

CHAPTER III METHODOLOGY

This chapter discusses the methodology related to this study. It discusses research design, research site and participant, research instrument, stage in collecting the data, and data analysis.

3.1 Research Design

The research design used in this study is a quasi-experimental design. The quasi-experimental design is an experiment in which units are not assigned randomly (Cresswell, 2008). It was employed to answer the first research question to see the effectiveness of photographs in writing descriptive text by comparing the scores of pretest and posttest in experimental group and control group. In this study, the students in the experimental group were taught by using photographs and those in the control group were taught with regular method. The following is the schematic table for this quasi-experimental design.

Table 3.1

Experimental Design Used in this Study

Experimental group	Pretest	X (treatment with photographs)	Posttest
Control group	pretest	Treatment without photographs	Posttest

Pretest and posttest were administered to measure the improvement of students' ability in writing descriptive text. The pretest is used to find out the students' preliminary ability, whereas the posttest is used to see how far the improvement of students' writing ability after the treatments. In addition, to answer the second research question about to what extent the use of photographs improves the students' ability in writing descriptive text, it used the score of

students' writing in pretest and posttest. Then, the students' score of the experimental group in pretest and posttest are classified based on each area of writing namely genre, register, grammar, graphic feature, and discourse.

Moreover, to answer the third research question about the students' responses toward the use of photographs in writing descriptive text, the study uses triangulation by employing close-ended questionnaire, open-ended questionnaire, and an interview guide.

3.2 Research Site and participants

This study was conducted in a junior high school in West Lampung regency, Lampung province. There are some considerations for choosing this school as the site in this study. First, using photographs in teaching writing is considered as a new thing in this school. Second, the school provides easy access to the researcher to conduct her study there. Third, the location of the school can be accessed easily, so that the study is feasible to do.

The population of this study was eighth-grade students. There are three classes in the eighth grades in which each class has to fulfill the principle of equality. Thus, there is no leveling in the distribution of classes. The researcher only chose two classes. Both of the classes were selected as experimental group and control group. The classes were selected by the teacher's recommendation that students in the two classes have the same proficiency level of English.

3.3 Research Instruments

The data in this study were collected by administering some instruments in order to answer the research questions. Each of them was elaborated further in the following section.

3.3.1 Pretest and Posttest of writing

In this study, pretest and posttest are the instruments to answer two research questions. The first is about the effectiveness of photographs in improving the

students writing ability and while, the second is about to what extent the use of photographs improves students' ability in writing descriptive text in terms of genre, register, discourse, grammar, and graphic feature. The pretest was employed to both experimental and control groups as the first step of the study. In this test, all the students in the groups were asked to write a descriptive text. This test was given in the first meeting before the treatment to find out the students' ability in writing a descriptive text. The result of the pretest was used as the starting point to assess the students' improvement. The materials for pretest were modified from some standardized English textbooks for junior high school students.

The study employed the posttest at the end of the study. After the students in the experimental group had the treatment by using photographs and the students in control group were taught using the regular method, they were asked to write a descriptive text. It was undertaken after the treatment in order to identify the influence of photographs on students' writing ability in writing descriptive text. The students in the experimental group wrote the texts based on photographs, while their friends in the control group wrote them without any photographs. The materials for the posttest were modified from the same source as the pretest.

Before the test was given to the students, the test was tried out to other students in the same level and were not involved in this study. They were asked to write about their home. It was conducted to see the face validity of the test whether or not the instruction of the test is clear and the duration of time is enough to finish the test. If the respondents were able to understand with the instruction given in the test, it could be concluded that the instrument is valid and can be used in pretest and posttest. While to maintain the content validity of the test, the content of the test format was given to the supervisors of this research to give judgments whether or not the test is appropriate to be employed. Besides, this test was also developed based on the indicators of learning objectives in the syllabus of English lesson in 2013 curriculum.

Based on the pilot test, it was found that the instrument test has the validity. The students can follow the instruction well. The students' responses indicated that the instruction of the test were clear and understandable. Although the score of students' writing was not really high, it was not caused by the instruction given in the test. It was because they had difficulties to arrange the sentences correctly, lack of vocabulary, and no idea of what they are going to write. Generally, they have not understood how to write a descriptive text correctly. However, they still can write descriptive text based on their ability. Based on the result, it can be concluded that the instrument can be used for the pretest and posttest in this study.

To determine the reliability of the test, the students in pilot class were given the same test in different time (Test-Retest Reliability). Then, the results of the test were calculated by using Pearson Product Moment Correlation in SPSS version 20.0. The result shows that the reliability index is 0.862. The value of *ri* is greater than r-table (with $n=32$ and df 0.05 is 0.349). It means that the test item has high reliability.

3.3.2 Questionnaires

The questionnaires were given after all the teaching and learning processes had finished. They were administered to the students in the experimental group. In this study, the questionnaires were aimed to survey the students' responses toward the implementation photographs in teaching writing descriptive text. The questionnaires were written in Bahasa Indonesia to avoid misunderstanding and to help the students comprehending the statements and questions. In addition, to ensure the validity of the statements and questions in the questionnaire, it was read by the advisors to check whether or not the statements and questions were comprehensible.

3.3.2.1 Close-ended Questionnaires

Close-ended questionnaires allow the respondents to answer the questionnaires based on the categories prepared by the reasearcher. It was presented in the form of Likert-Scale which measures the extent to which a person agrees or disagrees with the question. The close-ended questionnaire in this study consist of 12 statements. The students were only required to choose the best point that reflects their belief about the statement. The categories of questions given in the close ended questionnaire can be seen in table 3.2 below.

Table 3.2

Categories of Questions in Close-ended Questionnaire

No	Categories	Item Numbers	Tota
			1
1	Students' attitude on cognitive aspects (belief)	1, 2, 3, 4, 5,6	6
2	Students' attitude on affective aspects (feeling)	7, 8, 9	3
3	Students' attitude on behavior aspects (tendency)	10, 11, 12	3
	Total		12

There are three categories of questions in close ended questionnaire. The first is cognitive aspect, focusing on beliefs about the object related to attitude. The cognitive aspect consists of 6 items (number 1-6). It is aimed to find out students' beliefs about the use of photographs in writing descriptive text. The second is affective aspect, regarding good or bad feelings that arise related to the attitude. This affective aspect consists of 3 items (number 7-9). They are aimed to find out the students' feeling on the implementation of photographs in writing descriptive text. The last is behavior aspect. It can be defined as the actions by which an individual adapts to its setting. This aspect consists of 3 items (number 10-12) and is aimed to find out their effect after giving the treatment of using photographs in writing descriptive text.

Before the questionnaire was given to the students in experimental group, the validity and reliability of the close-ended questionnaire should be taken into

account. To measure its validity, the questionnaire was tested to the other group who was not a part of this study. Then, the data from the test was analyzed by using Product Moment Correlation in SPSS version 20.00 for Windows. In the pilot test, all the questions in the questionnaire were valid (see appendices 4).

Furthermore, to assure its reliability, it used a statistical procedure of Cronbach Alpha coefficient by using SPSS for Windows. The categories of Cronbach Alpha score can be seen in table 3.3.

Table 3.3

The Categories of Cronbach Alpha Coefficient

Coefficient reliability	Interpretation
0.00 – 0.19	Very low
0.20 – 0.39	Low
0.40 – 0.59	Moderate
0.60 – 0.79	High
0.80 – 1.00	Very high

(Adopted from Arikunto, 2006, p. 276)

The result of the reliability coefficient of the questionnaire with 12 question items can be seen in table 3.4.

Table 3.4

The Result of Reliability Analysis by Using Cronbach Alpha

Reliability Statistics	
Cronbach's Alpha	N of Items
.723	12

Based on the result of the analysis, it was found that the reliability coefficient of the close-ended questionnaire is 0.723. It is included in category 'high'. It means the close-ended questionnaire has high reliability for this study.

Based on the findings on the pilot test for the close-ended questionnaire, it can be

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concluded that the instrument of the close-ended questionnaire was valid and reliable to use for getting information about the students' responses toward the use of photographs in writing descriptive text.

3.3.2.2 Open-ended Questionnaire

The open-ended questionnaires were administered to gain in-depth information from the respondents (Fraenkel, Wallen, & Hyun, 2012). Open response items can explore issues that closed-response questions cannot do (Brown, 2009, p. 204). There were 20 questions given to the students in the experimental group at the end of the study. The questions were divided into five major categories; using photographs in BKOF phase, using photographs in MOT phase, using photographs in JCOT phase, using photographs in ICOT phase, and students' suggestions toward the use of photographs in writing descriptive text. The questionnaire was developed following the guidelines based on the theory of genre-based approach from Derewianka (1990) and Hyland (2007), and theory of teaching multimodality from Walsh (2011). It was presented in form of essay questions. The categories of questions given in the open-ended questionnaire can be seen in table 3.5.

Table 3.5

Categories of Questions in Open-ended Questionnaire

No	Categories	Item Numbers	Total
1	Using photographs in BKOF phase	1, 2, 3, 4,	4
2	Using photographs in MOT phase	5, 6, 7, 8,	4
3	Using photographs in JCOT phase	9, 10, 11, 12, 13, 14	6
4	Using photographs in ICOT phase	15, 16, 17, 18, 19,	5
5	Students' suggestions toward the use of photographs in writing descriptive text	20	1
Total			20

3.3.3 Interview

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The last technique used to collect the data is an interview. Fraenkel, et al. (2012) state “interview was conducted to find out what is on students’ minds, what they think, or how they feel about something” (p. 451). It is a technique to collect in-depth data. In this case, the interview was aimed to gain the data of students’ responses toward the use of photographs in writing descriptive text. It was also directed to confirm the findings of test and questionnaire about the use of photographs in writing descriptive text. There were three students chosen as the respondents in the interview. Semi-structured interview (Fraenkel, et al, 2012) used audio recorder and interview guide, based on the theory of genre-based approach from Derewianka (1990) & Hyland (2007), and theory of teaching multimodality from Walsh (2011). There were three respondents in the interview from low, middle, and high achiever students believed to be able to represent the students’ in the different achievement levels.

There were 21 questions given to the respondents in the experimental group at the end of the study. The questions were divided into five major categories; using photographs in BKOF phase, using photographs in MOT phase, using photographs in JCOT phase, using photographs in ICOT phase, and students’ suggestions toward the use of photographs in writing descriptive text. However, it is possible to give additional questions in which this data collecting technique employed semi-structured interview. The interview was developed following the guidelines based on the theory of genre-based approach from Derewianka (1990) and Hyland (2007), and theory of teaching multimodality from Walsh (2011). The categories of questions given in the interview can be seen in table 3.6.

Table 3.6

Categories of Questions in Interview

No	Categories	Item Numbers	Total
1	Using photographs in BKOF phase	1, 2, 3,	3
2	Using photographs in MOT phase	4, 5, 6, 7, 8,	5
3	Using photographs in JCOT phase	9, 10, 11, 12, 13, 14	6

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4	Using photographs in ICOT phase	15, 16, 17, 18, 19, 20	6
5	Students' suggestions toward the use of photographs in writing descriptive text	21	1
Total			21

3.4 Stages of Data Collection

In collecting the data, there are some steps that were employed:

1. Administering the pretest

The pretest was done to measure students' preliminary ability before giving treatments to the experimental group. Both experimental and control groups were given the same pretest in term of writing a descriptive text in order to know the preliminary ability of students in writing descriptive text.

2. Giving Treatments

Upon the completion of the first step, a series of treatment using photographs was given to the experimental group. Meanwhile, the control group was taught by using the regular method. The material, time, and some activities in both groups were similar (pre-activities and post-activities). The difference was only in the use of photographs in the experimental group. While in the control group, the students learn the material without using photographs. The treatment was conducted in eight meetings.

3. Administering the posttest

In order to see the improvement of students' writing ability, both experimental and control groups were given the same writing posttest in terms of writing descriptive text after the treatments have been given.

4. Distributing questionnaire and interview to students

Giving open-ended questionnaire, close-ended questionnaire, and interview to students were undertaken to get the data related to the students' responses toward photographs in writing descriptive text.

5. Analyzing the test result

After scoring pretest and posttest, the data were analyzed by using SPSS software program version 20.0. It is used to do normality test, homogeneity

test, and t-test computation. Additionally, the data from close-ended questionnaire were analyzed by calculating the score of close-ended questionnaire by using Likert scale. The data from open-ended questionnaire was summarized, coded and categorized. Then, the data from open-ended questionnaire and interview were transcribed, coded, and categorized based on the classification. For further explanation about the data analysis, it can be seen in the following section.

3.5 Data Analysis

In this section, the data analyses are discussed. The analysis includes the data collection techniques employed test (pretest and posttest), close-ended questionnaire, open-ended questionnaire, and interview. The data analysis applied in this study was carried out during the teaching program and after the teaching program.

3.5.1 Test Analysis

The data taken from the pretest and posttest were the score reflecting the students' writing ability. Scoring criteria for students' writing in pretest and posttest were based on scoring rubric from Rose (2007) as cited in Emilia (2011). In order to answer the research question about the use of photographs in writing descriptive text, there are some procedures of analyzing the data. There were two prior tests, normality and homogeneity test, which needed to be considered before testing the students' improvement in writing ability. The data obtained were analyzed by using SPSS 20.0. The procedure in analyzing the data was elaborated in the following section.

1. Data Analysis of Pretest and Posttest

The data analysis of pretest and posttest were exactly the same. The main difference between data analysis of pretest and posttest was just on the purpose. The purpose of the pretest was to see students' prior knowledge before getting the

treatment. While the purpose of the posttest was to see whether there is a significant difference of students' achievement after getting the treatment.

a. Analyzing the data descriptively

Before analyzing the data of pretest and posttest, the data were analyzed descriptively to know the score of mean, variance, and standard deviation. It is necessary as the first step to conduct the hypothesis testing.

b. Normality Distribution Test

Shapiro-Wilk test was used to test the normality of the data because both experiment and control group are more than 30 respondents. Testing the normality data of the pretest and posttest scores of both control and experimental groups were used to measure whether or not the data from students' score are normally distributed. It was done to test score of pretest, posttest, and gain score. The hypotheses for the normality test are as follow:

H₀: The scores of experimental and control groups are normally distributed

H₁: The scores of the experimental and the control groups are not Normally distributed

The criteria for hypothesis according to Hatch and Farhady (1982) are:

- (i) H₀ is rejected if Sig. < 0.05
- (ii) H₀ is accepted if Sig. ≥ 0.05

If the data were distributed normally, the data could be analyzed by using homogeneity test. If the data were not homogenous, the data could be analyzed by using non-parametric test by *Mann-Whitney*.

c. Variance Homogeneity Test

After knowing the pretest and posttest were normally distributed, the procedural test can be continued to variance homogeneity test. Variance homogeneity test is used to see whether or not the data of both groups are homogenous. The test used *Lavene's test*. The hypothesis of homogeneity test is formulated as follow:

$H_0: \sigma_1^2 = \sigma_2^2$: The students' scores in experimental group and control group are homogenous.

$H_1: \sigma_1^2 \neq \sigma_2^2$: The students' scores in experimental group and control group are not homogenous.

With the criteria of the test based on Hatch and Farhady (1982):

- (i) H_0 is rejected if Sig. < 0,05.
- (ii) H_0 is accepted if Sig. \geq 0,05.

If the data of both control and experimental group are distributed normally, independent t-test using parametric test could be used. If the data of both control and experimental groups are not normally distributed, Mann-Whitney test using non-parametric test could be used.

d. T-test Computation

Independent T-test in pretest is used to know whether or not the average of pretest from experimental and control groups in this study were similar. While independent T-test in posttest was used to know whether the average of posttest of the experimental group is higher than the average of the control group. For the data that has normality and homogeneity, it can use T-test namely *Independent Sample T-test* with the assumptions the variances are homogenous (*equal variance assumed*). If the variances are not homogenous, it can use T-test (*Independent Sample T-test*) with *equal variance not assumed*.

The hypothesis for analyzing the data used two-tailed computation, as follow:

$H_0 : \mu_1 = \mu_2$: There is no differences of the average of pretest between students in experimental group and control group

$H_1: \mu_1 \neq \mu_2$: There is differences of the average of pretest between students in experimental group and control group

With the criteria of the testing:

- (i) H_0 is rejected if $Sig. (2-tailed) < 0,05$.
- (ii) H_0 is accepted if $Sig. (2-tailed) \geq 0,05$.

In *Mann-Whitney* test, with the level of significance 5% ($\alpha = 0,05$), the criteria of the testing are as follow:

- (i) H_0 is rejected if $Asymp.Sig(2-tailed) < 0,05$
- (ii) H_0 is accepted if $Asymp.Sig(2-tailed) \geq 0,05$

2. The Calculation of Effect Size

If the data of pretest from both experimental and control group are similar, the data used to know the students' improvement in writing descriptive text are the data from posttest. However, if the data of pretest from experimental and control group are different, the data used to know the students' improvement in writing descriptive text is a gain. The formulation of gain is:

$$Gain = score\ of\ posttest - score\ of\ pretest$$

In order to know students' improvement in writing, the scores of pre-test and post-test were calculated by using N-Gain formula proposed by Hake (1999). Normal distribution of *gain score* is a good method to analyze score of pretest and posttest (Hake, 1999). *The gain score* is a good indicator to know the effectiveness of a treatment by seeing pretest and posttest score. The formulation of the *gain score* is:

$$N - Gain = \frac{score\ of\ posttest - score\ of\ pretest}{ideal\ maximum\ score - score\ of\ pretest}$$

(Hake, 1999)

The criterion of interpretation proposed by Hake (1999, p.1) can be seen in table 3.7.

Table 3.7
Interpretation of Gain Normalization

g Score	Classification
$g > 0.7$	High
$0.3 < g \leq 0.7$	Medium
$g \leq 0.3$	low

Gain score is used in t-test computations. Several steps are conducted for the t-test computations. They include stating the null hypothesis, setting the alpha level .05, computing the t value which has done by using *SPSS 20.0 for windows*, and comparing the result of the test.

3.5.2 Questionnaire

3.5.2.1 Close-ended Questionnaire

Close-ended questions in this study were analyzed quantitatively by using descriptive statistics in terms of mean, frequency, and percentage to know the students' responses to the implementation of using photographs in writing descriptive text. The data from close-ended questionnaire were analyzed in several steps. First, the statements in the close-ended questionnaire were classified based on the themes (Cresswell, 2008). Second, it conducted computation and percentage. Third, it did tabulating the result. Then it analyzed and interpreted the data. To analyze the result of the questionnaire, the scores were in the form of Likert scale that measures the extent to which a person agrees or disagrees with the question. The score scale is 1 to 5. The scale is as "strongly disagree", 2 as "disagree", 3 as "not sure", 4 as "agree", and 5 as "strongly agree" (Creswell, 2008). The results of close-ended questions were then analyzed by changing it into a percentage with the formula as follows.

$$\frac{\text{Number of students choosing certain option}}{\text{Total number of the students}} \times 100\%$$

3.5.2.2 Open-ended Questionnaire

Open-ended questions were analyzed qualitatively by coding based on the theme. To collect students' opinion about the use of photographs in writing descriptive text, the study used 20 open-ended questions divided into five major categories. Those are using photographs in BKOF, using photographs in MOT, using photographs in JCOT, using photographs in ICOT, and students' suggestions toward the use of photographs in writing descriptive text. Then, the answers to each questions were then classified based on the classification. To answer the research question, the data of questionnaire were then interpreted.

3.5.3 Interview

The interview was conducted after all the teaching and learning processes have finished. Semi-structured interview using audio recorder and interview guide were done to three students who represented the subject of the study. Then, the recorded data of interview were transcribed, interpreted, and concluded based on the research questions proposed on the interview. The questions are related to the students' responses toward the use of photographs in writing descriptive text.

3.6 Concluding Remarks

This chapter has presented the methodology applied in this research, a quasi-experimental design. The quantitative data were collected through pretest and posttest of writing descriptive text and close ended questionnaire. Meanwhile, qualitative data were collected through open-ended questionnaire, and interview. The data were then analyzed based on the theory of the implementation of photographs in writing descriptive text. The discussions of the findings were discussed in the next chapter.

