H_0 = There is no significance difference between students in terms of grammatical errors number.

H_a = There is a significance difference between students in terms of grammatical errors.

Acceptance of null hypothesis based on the result of one way analysis of variance (ANOVA) is obtained from the number of grammatical errors in the control group and experimental group. The significance level for analysis in this research was set at $p < 0.05$. Thus, if the significance level for analysis in this research is similar or higher than 0.05, the null hypothesis (H_0) is accepted which

means that the use of indirect feedback doesn't give significance difference between students in terms of grammatical errors number. Otherwise, if the result is less than the significance level, the null hypothesis (H_0) is rejected which means that the use of indirect feedback give significance difference between students in terms of grammatical errors number.

3.3 Data Collection

3.3.1 Variable

Creswell (2012, p. 14) mentioned that variable is something that can be measured or observed by a researcher. Thus, a variable is usually described as characteristics or attributes of an individual or an organization. There are two kinds of variable in this research, independent variable and dependent variable. Creswell (2012, p. 115) also mentioned that the dependent variable is an attribute or characteristic that is dependent on or influenced by the independent variable. Thus, dependent variable in this research is grammatical errors. Meanwhile, the independent variable is an attribute or characteristics that influences or affects an outcome or dependent variable. Independent variable of this research is indirect feedback because this feedback is a treatment used in the experimental group.

3.3.2 Population and Sample

Creswell (2012, p. 142) stated that population is a group of individuals who have the same characteristics. Population can be small or large depend on what kind of group that will be studied. The population used in this research is senior high school students in grade XI. Senior high school students in grade XI were chosen as population because they have already learned about analytical exposition text.

Within this population, the researcher should select the sample of the research. Sample of study can be said as smaller group from the population (Creswell, 2012, p. 142). He also noted that it is important to select as large a sample as possible from the population to minimize sampling error. Thus,

researcher selects two classes of MIA students in one of senior high schools in Bandung district.

3.3.3 Research Instrument

According to Fraenkel & Wallen (2009) instruments are commonly provided the data, method in collecting data, who collects the data and what kind of response they require from the subject (p. 142). Thus, the subject of the study was assessed to obtain research data. This research is focused on the use of indirect feedback to reduce students' grammatical errors in writing an analytical exposition and also to find out students' response toward indirect feedback given as the treatment. Therefore, students' writing and questionnaires were used as instruments in this research.

After that, in the process of writing, indirect feedback used as a treatment in this research, and it was applied on students' writing in experimental group only. Meanwhile, control group did not receive any feedback. Afterwards, the questionnaire was distributed to all students in experimental group. The questionnaire consists of 15 closed-ended questions related to writing, feedback, and grammar. Closed-ended questions used because it is suitable for quantitative statistical analysis and leaves no room for subjectivity (Dornyei & Taguchi, 2010, p. 26). In addition, checklist type based on Likert scale was constructed in this instrument. This type was used because based on Dornyei & Taguchi (2010), it requires the respondent to make an evaluative judgment of the target by marking one of a series of categories organized into a scale (p. 26). Furthermore, those instruments were analyzed to answer the research questions.

3.4 Research Procedures

There are several steps that conducted in this research.

3.4.1 Procedure for Feedback Provision.

Indirect feedback was provided to the experimental class as treatment. As stated in the previous chapter, indirect feedback is a feedback using code, circle, or highlight indicates an error that made by students. However this research only focuses on three types of error, so these errors are indicated as follows.

1. Subject-verb agreement error: Yellow highlight
2. Noun error : Blue highlight
3. Articles error : Purple highlight

Meanwhile, the control group was not provided any feedback. Students from control group only asked to write and do self-revision toward their writings.

3.4.2 Conducting Pilot Test

A pilot test was conducted for students at the same grade, but these students are outside the control group and the experimental group. A pilot test was conducted to find out the reliability and validity of the instruments used in this research before the test was applied in a pretest. On the test, researcher asked students to write an analytical exposition text. Theme of writing, length of time, and length of writing was determined by researcher.

A pilot test was conducted to 10 students who were not included in the control group or experimental group, but these students were in the same grade as control and experimental groups. In the pilot test, students were asked to write an analytical exposition based on the instruction given. After that, particular errors (subject-verb agreement errors, noun errors, and articles errors) on students writing were marked using different color. Yellow highlight indicates error in subject-verb agreement, blue highlight indicates error in noun, and purple highlight indicates error in articles.

Furthermore, grammatical errors in students' writing were calculated to find out the impact of indirect feedback to reduce the number of errors made by students in the experimental group. Students' writing result on the pilot test shown

that the students were capable in writing an analytical exposition text based on instructions given.

3.4.3 Conducting Pretest

Pretest was conducted to find out the number of particular errors which occur in students' writing before the treatment. Pretest will reveal the number of grammatical errors made by students in writing an analytical exposition text. In this stage, the students were asked to write an analytical exposition text based on the instructions given.

3.4.4 Conducting Treatment

Treatment was conducted to find whether the number of particular errors still occur during the treatment. In this case, indirect feedback was given as treatment. Indirect feedback was given to students in the experimental group. Students from experimental group were asked to write an analytical exposition text and they also made several drafts in the process of writing.

Indirect feedback was also applied in the process of making drafts. Indirect feedback was a treatment used and applied by the researcher to answer the first research questions. Treatment was applied on drafting process because based on approach in the writing process, writing the first draft, revising, editing, and writing final draft are several steps that ideally should be applied in a writing process. Drafting and revising stages are the core of writing process (Brown, 1994, p. 336).

3.4.5 Conducting Posttest

Posttest was done to find out the number of particular common errors after treatment. In the posttest, both of students from the control group and the experimental group were asked to write an analytical exposition text. Posttest was conducted to identifying, classifying, and calculating the numbers of errors which occur after treatment.

Table 3.2 Research Schedule

No	Experimental Group	Control Group
1	Writing an analytical exposition text.	Writing an analytical exposition text.
2	Writing first draft based on the feedback given.	Writing first draft without any feedback given.
2	Writing second draft based on the feedback given.	Writing second draft without any feedback given.
3	Writing Final Draft based on the feedback given.	Writing Final Draft without any feedback given.
4	Writing new essay & answering Questionnaire	Writing new essay.

3.4.6 Questionnaire

Questionnaire was used to find out students' response toward indirect feedback given in the writing process. The questionnaires consist of 15 closed ended questions related to indirect feedback, writing, and grammar. Questions in the questionnaire were distributed into several aspects as follows.

Table 3.3 Questionnaire

Questions' Number	Writing Aspects Measured
3,4,7,8,10,14,15	Students' attitude toward indirect feedback.
1,2	The importance of writing
5,6,9,11,12,13	Grammatical error

3.5 Data Analysis

The procedures of analyzing the data comprised several steps:

1. Instrument analysis
2. Analyzing the number of particular grammatical errors made by students in the pretest and posttest.
3. Analyzing the average number of particular grammatical errors made by students in the pretest and posttest.
4. Conducting one way ANOVA test using SPSS Statistics 20.0
5. Analyzing the result data from the questionnaire.

3.5.1 Validity

Measuring validity of the instrument is very important because instrument is a tool for researcher to collect data. Measurement validity means the extent to which an instrument measures what is claimed to measure (Punch, 2009, p. 246). According to Punch (2009, p. 246), among the various approaches to the validation of instruments, the three main ones are content validity, criterion-related validity, and construct validity. Content validity focus on whether the full

content of ideas or concept is represented in the measure. In criterion – related, an indicator is compared with another measure of the same construct in which the researcher has confidence. Meanwhile, construct validity focuses on how well a measure conforms to theoretical expectations.

3.5.2 Reliability

Reliability of the instrument is also an important aspect to be measured. Reliability is a central concept to be measured (Punch, 2009, p. 211). An instrument can be considered as reliable if the instrument score is stable and consistent (Creswell, 2012, p. 159). It means the score of the instrument should be stable and consistent, although the same instrument was given at a different time to the same subject, under the same situation.

3.5.3 Analyzing the Occurrence of Errors

The occurrence of errors was identified from students' essay in the control group and the experimental group. Essay 1, final draft, and essay 2 were used to determine the number of errors in each essay. Errors from essay 1, final draft, and essay 2 were classified based on the categories of errors such as subject-verb agreement errors, article errors, and noun errors. 180 essays were analyzed from 60 participants, from the control group and the experimental group.

Furthermore, to find out whether the number of grammatical errors were reduce or not in each essay, researcher made a comparison table (see Appendices) to measure the effect of indirect feedback on students' writing. This table recorded the number of errors made by each student in both group and the mean number of errors for each group (essay 1, final draft, and essay 2). Indirect feedback will show a positive effect if the number of grammatical errors in students' writing decrease.

3.5.4 One Way Analysis of Variance (ANOVA)

The one-way analysis of variance (ANOVA) is used to determine whether there are any significant differences between the means of two or more independent (unrelated) groups (Land & Land, 2013). In this research, one way ANOVA was used to find out the significance level of grammatical errors number between groups. The ANOVA result will show whether indirect feedback can give significance differences toward students' writing, in terms of grammatical errors' number.

The significance level on this research was set at $p < 0.05$. Thus, students' grammatical errors were analyzed both in the control group and the experimental group. According to Fraenkel & Wallen (2012, p. 236) when only two groups are being compared, the F test is sufficient to tell the researcher whether significance has been achieved. Therefore, one way ANOVA test was performed to determine the number of grammatical errors between groups on each stage of the writing.

3.5.5 Variance Homogeneity

Equality of variance was calculated using one way ANOVA. The homogeneity of variance score was calculated after the hypothesis stated in the first step. The result of homogeneity test was compared with the level of significance at 0.05. If the significance level is < 0.05 , it means the variance of the data is not homogenous. In contrary, if the significance level is > 0.05 , the variance of the data is homogenous.

3.5.6 Analyzing the Questionnaire

Questionnaire is the last step to collect the data. Likert scale was used to construct the questionnaire. The data from questionnaires were interpreted and analyzed based on the frequency of students' answer. Moreover, percentile formula also

used to analyze the questionnaire data. According to Hatch & Farhady (1982, p. 46) the percentile formula is formulated as follows.

$$P = 100 \times \frac{F}{N}$$

P = Percentile

F = Frequency of students' answer

N = Respondent

3.6 Concluding Remark

This chapter already discussed research design, research hypothesis, population, sample, data collection techniques, research procedures, research instruments, and data analysis.