

CHAPTER III

RESEARCH METHODOLOGY

This chapter describes the design of research methodology applied in the present research. It covers research design, variables, research hypothesis, population and sample of the research, research instrument, data collection process, research procedures and data analysis.

3.1 Research Method

The content of this part is about research design and variable of this research that will be described below.

3.1.1 Research Design

The research method used in this research was quasi-experimental design. It investigates whether video could help a teacher to improve students' writing procedural text. There were two classes taken as the subject groups in this research. The first group was the experimental group, which was given the treatment of the research, while the second group was the control group, which was given general method of teaching, i.e picture in the textbook.

According to Hatch and Farhady (1982), there are two groups in the research as explained in nonequivalent-groups design; experimental and control group, both groups have the same level but it is used different method of teaching in the teaching learning process. Thus, this research focused on nonequivalent-groups design since both groups were not chosen randomly. The formula of the design is shown in table 3.1 as follows:

Table 3.1

The Experimental Design

Groups	Pretest	Treatment	Posttest
Experimental	T ₁ E	X	T ₂ E
Control	T ₁ C	-	T ₂ C

Where,

T₁E : Pretest for experimental group

T₂E : Posttest for experimental group

X : Treatments

T₁C : Pretest for control group

T₂C : Posttest for control group

(Hatch and Farhady, 1982)

From the table above, both groups were given same test; pretest and posttest but they got different treatments. For the experimental group, the treatment was given is *video* technique, while for the control group was given general method of teaching.

The aim of this research was to find out whether the students who were given the

treatments as *video* could get higher score than using general method or conventional technique.

3.1.2 Variables

There are two variables which were investigated in this research. They are:

1. **Independent Variable.** The independent variable is the variable which influences dependent variable (Coolidge, 2000). For this research, video technique was chosen as the independent variable because this technique is the major variable to be investigated. Besides that, it is selected, manipulated, and its impact will be measured by the researcher (Hatch and Farhady, 1982).
2. **Dependent Variable.** The dependent variable is the variable that will be affected by independent variable (Coolidge, 2000). Students' procedure text writing ability will be dependent variable. This variable is observed and measured to determine the effect of the independent variable (Hatch and Farhady, 1982).

3.2 Research Hypothesis

In this research, as in any other researches, hypothesis is one of important aspects. It is because of its ability to predict or temporarily answer the research problems. According to Hatch and Farhady (1982), hypothesis can be described as

the tentative statement about the outcome of the research. For this research, there are two hypothesis taken which are null hypothesis and alternative hypothesis.

Null hypothesis is when no significant difference between the posttest means of control and experimental group after applying the treatments. Whereas, the alternative hypothesis is when there is significant difference between the posttest mean of control and experimental group after applying the treatments. The formula is stated below:

$$H_0 : \mu \text{ control} = \mu \text{ experimental}$$

$$H_a : \mu \text{ control} \neq \mu \text{ experimental}$$

3.3 Population and Sample

According to Levine and Stephen (2005), population is all members of a group from which you want to get a conclusion. From the definition, the population of this research was the whole students of the first grade in one SMPN in Bandung. The first grade of this SMPN consisted of 270 students, spread into 9 classes.

This grade was chosen as population because procedural text was taught in their second semester of teaching learning process. Because of the number of population was too large to be accessed, in this study, the writer took two classes as the sample. According to Coolidge (2000), sample is a smaller group of scores selected from the population of scores. The first class consisted of students of 7B

which was chosen as experimental group. During the execution of the research, this class was given the treatment of *video* technique. The other class consisted of students of 7C was chosen as control group which did not receive any experimental treatments.

These groups were chosen by teacher's value which explained that both groups are homogenous and the samples have not been given any treatments of *video* in writing procedural text yet. To anticipate the absence of some students during the study, the researcher only took 15 students from each class as the sample. Therefore, the total number of the sample was 30 students.

3.4 Data Collection

In order to achieve a reliable research, data collection plays a very important role and to achieve reliable data proper instruments were needed. Fraenkel and Wallen (2007) described that instrumentation is the whole process of collecting data in a research. For this research, written test and interview were the instruments used.

The purpose of each instrument was different. Written test consisted of pretest and posttest that were given to both groups, experimental and control, in written form. The purpose was for answering the first research question.

Pretest was held in the first meeting. This test was given to both groups to get the data of the writing ability before conducting the treatments and the general method of teaching. In the other hand, the aim of posttest which was held in the last

meeting was to examine if there was any significant difference between the results of the written test from both groups after one of the group using the treatments. Moreover, this test was held to find out if the use of *video* in teaching writing procedure text was effective or not.

Another instrument was interview which consisted of 6 questions. It was given to the group who got the treatment. This instrument was held to investigate the students' perception about the treatment given, which is the use of *video* in teaching procedural text. The interview was given in the last meeting after the posttest.

3.5 Research Procedures

The research was held from April 17th to May 1st of 2013. The steps of the research procedures were as follow. The first was preparing the lesson plan. The second was preparing the material. The third was trying out the instruments whether the test given was valid or reliable for the chosen students named pilot-test. The fourth was giving the pretest to experimental and control group. The fifth was giving the treatment and teaching experimental group how to write procedural text using video, and giving general method of teaching to the control group. The sixth was giving posttest to both groups to get result which was different or not. The last was holding the instrument, interview to strength the result of the posttest.

3.5.1 Preparing the Lesson Plan

The design of lesson plan was held for 6 meetings. The first and the last meeting were held the pretest and the posttest while the 4 meetings were held to apply the treatment for groups, experimental using video and control group using conventional technique. The lesson plan was designed based on the National curriculum of English for seven grade students which consists of competence standard, basic competence, indicator, instructional objective, and lesson materials. In addition, method/ technique, steps of the activity, source lesson, and the evaluation are also involved.

3.5.2 Preparing the Material

The materials given to the experimental group were taken from Youtube, www.youtube.com. However, the materials for control group were from some book source about procedural text, such as English on Sky 1 for Junior High School Students Year VII by Mukarto, Sujatmiko, Murwani and Kiswara (2007) and other sources suggested by English teacher in the school.

3.5.3 Administering Pilot Test

Pilot-test was held for testing the test whether the test was valid and reliable to be tested for seven grade students. The test given was same as pretest and posttest which the students asked to write procedure text based on the task given. The test was

given to 10 students excluding the experimental and control groups. It was conducted on a week before pretest held.

3.5.4 Administering Pretest

After holding the pilot test and finding the validity and reliability of the result of the instrument, the pretest was conducted at the first meeting of the research, on April 17th 2013. The aim of this test is for getting the data about the basic writing skill of the students and to find out that the students from both group had same capability and same English proficiency before given the instrument.

3.5.5 Conducting Treatment

In this school, English subject had different schedule that other school. It was held three times in a week. For the schedule, treatment was conducted for four meetings to both groups with different technique in which meeting lasted for 2x40 minutes. The treatment that conducted in experimental group was video of the procedural text. On the other hand, control group was giving the conventional technique as teaching learning media. The time schedule can be seen in table 3.2:

Table 3.2
Time Schedule of the Research

No	Experimental Group		Control Group	
	Date	Material	Date	Material
1	April 17 th , 2013	Pretest	April 17 th , 2013	Pretest
2	April 18 th , 2013	Video: how to make a sandwich Identify information about video	April 19 th , 2013	Picture: how to make a sandwich Identify information about picture
3	April 22 nd , 2013	Video: how to make banana split Identify generic structure and language feature then make a procedural text	April 22 nd , 2013	Picture: how to make banana split Identify generic structure and language feature then make a procedural text
4	April 24 th , 2013	Video: how to make instant noodle Collaborative writing	April 24 th , 2013	Picture: how to make instant noodle Collaborative writing
5	April 25 th , 2013	Video: how to make egg scramble	April 26 th , 2013	Picture: how to make egg scramble Make procedural

		Make procedural text using their own recipes		text using their own recipes
6	April 29 th , 2013	Posttest	April 29 th , 2013	Posttest

The treatment given to experimental group was administered by asking students to watch the video about procedural text and make a procedural text based on the topic about. The video given could stimulate students to have an idea to make procedural text and applied them into written task.

3.5.6 Administering Posttest

The last meeting of the research was posttest which be held to both groups. The test was same with pretest. It was conducted to measure the students' writing skill about procedural text after receiving treatment. It also aimed to find out the different of the students score of both groups.

3.5.7 Administering Interview

The interview was giving to experimental group to investigate their perception towards the use of video in writing procedural text, about the difficulties and the advantages of the video. The questions of the interview were presented in the appendix B.

3.6 Scoring Rubric

In this research, the data of pretest and posttest would be analyzed by scoring sheet because the test was form in written test document. The criteria of scoring sheet in this research were developed by Rose (2007). The aimed was to measure the result of pretest and posttest. The scoring sheet can be seen in the appendix B.

3.7 Data Analysis

In this case, the data which was collected by using the instruments would be analyzed. The data that would be processed was conducted on the pretest and posttest scores. On the other words, there are three kinds of analyses was carried out. First is test instrument analysis to know the validity and reliability of the instrument. Second, pretest and posttest analysis were used to measure the normality distribution, homogeneity of variance and t-test. Third, effect size calculation is to find out the effect of independent variable upon the dependent variable.

3.7.1 Test Instrument Analysis

According to Heaton (2003), an appropriate test should have three requirements, such as: (1) validity; (2) reliability; and (3) practical. The research instrument test for collecting data should be considered those three aspects. From the requirements above, pilot test of the instrument was conducted to another class exclude experimental and control group with the same grade include 10 students.

3.7.2 Pretest and Posttest Data Analysis

The data of pretest and posttest scores were statistically analyzed using Minitab 14. The calculation included normality distribution, homogeneity variance, t-test and effect size. The data analysis is presented in detail as follow:

3.7.2.1 Normality Distribution

The first part that should be analyzed was the normality distribution. The first step in calculating the normality distribution test, there are explanations about hypothesis:

H_0 = the scores of the experimental and the control groups are normally distributed.

H_1 = the scores of the experimental and control groups are not normally distributed.

The second step in calculating the normality distribution test is to determine the significance level in the level $\alpha = 0.05$. According to Hatch and Farhady (1982), the level significance criterion for normality distribution states that if the probability > 0.05 , H_0 is accepted. In contrast, if the probability < 0.05 , H_0 is rejected. On the other words, if the probability is more than the level of significance (0.05), the null hypothesis is accepted and the score are normally distributed.

3.7.2.2 Homogeneity Variance

After getting the result that the pretest and posttest were normally distributed the next step was analyze its homogeneity. The test used to measure the data which

are homogenous or not is using Levene's test for equality of variance in Minitab 14 was used. There are explanations about hypothesis:

H_0 = the scores of both experimental and control groups are homogenous.

H_1 = the scores of both experimental and control groups are not homogenous.

The second step as stated by Hatch and Farhady (1982) is to determine the significance level in the level $\alpha = 0.05$. The level significance criterion for homogeneity test states that if the probability > 0.05 , then H_0 is accepted. In contrast, if the probability < 0.05 , H_0 is rejected.

In conclude, if the data do not have normal distribution, the *Mann-Whitney* test will be operated to test the hypothesis. The writer also used Minitab 14 to calculate the result.

3.7.2.3 T-test

The third part of pretest and posttest data analysis is t-test. There are two kinds of t-test. The first is independent t-test. There are explanations about hypothesis:

H_0 = there is a no significant difference between the control and experimental scores.

H_1 = there is a significant difference between the control and experimental groups scores

According to Hatch and Farhady (1982), the level significance criterion for independent t-test states that if the P-value > 0.05 , H_0 is accepted. In contrast, if the P-value < 0.05 , H_0 is rejected. On the other words, if the P-value is less than the level of significance (0.05), H_1 is accepted and the variances are significantly different.

The second is dependent t-test. This kind of t-test was also calculated to certify that there is a significant difference between the pretest and posttest score in experimental group. According to Coolidge (2000), dependent t-test is used to analyze the difference between two groups' means in experimental design where in both groups are related to each other in some way.

3.7.3 The Calculation of Effect Size

According to Coolidge (2000), the effect size is the effect of independent variable upon the dependent variable. Coolidge also states that effect size has positive correlation to its value. In other words, if the difference between the two groups' mean is large, the effect size will be large too. In contrast, if the difference between the two groups' mean is small, the effect size will be small too.

In order to determine the effect size in the independent t-test, a correlation coefficient of effect size can be derived as follows:

$$r = \sqrt{\frac{t^2}{t + df}}$$

Where:

r = effect size

t = t_{obt} or t_{value} from the calculation of independent t-test (post-test score)

df = degree of freedom

To interpret the computational result, the following scale was use as guidance in determining the effect size on dependent variable.

Table 3.3
Effect Size Scale

Effect Size	r value
Small	.100
Medium	.243
Large	.371

Coolidge (2000)

3.7.4 Analysis of data from Interview

In analyzing data from interview, the researcher transcribed the data from interview into the written text. Then, categorizing the data of the interview related to the students' perceptions toward the use of video in improving their writing skill. Next step was reducing in appropriate data to make it easier in interpreting the data for answering the research questions.

The analyzing of interview used this below percentage formula:

$$P = \frac{fo}{n} \times 100\%$$

Where: P = Percentage

f_o = Frequency observed

n = Number of sample

(Riduwan, 2009)

