

## **CHAPTER III**

### **METHODOLOGY**

This chapter describes the procedures of the study in order to find out the answer to the question previously stated in chapter one. The chapter covers: Research Method, Population and Sample, Research Procedure, Research Instrument, Data Collection, and Data Analysis.

#### **3.1 Research Method**

This research used quantitative method to conclude the data with experimental method chosen to test the hypothesis served. For that the reason, this research took two classes; the first class was served as control class and the second class was served as experimental class or usually called intact group design (Tuckman, 1982: p. 128; cited in Permadi, 2008).

According to Hatch and Farhady (1982), quasi experimental designs are practical compromises between true experimentation and the nature of human language behavior which we wish to investigate. It is decided due to the reason that there is limited time, and the populations do not consist of individual but group of individual. Hence, the researcher was not required to assign students randomly from each class available. The pre-test-post-test design which is the subset of quasi experimental design was conducted. The design was represented below:

$$\frac{G1 \ T1 \ X \ T2}{G2 \ T1 \ T2}$$

Note : G1 : experimental group  
G2 : control group  
T1 : pre-test  
T2 : post-test  
X : treatment

This study was also applied descriptive analysis. Questionnaire and interview were used in order to support the statistical data and to get deeper information of this study.

Moreover, there were two variables which will be investigated; those are independent variable and dependent variable. In this study, the independent variable was a clustering technique. Since it was the major variable, it was selected, manipulated, and measured by the researcher. On the other hand, the dependent variable was students' narrative writing score as this was the variable which was observed and measured to determine the effect of the independent variable (Hatch and Farhady, 1982: 15).

### **3.2 Population and Sample**

#### **3.2.1 Population**

Population is a set of all elements possessing one or more attributes of interest (see Arikunto, 2002: 108). In this definition, the population of this study was all the second grade of SMAN 1 Cianjur students. The second grade of SMAN 1 Cianjur consists of eleven classes, and divided into three majors, science

class social class and language class. Each class consists of 35 students, so the total population was about 385.

The choice of population was based on the consideration that the second grade students had learned narrative text in their first grade, and it was being taught again in their second grade. Therefore, it was expected that they got basic knowledge about narrative text, and they got an easier way in learning writing narrative text by using clustering technique.

### **3.2.2 Sample**

The samples of this research are two classes from the second year students of SMAN 1 Cianjur. The first class is the experimental group and the second class is the control group. It is assumed that they have the basic ability of simple sentences construction. The samples of this research are two classes, they are XI IPA 4 as the experimental group and XI IPA 5 as the control group, which were selected based on the classification made by the school. Each class consists of 35 students. To anticipate the absence of some students during the research, the researcher only takes 30 students from each class as the sample. So the fixed number of the sample is 60 students.

Two classes were selected, XI IPA 4 as experimental group and XI IPA 5 as control group. Both classes are given pre-test and post-test.

In addition, purposive sampling was used in selecting students for questionnaire and interview samples. Thirty students of experimental group were selected as questionnaire respondents. Furthermore, some students of

experimental group were selected as respondents in the interview based on their different answers in the questionnaire sheet.

### **3.3 Research Procedure**

In this study, clustering technique is used as treatment for experimental group. Due to the limited time, the researcher conducted the treatment in six meetings. Before doing the research, the researcher follows the procedures of the research described below:

- Preparing the clustering material for teaching and learning process during the treatment;
- Organizing teaching procedures by using four stages of learning for Genre Based Approach (Adapted from Depdiknas, 2004);
- Organizing the research instrument;
- Trying out the research instrument for pre-test and post-test;
- Analyzing the try out data in order to find out the validity and reliability;
- Administering the pre-test for both groups, that is experimental group and control group. Furthermore, in general the research is conducted by the research schedule in Table 3.1:

**Table 3.1**  
**General Schedule of the Study**

No.	Experimental Group		Control Group	
	Date	Material	Date	Material
1.	2 <sup>nd</sup> Mar 2009	Pre-test	2 <sup>nd</sup> Mar 2009	Pre-test
2.	6 <sup>th</sup> Mar 2009	Introduction	6 <sup>th</sup> Mar 2009	Introduction
3.	13 <sup>th</sup> Mar 2009	Topic: Legend Topic: Holiday Experience	13 <sup>th</sup> Mar 2009	Topic: Legend Topic: Holiday Experience
4.	16 <sup>th</sup> Mar 2009	Topic: Memorable Experience	16 <sup>th</sup> Mar 2009	Topic: Memorable Experience
5.	20 <sup>th</sup> Mar 2009	Topic: Memorable Experience	20 <sup>th</sup> Mar 2009	Topic: Memorable Experience
6.	23 Mar 2009	Topic: Interesting Experience	23 Mar 2009	Topic: Interesting Experience
7.	27 Mar 2009	Review of the whole meetings	27 Mar 2009	Review of the whole meetings
8.	3 <sup>rd</sup> Apr 2009	Post-test	3 <sup>rd</sup> Apr 2009	Post-test

### 3.4 Research Instruments

Writing test was carried out as one of the instruments to find out the improvement of students' narrative writing skill. It was conducted at the beginning of the lesson as pre-test and in the end of the lesson as post-test. Besides written test, questionnaire and interview used to support the data in order to find out the advantages and disadvantages of clustering technique in improving narrative text and students' opinion about the use of clustering technique in teaching narrative writing. In detail, the research instrument can be explained as follows:

### **3.4.1 Tests**

Tests, which consist of pre-test and post-test, are given in the form of a written test. Pre-test is administered to find out that the two observed groups (experimental and control group), have the same level of writing skill. Whereas, post-test is carried out to examine that there are significant difference of students writing skill between two groups after one of the groups are given the treatment (clustering technique). Moreover, post-test is administered to find out whether the use of clustering technique in improving narrative writing skill is effective or not.

Written tests are carried out to measure students' writing skill and its improvement after treatments. Students are required to write a narrative text using clustering technique with personal experience as its topic. It was carried out at the beginning of the lesson as pre-test, and conducted at the end of the research as post-test. Hence, their writing were analyzed by using the scoring sheet.

### **3.4.2 Questionnaire**

The researcher sets some questions that based on several aspects, such as, clustering technique, the difficulties that may appear in their learning process, student's opinion and feeling about the material and the way of the teacher's teaching. The questionnaire consists of 15 items of open-closed questions and it was given to the experimental group in the end of the program.

### **3.4.3 Interview**

Interview is used to gain deeper information which is not available in questionnaire. The questions of the interview are based on the following aspects:

1. Students' experience in learning narrative writing through clustering technique.
2. The difficulties faced by students in their learning using clustering technique.
3. Students' opinion about clustering technique used in their leaning.
4. Students' feeling toward the learning writing using clustering technique.

### **3.5 Data Collection**

In order to collect the data, there are some steps that are taken as follows:

#### **3.5.1 Testing Validity and Reliability of the Test**

Validity and reliability are qualities that are essential to the effectiveness of any data-gathering procedures, Best (1981: 153, cited in Permadi, 2008). In line with the statement above, the instrument was tested first in order to find out the validity and its reliability. It was conducted once to another class on the same grade.

##### **3.5.1.1 Validity**

Validity is quality of data gathering instrument or procedure that enables it to measure what is supposed to measure (Best and Kahn: 1989; cited in Permadi, 2008). According to Arikunto (2002: 243) Pearson

product moment correlation can be used to analyze the validity of each item. The data was calculated by SPSS 15 for windows.

$$r_{xy} = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{\{N \sum X^2 - (\sum X)^2\} \{N \sum Y^2 - (\sum Y)^2\}}}$$

Note:

$r_{xy}$  = Coefficient correlation coefficient between X and Y variables

$\sum$  = Sum of each variable.

$\bar{X}$  = The average score of X.

$\bar{Y}$  = The average score of Y.

N = the number of subjects.

The criteria for the validity test were as follows:

0.800 – 1.00 : Very high

0.600 – 0.800 : High

0.400 – 0.600 : Moderate

0.200 – 0.400 : Low

0.00 – 0.200 : Very low

(Arikunto, 2002:147)

### 3.5.1.2 Reliability

Reliability is defined as the consistency of the scores obtained. Thus, any instruments should be calculated its reliability. Since the instrument score of this research is not between 1 and 0 or in the form of essay, the instruments are analyzed by using Cornbach Alpha formula or the Kuder-Richardson formula, which are:

$$r_{11} = \left[ \frac{k}{k-1} \right] \left[ 1 - \frac{\sum \sigma_i^2}{\sigma_t^2} \right]$$

(Arikunto, 2002: 110)

Note:

$r_{11}$  = Coefficient instrument reliability

$k$  = Number of subjects

$\sum \sigma_i^2$  = Sum of item variance

$\sigma_t^2$  = Total variance

The criteria for the reliability test were as follow:

0.00 – 0.20 : Low

0.21 – 0.40 : Moderate

0.41 – 0.70 : High

Above 0.70 : Very high

### 3.5.2 Conducting the Pre-test

Pre-test was conducted on March 2, 2009 at class XI IPA 4 as the experimental group and XI IPA 5 as the control group. It was conducted to find out the initial equivalent between the two groups.

### 3.5.3 Giving the Treatment

The treatment was conducted in six meetings due to the limited time. The clustering technique was given as treatment in the process of improving students' narrative writing skill. It was given to the experimental group that is XI IPA 4. In the end of the treatment, both groups have to do post-test with the same question given in the pre-test.

### **3.5.4 Conducting Post-test**

Post-test was given on April 3, 2009 to both groups, XI IPA 4 and XI IPA 5. The post-test was conducted to measure the influence of the treatment, whether there was significant difference in students' narrative writing scores or not. The written test in the post-test was similar to the written test in the pre-test.

### **3.5.5 Administering Questionnaire and Conducting Interview.**

Questionnaire and interview were applied to the experimental group in order to find out the advantages, disadvantages and the students' response of clustering technique in learning writing. Furthermore, the questionnaire and interview also used to find out the difficulties that may appear in their learning process.

### **3.5.6 Counting the Data using t-test**

After the data was collected, it was calculated using t-test formula with the assistance of SPSS 15.0 system.

## **3.6 Data Analysis**

### **1.6.1 Data Analysis of Pre-test and Post-test**

The pre-test and post-test are analyzed by SPSS.15.0. Moreover, the written test document are analyzed by using scoring criteria which is adapted from Brown (1994; cited in Kusumaningsih, 2008). The adapted scoring sheet consists

of five aspects, those were: generic structure, diction, language features, spelling and content.

After using the scoring criteria, the data are analyzed by using t-test formula or independent sample test to investigate the initial ability and initial equivalence between groups (Hatch and Farhady, 1982: 111).

According to Brown (1990: 166; cited in Permadi, 2008), the assumptions underlying t-test are:

1. The score in each group are normally distributed.
2. The variances for the scores of the two groups are equal.

Therefore, the normality distribution and variance homogeneity tests are conducted before calculating the data using *t*-test formula.

### **1.6.2 Normality Distribution Test**

To find the normality distribution of the test, Kolmogorov-Smirnov test in SPSS 15.0 is used. The steps of analyzing the normality distribution are as follows:

- Stating the hypothesis and setting the alpha level at 0.05 (two tailed).

$H_0$  = The score of the experimental and the control group are normally distributed

$H_1$  = The score of the experimental and the control group are not normally distributed

- Analyzing the normality distribution using Kolmogorov-Smirnov test in SPSS 15.0 windows.
- Comparing the Asymp sig (probability) with the level of significance for testing the hypothesis. If the Asymp sig is more than the level of significance (0.05) the null Hypothesis (Ho) is accepted, the scores are normally distributed.

### 1.6.3 Variance Homogeneity Test

To examine the homogeneity variance of the scores, Levene's test for equality of variance in SPSS 15 windows is used in this study. The steps of analyzing the homogeneity are as follows:

1. Stating the hypothesis and setting the alpha level at 0.05 (two tailed).  
 $H_0$  = the variance of the experimental and control group are homogenous  
 $H_1$  = the variance of the experimental and control group are not homogenous
2. Analyzing the homogeneity of variance using Levene's test for equality of variance in SPSS 15.0 windows.
3. Comparing the Asymp sig (probability) with the level of significance for testing the hypothesis. If the Asymp sig is more than the level of significance (0.05) the null Hypothesis (Ho) is accepted, and the variance of the groups are homogenous.

### 1.6.4 The Calculation of t-test

The steps of computing t-test described below:

1. Stating the Null hypothesis ( $H_0: X_1 = X_2$ ) and the Alternative hypothesis ( $H_a: X_1 \neq X_2$ )

$H_0$  = the two samples are from the same population; there is no significant difference between the two sample ( $X_e = X_c$ )

$H_1$  = the two samples are from the same population; there is a significant difference between the two sample ( $X_e \neq X_c$ )

2. Setting the alpha level at 0.05
3. Finding the t value with independent t-test formula.

The formula for a t test between two different groups of scores is as follows:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{\left[ \sum X_1^2 - \frac{(\sum X_1)^2}{N_1} + \sum X_2^2 - \frac{(\sum X_2)^2}{N_2} \right]}{N_1 + N_2 - 2} \left[ \frac{1}{N_1} + \frac{1}{N_2} \right]}}$$

Note:

$\bar{X}_1$  = The mean of the score of the experimental group

$\bar{X}_2$  = The mean of the score of the control group

$\sum X_1^2$  = The sum of the squares of the experimental group

$\sum X_2^2$  = The sum of the squares of the control group

$(\sum X_1)^2$  = The square of the sum of the squares of the experimental group

- $(\sum X_2)^2$  = The square of the sum of the squares of the control group  
 $N_1$  = The total number of scores in the experimental group  
 $N_2$  = The total number of scores in the control group

4. Comparing t-obtained and t-crit. If  $t_{obt}$  is lower than  $t_{crit}$ , the result is not statistically significant at the 0.05 level,  $H_0$  is accepted; While, If  $t_{obt}$  is higher than  $t_{crit}$  the result is statistically significant, then  $H_0$  is rejected.

### 3.6.5 Questionnaire and Interview Data Analysis

The formula of percentage is used to analyze the questions. The data interpret based on the frequency of the students' answer. The formula is described as follows:

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

Furthermore, the result of interview is analyzed by considering each item that is informed to support the statement from the questionnaire. Before the analysis, the interview is transcribed.