

CHAPTER III

RESEARCH METHODOLOGY

This chapter explains the methodology of the research. It provides the information about research design, site, and participants, the procedures of collecting and analyzing the data.

3.1 Research Design

The quasi experimental design was used to get the empirical data in investigating the use of pictures to improve students' ability in writing descriptive text. Empirical data is data that is produced after a procedure has taken place such as an experiment or investigation. Since this study used the quasi experimental design, there were two groups taken as the investigated groups. The first group is the experimental group, which was given the treatment by using pictures, while the second group is the control group, which was given mind mapping techniques as the treatment. Furthermore, two kinds of test were conducted in this study, those were pre-test and post-test. The following is the design adapted from Hatch and Farhady (1982:21):

Table 3.1

Quasi- Experimental Design

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

(Adapted from Hatch and Farhady ,1982:21)

Where

- T_{1E}** : students' writing scores of the experimental group on pretest
T_{1C} : students' writing score of the control group on the pretest
X₁ : treatments using pictures for experimental group
X₂ : treatments using mind mapping for control group
T_{2E} : students' writing scores of the experimental group on posttest
T_{2C} : students' writing scores of the control group on posttest

The table 3.1 above presents both groups that were given pretest and posttest, but they received the different treatments. The use of pictures was administered as the treatments in the experimental group, while the use of mind mapping was administered in the control group. The purpose of the study is to find out whether the students who are given treatment by using pictures through GBA could achieve a higher score than those students who are given another treatment.

3.1.1 Variables

Two variables were used in this quasi experimental research; those included both independent and dependent variables. According to Coolidge (2005:15), independent variable is the variable which influences dependent variables; meanwhile a dependent variable is the variable that will be affected by independent variable. In the study, the use of pictures is the independent variable which was the major variable selected, manipulated, and measured by the researcher. Meanwhile, students' ability in writing descriptive text is the dependent variable which was observed and measured to determine the effect of the independent variable.

3.2 Research Hypothesis

According to Hatch and Farhady (1982: 85-86), hypothesis can be considered as the tentative statement about the outcome of the research. It is one of important aspects in conducting a study since it is used to predict the temporary answer of the research questions. Furthermore, this study takes null hypothesis and alternative hypothesis. The null hypothesis states that there is no significant

difference between the posttest mean of control and experimental groups after the treatments. While, the alternative hypothesis states that there is significant difference between the posttest mean of control and experimental groups after the treatments. The following is its formula:

$$H_0 : \mu_{\text{control}} = \mu_{\text{experiment}}$$

$$H_a : \mu_{\text{control}} \neq \mu_{\text{experiment}}$$

3.3 Population and Sample

According to Levin and Stephen (2005: 5), *cited* in Mahdiawati (2012), population is all members of a group which you want to draw a conclusion. Population of this study was the tenth graders of Senior High School in Bandung. The tenth graders of one of senior high school in Bandung consist of ten classes in which the total population was about 400.

The selection of sample was based on the following considerations; 1) descriptive text is taught in tenth graders of Senior high school; 2) the two groups have the same number of students (42 students); 3) the two groups were chosen by a teacher's judgment which explains that both groups are homogeneous. Besides, the study was conducted in one of senior high school in Bandung. There are three reasons of choosing this research site. First, this research site was accessible in gaining permission to enter the site of the study. Creswell (2012) stated that "to research problem, investigators need to gain permission to enter a site and to involve people at the location of study" (p.61). Second, the school has language program which the students became the participants in this study. In this study, the researcher wanted to investigate the existence of language anxiety in writing English experienced by language program students in which has more time allocation in English than other programs. Third, the researcher had been familiar to this site. Since the researcher had been familiar to the situation and condition of the site, thus the researcher could adapt easily to the surroundings and the students (Creswell, 2012, pp. 210-211).

3.4 Data Collection

In gathering the data, the researcher used three main steps as stated below:

1. Preparing and organizing lesson plan
2. Making research instrument:
 - a. The instruction of writing test
 - b. The questions list for interview
2. Implementing the Lesson Plan (Teaching Phase)
 - a. Administering pilot test. It aims to examine the test whether the writing's instruction was appropriate or not.
 - b. Administering the pretest is to investigate students' writing score before treatments
 - c. Conducting teaching-learning process using pictures through GBA method in writing descriptive text (giving treatments).
 - d. Observing students' responses to the use of pictures through GBA in teaching writing descriptive text.
 - e. Administering the posttest to know the result of students writing score after given the treatments
 - f. Conducting the interview to gather further information about students' responses toward the use of pictures through GBA method in writing descriptive text.

3.5 Research Procedures

This study was conducted from September 11th 2013 to October 1st 2013. The researcher organized the research schedule of procedures to make it well organized. The research schedule can be seen in table 3.2 and was interpreted in the next section.

Table 3.2
The Research Schedule

No.	Date	Activity	
		EG (Pictures)	CG (mind map)
1	Wed, September 11 th 2013	-	Pretest
2	Thursday, September 12 th 2013	Pretest	-
3	Friday, September 13 th 2013	-	Treatment 1 Describing human physical appearances 1
4	Monday, September 16 th 2013	Treatment 1 Describing human physical appearances 1	-
5	Wed, September 18 th 2013	-	Treatment 2 Describing human physical appearances 2
6	Thursday, September 19 th 2013	Treatment 2 Describing human physical appearances 2	-
7	Friday, September 20 th 2013	-	Treatment 3 Describing human physical appearances 3
8	Monday, September 23 th 2013	Treatment 3 Describing human physical appearances 3	-
9	Wed, September 25 th 2013	-	Treatment 4 Describing human physical appearances 4
10	Thursday, September 26 th 2013	Treatment 4 Describing human physical appearances 4	-
11	Friday, September 27 th 2013	-	Treatment 5 Describing human physical appearances 5
12	Monday, September 30 th 2013	Treatment 5 Describing human physical appearances 5	-
13	Tuesday, October 1 st 2013	Pilot test + Interview	Pilot test

1. Administering the pilot test

The first step of this research was conducting a pilot test. This test was conducted to measure the validity and the reliability of the instrument before it is used in the study. This pilot test was administered to 10 students of tenth grade of Senior High School which were not included to the experimental group but had already learned descriptive text. Theme of the descriptive text was “my idol”.

2. Administering the pretest

The pretest was conducted on September 11th - 12th 2013. It was administered to the experimental and control group in which each group consists of 42 students. This pretest was aimed to measure students' prior ability in writing descriptive text.

3. The Treatments

In conducting the treatments, the researcher played a role as a teacher who taught writing descriptive texts using pictures.

The treatments were given in five meetings which lasted in 90 minutes for each meeting. The treatments which used pictures in teaching and learning process were discussed below:

- **Treatment 1: Describing human physical appearance (part1)**

Regarding the methodology used in administering this treatment, this first treatment applied the first stage of Genre Based Approach (GBA) method that is BKOF.

First of all, the researcher who acted as teacher distributed some texts related to the topic. The topic was “superstar”. Next, the teacher asked students to read the text. Before reading the text, students were asked to get the important information. After reading, teacher proposed some questions to students related to the text they read. Then, the teacher presented some examples of expressions used in descriptive text. In this step, students were encouraged to identify the expressions and some terms that were related to the topic. Lastly, teacher asked

students to identify some expressions and terms from new texts by used pictures. The detailed activity was available in a lesson plan of the first meeting. (see Appendix A)

- **Treatment 2 : Describing human physical appearance (part2)**

On the second treatment, teacher continued to administer the next step of GBA, which was modeling. Besides, before the teacher continued the stage, she reviewed some materials that were discussed in the previous meeting. Secondly, the teacher explained the organization structure and also the language features of descriptive text. The teacher asked students to analyze the text together. Next, the students were asked to analyze the text individually. (see Appendix A)

- **Treatment 3: Describing human physical appearance (part3)**

On the third treatment, the teacher began the class by reminding the students to the previous material. In this case, the teacher reviewed some materials and activities that were done by students.

After that, the teacher continued the material that was learned in the previous meeting. Teacher showed the students the pictures related to the topic and invited them to discuss them. Lastly, the teacher gave them exercises of learning adjective phrases. (see Appendix A)

- **Treatment 4: Describing human physical appearance (part4)**

In this treatment, teacher began the class by reviewing what students had done in the last meeting. Next, teacher asked students to work in groups of 3-4 people and gave them different pictures to each group. In this activity, students were only given 40 minutes to write a descriptive text related to the picture given. After they finished it, students were asked to do the peer-correcting. During this activity, teacher asked students to deliver the difficulties of writing descriptive text. (see Appendix A)

- **Treatment 5: Describing human physical appearance (part5)**

In the last treatment, teacher involved students to discuss some difficulties and some tips in writing descriptive text. After that, teacher gave students some pictures and asked them to make a descriptive text based on the picture chosen. The detailed activity can be looked at the lesson plan. (see Appendix A)

4. Post test

The posttest was conducted to measure the influence of the treatments, whether there was any significant difference between the control and experimental groups in which both of them received different treatments.

5. Administering observation

This observation was conducted during the treatments given. This instrument used to investigate the students' responses towards the use of pictures in teaching descriptive text. This checklist was filled by the collaborator who observed the students' behavior during teaching and learning process.

6. Conducting the interview

The structure interview was administered to the experimental group. It aimed to get the fixed range of answers (Corbetta: 2003, p.269). The close-ended questions that were asked to the respondents referred to the implementation of pictures in writing activity. It consisted of eight questions, related to the students' responses to the use of pictures, the interesting activities, the advantages of the technique, students' difficulties and students' strategy in solving the difficulties.

The interview questions are formulated based on the current research in which it aims to know the students' responses toward the implementation of technique. (see Appendix B)

3.6 Data Analysis Procedures

3.6.1 Scoring Procedures

In obtaining the data, the criteria of assessing writing is an important thing to be provided as a guideline to measure students' scores. These criteria should be explained clearly to get the valid score. According to Rose (2007:9-30), there are five aspects that should be included in writing scoring rubrics including genre, register, discourse, grammar, and graphic feature. The point of each aspect is in range of 1 up to 20 in which the total maximum score is 100. The detailed criteria of this scoring procedure can be looked at this following table.

Table 3.3
Writing Rubric

Writing Aspects	Criteria	Score
Genre	The organization text completely consists of identification and description in which it is appropriate to elements of organization structure of descriptive text.	1-20
Register	The availability of appropriateness, clarity and complexity of language features, context, and its addressee.	1-20
Discourse	The writer constructs the meaning by using good connection, coherency, suitable references, and expressive ideas.	1-20
Grammar	Consists of whole aspects of grammar, such as tenses, verb-agreement, sentence construction, the use of adjectives, etc.	1-20
Graphic feature	This aspect includes the spelling, neatness in presenting the writing, such as margins, spacing, and ordering.	1-20
	Total maximum score	100

(Rose, 2007)

3.6.2 Data Analysis Procedures of Pilot test, Pretest, Posttest, and Interview

As the interrelated steps, data analysis is the step that is used after collecting the data (Creswell, 2012). It has been explained previously, there were four steps of analyzing the collected data in this study. Firstly, pilot test's score was analyzed to examine the validity and reliability of the instruments. Secondly, students' score in pre-test and post-test were calculated by using independent *t-test* to know significance difference between both of experimental and control groups. Thirdly, paired *t-test* was used to analyzed the effectiveness of the implementation numbered head together by comparing means score on pretest and posttest. Lastly, the result of observation and the transcription of interview were interpreted to get additional information in order to answer the second research questions. The following is the detail explanation of each test.

3.6.2.1 Pilot Test Data Analysis

In this study, the obtained data from pilot test was analyzed to examine the validity of instructions of instruments used in pretest and posttest.

3.6.2.2 Pretest and Posttest Data Analysis

In analyzing data from pretest and posttest, dependent *t-test* is used to compare the means' difference between both tests. Regarding Hatch and Farhady (1982), dependent *t* test is used to investigate the significance of means between pretest and posttest score.

In this study, SPSS 20.0 for Windows was used to calculate the dependent *t-test*. After obtaining the t_{obt} , it was then compared to *t* table. If the result showed that $t_{obt} \geq t_{table}$ ($p=0.05$), then it means the mean's score of pretest and posttest are not significantly different and null hypothesis (H_0) is accepted. Besides, if $t_{obt} < t_{crit}$, then it means the means were significant and the null hypothesis is rejected (Kranzler and Morsound, 1999).

However, before the output data was analyzed in *t*-test, it should fulfill some following criteria as cited in Coolidge (2000):

1. The data should have a normal distribution
2. The variance of two groups must be homogenous
3. The participants must be different in each group

Departing from three criteria above, the performing of normal distribution, variance homogeneity test and independent *t*-test is coming first before calculating data by using *t*-test formula. If the data was not in normal distribution, then the *Mann-Whitney* test would be operated to test the hypothesis.

1. Normality Distribution

Normality distribution is one formula used to analyze whether the data is in normal distribution or not (Kranzler, 1999). In this study, it was used to check the normality distribution of pretest and posttest score in both of groups. Furthermore, it is used to find out whether or not determined hypothesis was accepted.

There are two steps in analyzing the normality distribution of data. It included in formulating the hypothesis of normality distribution case and determining its significance level. The following was the first step in which the null and alternative hypothesis stated in analyzing the normality distribution of pretest and posttest score.

H_0 : the scores of the experimental and control groups are normally distributed

H_a : the scores of the experimental and control groups are not normally distributed

The second step was determining the significance level of normality data in which $\alpha = 0.05$ is chosen. Based on the level of significance, there was criterion stated that if the probability > 0.05 , H_0 is accepted. Whereas if the probability < 0.05 , H_0 is rejected (Hatch & Farhady, 1982:88). As a result, if the H_0 is accepted, then the score is normally distributed.

2. The Variance of Homogeneity

After finding out that the pretest and posttest score were normally distributed, the next step was analyzing the variance of homogeneity. In this case, Levene's test for equality of variance in SPSS 20.0 was used to examine whether the data homogenous or not.

In detail, the first step did in analyzing the homogeneity was determining the hypothesis as follow:

H_0 : the scores of both experimental and control groups are homogenous

H_a : the scores of both experimental and control groups are not homogenous

After determining the hypothesis, the second step was determining significance level in the level $\alpha = 0.05$. Based on the level of significance, there was criterion stated that if the probability > 0.05 , H_0 is accepted. It means that the variance is approximately equal. While, if the probability < 0.05 , H_0 is rejected and it means that the variance are significantly difference (Hatch & Farhady, 1982:88).

In addition, if the data is not normally distributed, Mann-Whitney test was administered to test the hypothesis and SPSS 20.0 will be calculated the result.

3. *t*-test Computation

t-test is the common statistical test used in the educational research. It aims at determining whether or not the means of both experimental and control groups have differences statistically in significant degree (Kranzler & moursund, 1999). There were two kinds of *t* test including independent *t*-test and dependent *t*-test.

4. Independent *t*-test

Analyzing independent *t*-test was administered after all data from normality distribution and homogeneity revealed. It was used to analyze statistically the relationship between independent variables and dependent variable in both of experimental and control groups (Coolidge, 2000).

There were some significant criteria in analyzing independent t -test, as follow:

1. The level of significant is $\alpha = 0.05$
2. Analyzing the independent t -test by using SPSS 20.0
3. Determining t -test hypothesis.
 - a. $t_{obt} < t_{crit} = H_0$ is accepted and there is no significant difference between both of groups in pretest mean.
 - b. $t_{obt} > t_{crit} = H_0$ is rejected and there is significant difference between both of groups in pretest mean.

5. Dependent t -test

Dependent t -test was administered to analyze the difference of mean between the score of both pretest and posttest of each group (Kranzel & Moursund, 1999). In case, the dependent variable must have normal distribution and homogeneity in each group.

There were also some significant criteria in analyzing dependent t -test, as follow:

1. The level of significant is $\alpha = 0.05$
2. Analyzing the dependent t -test by using SPSS 20.0
3. Determining t -test hypothesis.
 - a. $t_{obt} < (\alpha) 0.05 = H_0$ is rejected and there is significant difference between both of groups' means.
 - b. $t_{obt} > (\alpha) 0.05 = H_0$ is accepted and there is no significant difference between both of groups' mean.

6. Effect Size

After analyzing data through t -test computation, the effect size computation was administered to check the effect level of treatments by using SPSS 20.0 from independent t -test of posttest (Coolidge, 2000). It statistically was used to determine the significance effect of the treatments given to experimental group. The following was effect size formula:

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

Based on the formula above, t refers to the t value obtained from independent t -test in calculating posttest data. After that, the df was the amount of samples in which it was minus by 2 ($df = N - 2$). Lastly, the obtained data was analyzed by using Effect Size Scale. (Coolidge, 2000)

Table 3.4

Effect Size scale

Effect size	r value
Small	0.100
Medium	0.243
Large	0.371

3.6.2.3 Observation and Interview Data Analysis

Observation was used to collect the quantitative data in this study. The observation checklist was chosen to assess the students' learning behavior. It is used to observe students' activities during the learning process. This observation checklist was filled in by a collaborator in this study in which she is a school English teacher. The observation checklist which is used in this research was adapted from Harris' scoring rubric (1969) and Brown's analytic scoring scheme (2004). It involves some statements related to students' responses, such as the seriousness of students during the learning process, the enthusiasm of students in doing the tasks, and the students' participation in the classroom. Moreover, there were three indicators that were used to describe the students' responses towards the treatments given. Those were high, medium and low. (see Appendix B)

The obtained data from this observation was interpreted and supported by data obtained from the interview. The interview consists of some questions related

to the use of pictures in teaching writing descriptive text (see appendix B). It was only administered to students of experimental group. Specifically, an interview was conducted to answer the second question in research question that was in order to find out the factors which influence the effectiveness of using pictures in teaching descriptive texts to improve students' writing skill.

