

CHAPTER III

RESEARCH METHODOLOGY

This research used experimental research where the major characteristic is that researchers manipulate the independent variable. They decide the nature of the treatment, to whom it is to be applied, and to what extent. After the treatment has been administered for an appropriate length of time, researchers observe or measure the groups receiving different treatments to see if they differ.

3.1 Research Design

Quasi experimental research design was used in this research. This type of research has pre-test and post-test, experimental and control groups but no random assignment of subject (Nunan, 1992). In other words, the subject in this research had already been grouped when this research was conducted.

This quantitative-qualitative research employed experimental research design, specifically, quasi-experimental research design. As stated by Fraenkel&Wallen (1990) that true-experimental research design is not feasible to conduct since it requires a huge samples and time. Moreover, Porte (2002) also explained that quasi-experimental research design is suitable for educational research since many researches of that field usually involve the use of classes that have already been assigned before. Furthermore, the formulation of this research can be presented in the table below:

Table 3.1**Pre-test Post-test Group Design**

Group	Pre-test	Treatment	Post-test
Experimental Group (A)	O ₁	X1,X2,X3,X4	O ₂
Control Group (B)	O ₁	-----	O ₂

(Creswell, 2003)

Note:

O₁ : pre-test of experimental and control groups

X : treatment for the experimental group

O₂ : post-test of the experimental and control groups

The treatment was conducted five times to the experimental groups where the teaching of reading was delivered with the help of pictures, slide show, videos, and CD-ROM of games. Meanwhile, the control group was taught using conventional way with just pictures as the media. Pre-test and post-test were given to both control and experimental groups.

3.2 Variables

A variable is anything which does not remain constant (Nunan, 1992). In experimental research design, there are two major types of variables; independent and dependent variable. Porte (2002) has stated that independent variable can be defined as the element that the researcher believes may possess a relation to or influence the

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dependent variable. Meanwhile, dependent variable is the variable that will be measured or observed to find out whether it is affected or not by the presence of independent variable.

According to the definition of variables above, the independent and dependent variables of this research then can be figured out. The independent variable in this research was the texts with pictures, while the dependent variable was the students' reading comprehension.

3.3 Population and Sample

Based on Collidge (2000), a population is a theoretical group of all possible scores with the same trait or traits. Meanwhile Nunan (1992) assumed that a population is a group of people which share common, observable characteristics that differentiate the from other groups. From the explanation above, the population of this research was all the seventh grade students of a Junior High School in Cirebon.

Population of this research is the seventh grade of junior high school in Cirebon. Therefore, the sample used in this research consists of two classes of the seventh grade of junior high school students, there were two classes (as the experimental and control group) or 56 students of the seventh grade Junior High School students. The characteristics of the students are native Indonesian; their age is around 13 years old, and most of the students learn English just in school.

3.4 Time Allocation

The schedule of both control and experimental groups was on Monday, Wednesday, and Thursday. The time allocated for the research was suited with the schedule already existed in the school. Overall, the research was conducted in five meetings involving pre-test, three times treatments, post-test, and also interview. In detail, the research schedule is presented in the table below:

Table 3.2
Schedule of the Research

No	Experimental Group		Control Group	
	Date	Materials	Date	Materials
1	May 1, 2013	Pre-test	May 1, 2013	Pre-test
2	May 3, 2013	Treatment 1: Discussion of descriptive text, the generic structure, language focus. Students are given an example of descriptive text with pictures of “Bongo”, and students try to find difficult words and discuss it with teacher. Students have a game from CD-ROM about descriptive text.	May 3, 2013	Discussion of descriptive text, the generic structure, language focus. Students are given an example of descriptive text with pictures of “Bongo”, and students try to find difficult words and discuss it with teacher.
3	May 4, 2013	Treatment 2: Reading comprehension practice of descriptive text. Students are given a descriptive text from CD-ROM that has pictures, a	May 4, 2013	Students are instructed to make a partner and they have to describe their partner in a piece of paper. Moreover, some students

		voice, and exercises in it. Students have a game from CD-ROM.		are instructed to read their own description from their partner perspective in front of class.
4	May 8, 2013	Treatment 3: Students are instructed to watch a video about someone who is dancing like a robot. Students try to describe someone in the video in a piece of paper. Some students are instructed to read their own description about the video in front of class.	May 8, 2013	Reading comprehension practice of descriptive text . students are instructed to read descriptive text. Students and teacher discuss the text together.
5	May 10, 2013	Post-test and administering questionnaire and interview.	May 10, 2013	Post-test and administering questionnaire and interview.

3.5 Instruments

Instrument is a device (such as test, questionnaire, or rating scale) the researcher uses to collect data (Franel, 2006). There were two kinds of instruments used in collecting data for this research; test and non-test. Test instrument involved pre-test and post-test. In pre-test, students were tested to read a text and answer the question related to the text. It was to measure students' reading comprehension ability before treatment. Pre-test was given to both control and experimental groups. Meanwhile, in post-test, students were tested using different texts and questions with

the same level of difficulty. It was to avoid students remembering the answer if they were tested using the same texts and questions. As the pre-test, post-test was also given to both control and experimental group.

To find out the answer of the second question of this research, other non-test instrument was employed which was interview, students were instructed to answer a set of questions related to their response of the use interactive multimedia in teaching descriptive text.

3.6 reasearch Procedures

The following is the procedure used in conducting the present research.

3.6.1 Organizing Teaching Procedures

In this study, the student sample were taught by one teacher. Before the teaching process, lesson plans were developed and teaching materials were prepared. It dealt with the standart competences and basic competences of reading in the level of the subject in this research. Moreover, the reading activities to be conducted in the treatment stage and the time allocation were also prepared and arranged.

3.6.2 Administering Pilot Test

Pilot test is aimed to test the validity and reliability of instruments to be used in collecting data. Pilot test was given to class of VII grade students who were not involved in both control and experimental group. Pilot test was conducted on April 28, 2013.

3.6.3 Conducting Pre-test

Pre-test was conducted to measure the reading ability of both control and experimental groups before treatment. Moreover, it was also intended to ensure that

both control and experimental groups had equal ability which was evidenced by Independent t-test.

3.6.4 Giving Treatments

After finding two classes that had equal ability, the treatments then were conducted. The treatments were given three times during research in which only experimental group received the treatments. In this treatment stage, the researcher used interactive multimedia like CD-ROM, texts, pictures, and video as the media in teaching descriptive text.

3.6.5 Administering Post-test

After all treatments administered, post-test is conducted, post-test was given to both experimental and control groups. Post-test was intended to measure the reading ability of both experimental and control group. And to find out whether the use of interactive multimedia as the media in teaching descriptive text significantly improves the reading ability or not. The effectiveness of interactive multimedia in teaching descriptive text then could be drawn by comparing the score of both groups.

3.6.6 Administering Questionnaire

Questionnaire was administered to the students right after they had finished doing the post-test. It consists of ten questions which generally revealing the students' response toward the use of interactive multimedia in teaching reading descriptive text.

3.6.7 Administering Interview

Moreover, to answer the second question of students' responses towards the use of interactive multimedia as the media in teaching descriptive text the interview was employed. The interviewees were 10 students who consisted of 3 high achievers, 4 moderate achievers, and 3 low achievers.

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3.7 Data Analysis

The following part present how the data are analyzed.

3.7.1 Scoring Technique

The pre-test and post-test instruments are in the form of multiple choice questions. Both of them have twenty-five questions and they are in 100 scale.

3.7.2 Data Analysis on Pilot-test

The pilot test is conducted to measure validity, reliability, and the level of difficulty of the instrument. The valid and reliable items are used as the research instrument.

3.7.2.1 Validity Test

In this study, the validity formula is computed by using Pearson Product Moment Correlation (Field, 2000). It is used to analyze the validity of each item and it was calculated through SPSS 19 for windows. Sugiyono (2011) states that an item is considered as a valid item if its r value is 0.3 or higher than 0.3. In addition, a high r value of an item shows a high level of validity.

3.7.2.2 Reliability Test

A good instrument does not have tendency to direct the respondent to choose particular answers. Hence, this study uses Cronbach's Alpha formula to measure the reliability of the instrument. George and Mallery (2003), as cited in Gliem and Gliem (2003:87), provide the following rules of Cronbach's Alpha reliability coefficient: ≥ 9 – Excellent. ≥ 8 – Good. ≥ 7 – Acceptable. ≥ 6 – Questionable. ≥ 5 – Poor. ≤ 5 – Unacceptable.

3.7.2.3 Difficulty Level Test

The difficulty level test is aimed to measure whether an instrument is considered as difficult or easy. The formula below is used to analyze the level of instrument:

$$P = \frac{B}{J_s}$$

Where:

P = Index of difficulty

B = The number of students who can answer the item correctly

J_s = The number of all students

Table 3.3

The Classification of Difficulty Level Item

Index of Difficulty	Interpretation
0.0 – 0.30	Difficult item
0.30 – 0.70	Moderate item

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0.70 – 1.00	Easy item
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(Arikunto, 2010)

3.7.3 Normality Distribution Test

Normal distribution test is used to investigate whether a set of data is normally distributed or not. Kolmogorov-Smirnov test is used in this study using SPSS 19 for Windows (Field,2000).

In conducting the normal distribution test, there are three steps that as follows.

1. Setting the alpha level. By default, this study test at 5% level of significance (two tailed). Then stating the hypothesis:
 H_0 : the pretest score are normally distributed
2. Analyzing the data by using Kolmogorov-Smirnov test through SPSS 19 for Windows.
3. Interpreting the result of the test. If the significant value (Asymp.Sig) is less than 0.05 (Asymp.Sig<0.05), the normality assumption is rejected. Meanwhile, if the Asymp.Sig is greater than 0.05 (Asymp.Sig>0.05), the normality assumption is accepted (Field, 2000).

3.7.4 Data Analysis on Pre-test and Post-test

The pre-test and post-test scores are analyzed by comparing their means through dependent t-test to find out whether the difference between the pre-test and post-test mean score is significant or not. The dependent t-test is used to determine the degree of relationship between pairs of two or more variables (adopted from Hatch and Farhady, 1982).

The dependent t-test is calculated by using SPSS 19 for Windows. If the result of $t_{obtained}$ was less than $t_{critical}$ value at the 0.05 level of significance, the null

hypothesis (H_0) is not rejected and it can be concluded that there is no significant difference between two means. However, if t_{obtained} is higher than t_{critical} value at 0.05 level of significance, the null hypothesis (H_0) is rejected and it can be concluded that there is significant difference between two means (adopted from Field,2005).

3.7.5 Data Analysis of Questionnaires

After questionnaires was administered, this study used percentage of the students' response toward the used of interactive multimedia in teaching reading descriptive text.

3.7.6 Data Analysis of Interview

The interview was conducted to obtain the students' response toward the use of interactive multimedia in teaching reading descriptive text. The students' answer were classified based on their class, high achiever. Middle achiever, or low achiever students.