

CHAPTER III

RESEARCH METHODOLOGY

This chapter presents the research methodology which provides the discussion of research design, population and sample, time allocation, instrument, procedure of the research, and procedure of data analysis. In addition, validity analysis, reliability analysis, pretest and posttest data analysis formulas are presented as well in this chapter.

3.1 Research Design

3.1.1 Design

This study used quantitative method, specifically a quasi experimental design. Although the researcher could not control the outside variables totally as in true experimental design, but this design has a control group. In addition, pretest and posttest were given to the experimental and control group. The research design was presented as follows:

G1 T1 X T2
G2 T1 T2

In which:

G1= Experimental Group

G2= Control Group

T1= Pretest

T2= Posttest

X=treatment

(Hatch and Farhady, 1982:22)

Hatch and Farhady (1982) stated that quasi experimental design is practical compromises between true experimentation and the nature of human language behaviour which the researcher wish to investigate. Thus, the researcher has to reach the goal as closely as possible to meet the standards of true experimental design.

3.1.2 Variables

Hatch and Farhady defined a variable as “An attribute of a person or of an object which ‘varies’ from person to person or from object to object” (1982:2). There are two kinds of variables. Those are independent variable and dependent variable. Hatch and Farhady (1982:15) stated that the independent variable is “a the major variable which you hope to investiate” while dependent variable is “the variable which you observe and measure to determine the effect of the independent variable”.

Referring to those definitions, the independent variable of this study is series of pictures which is used as a media in reading narrative texts. On the other hand, the dependent variable of this study is the student’s ability in reading narrative texts.

3.2 Population and Sample

Coolidge defined population as “most often a theoretical group all possible scores with the same trait or traits” (2000:24). The population in this study was the second grade students of Private Senior High School in Cianjur which consisted of four classes. The reason to choose them is because they were potential to be observed since the students were interested in using new media in learning.

Two classes were selected as the sample. Coolidge (2000:24) stated “Sample is a smaller group of scores selected from the population of scores”. The samples in this study were class XI-IPA as the experimental group and the class XI-IPS1 as the control group.

3.3 Data Collection

In collecting some necessary data and information for this research there were some several techniques used:

1. Test. This technique was used to find out students’ reading ability. This test was divided into two parts which are pretest and posttest
2. Interview. An interview was conducted at the end of the research to find out students’ opinion about the advantages and disadvantages of using series of pictures as media in learning English in terms of reading narrative text.

3.4 Time Allocation

This study was conducted in four weeks. The schedule of the study can be seen in table 3.1.

Table 3.1 The Schedule of The Treatment

NO	Experimental Group		Control Group	
	Date	Material	Date	Material
1	January, 20 th	Pretest and Introduction of narrative text and series of pictures.	January, 20 th	Pretest and Introduction of narrative text and series of pictures.
2	January, 26 th	Treatment 1: Introduction of narrative text, the generic structure, and identify generic structure, main characters and events in the story of "The Sorcerer's Apprentice" (teacher uses series of pictures)	January, 26 th	Introduction of narrative. Reading story of The Sorcerer's Apprentice
3	January, 27 th	Treatment 2: review story of "The Sorcerer's Apprentice", then identify setting, conflict, and conclude the story. (teacher uses series of pictures)	January, 27 th	Review story of The Sorcerer's Apprentice

4	February, 2 nd	Treatment 3: reading story of “Rumpelstiltskin”, then identify the main characters and events in the story (teacher uses series of pictures)	January, 2 nd	Reading story of “Rumpelstiltskin”,
5	February, 9 th	Treatment 4: review story of “Rumpelstiltskin”, then identify setting, conflict, and conclude the story.	February, 9 th	Review story of “Rumpelstiltskin”,
6	February, 10 th	Posttest and interview	February, 10 th	Posttest

3.5 Instrument

According to Arikunto (1996:136), instruments are media used by the researcher in collecting the data. The instrument used in this study were pretest, posttest and interview.

Pretest was conducted to find out whether the experimental and control groups have relatively the same ability in reading narrative text before the experimental group received some treatments. Meanwhile, posttest was conducted after receiving some treatments to know whether the use of series of picture improve the students’ ability in reading narrative text. In conducting test in both pretest and posttest, the researcher used story grammar form. It was to find out the students’ ability in reading narrative text by using series of pictures.

The Form of Story Grammar

Name _____
Story Grammar

Title _____
Author _____
Setting _____

Main Characters

Conflict or Problem

Events
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Conclusion

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At the end of the reseach, specifically after administering posttest, the interview was conducted. There are several questions that should be answered by students orally. This non-test instrument aimed to get students' opinion about the treatments that they had experienced.

3.6 Procedures of The Research

3.6.1 Pilot test

Pilot test was conducted to find out the validity and reliability of the instrument. In this study, Pilot test was conducted to the second grade of students

of Private Senior High School in Cianjur in class XI-IPS2. There were 30 students in this class and this activity was held on January 19th 2011.

3.6.2 Pretest

The pretest was administered to the experimental and control groups in the beginning of the study before giving the treatment. This activity was conducted to measure the students' ability in reading narrative text and to see whether the two groups have the same reading skill or not. In this study, there were only thirty students as the sample in calculating the pretest result. The pretest was administered to both experimental and control groups on January, 20th.

3.6.3 Treatments

Treatment was conducted four times to the experimental group from January, 26th until February, 9th 2011. The experimental group received treatment twice a week, on Wednesday and Thursday. This study used the series of pictures as its treatment.

3.6.4 Posttest

The posttest activity was administered on February, 10th 2011, after the whole treatments had been conducted. The purpose was to find out whether series of pictures improve students' ability in reading narrative text by comparing the scores of the two groups. In addition, there were only thirty students as the sample in calculating the posttest result. Furthermore, the form of posttest was similar to the pretest.

3.7 Procedures of Data Analysis

The data obtained from the pilot test were analyzed to find out validity and reliability. Then, the students' reading results from pretest and posttest were scored. Next, the data were analyzed by using SPSS version 17 for windows to find out the normality distribution, the variance homogeneity, and the independent *t-test* to know the students' reading ability of the experimental group after receiving several treatments.

3.7.1 Test Instrument Analysis

After conducting the pilot test, the data were calculated and analyzed to find out its validity and reliability. Thus, if the instrument is valid, it can be used in this research.

3.7.1.1 Validity Analysis

Hatch and Farhady (1982:250) defined validity as “the extent to which the result of the procedure serve the uses for which they were intended”. The external validity technique was used to test the instrument in this study. In addition, the Pearson Product-Moment formula was used to compute the data. The formula is as follows:

$$r_{xy} = \frac{N \sum xy - (\sum x)(\sum y)}{\sqrt{[N \sum x^2 - (\sum x^2)][N \sum y^2 - (\sum y^2)]}}$$

In which:

r_{xy} = index correlation

N = Numbers of pair score

$\sum Xy$ = Sum of the cross product

Table 3.2
The Criteria of the Coefficient Correlation

Coefficient Interval	Interpretation
0.800 – 1.000	Very High
0.600 – 0.800	High
0.400 – 0.600	Moderate
0.200 – 0.400	Low
0.00 – 0.200	Very low

(Arikunto:2007:147)

3.7.1.2 Reliability Analysis

According to Hatch and Farhady (1982:244) reliability is “the extent to which a test produces consistent result when administered under similar conditions”. In this research, the reliability was measured by Cronbach’s Alpha formula SPSS 17 for windows.

3.7.2 Pretest Data Analysis

To find out the effectiveness of series of pictures in improving students’ ability in reading narrative text, the independent *t-test* formula was used in this study. Furthermore, Coolidge (2000:143) stated that there are some specific assumptions that have to fulfill in using independent *t-test* appropriately. First, the

participants have to be different in each group. Second, the scores are normally distributed in each group. Third, the variances of two group's scores are equal.

3.7.2.1 Normal Distribution Test

The normal distribution test was conducted to check whether the pretest score of both groups were normally distributed. In this study, Kolomogrov-Smirnov test was used to analyze the data.

3.7.2.2 Variance Homogeneity Test

According to Coolidge (2000:143), variance homogeneity test was conducted to find out whether the two groups in independent t-test are equal or approximately equal. In this study, Levene formula in SPSS 17 for windows was used to analyze it.

3.7.2.3 T-test

Calculation of the effect size is important to be administered to determine the effect of the influence of independent variable upon the dependent variable (Coolidge:2000). If the treatment is succesfull, then the effect size will be large.

The formula of effect size is:

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

In which:

r : effect size

t : t_{obt} or t value from the calculation of the independent t-test

df : $N_1 - N_2 - 2$

After the value of r has been obtained, the scores were matched with the following scale to interpret the effect size.

Table 3.3
The Effect Size Value

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

Coolidge, 2000 p.151

3.7.3 Post Test Data Analysis

Posttest data analysis was conducted to find out whether there are any differences between students' score of experimental design and control groups after conducting some treatments. The procedures of data analysis in posttest were precisely same as the procedures of pretest data analysis.

The data analysis and discussion of the research findings are presented in the next chapter. The data analysis consist of the instrument analysis and the computation by using SPSS 17 for windows.

3.7.4 Data analysis on the interview

In analyzing the data of the interviews, the interview data were transcribe to obtain the information about the implementation of series of pictures in English

classroom from student's point of view. This was aimed to find out the advantages and disadvantages of using series of pictures which had been used in learning reading narrative text. The interpretation of the interview result will be delivered in the next chapter.

