

### **III. METHODS**

This chapter discusses certain points: methods dealing with design, variable, source of data, instrument, procedure, data analysis, and hypothesis testing.

#### **3.1 Design**

To conduct this research, Pretest Posttest Experimental Group Design was used. This design belongs to experimental designs. Experimental designs have three basic characteristics: (1) a control group is present, (2) The sample are randomly selected and assigned to the groups, and (3) a pretest is administered to capture the initial differences between the groups (Hatch and Farhady, 1982:22). But in this study, there was no control class because this study was the comparison research.

This design was used to give special treatment to the experimental class using authentic material and modified material in teaching writing. There were two classes of this experimental study; one was experimental class ( $E_1$ ) which got treatment through authentic material and the other class ( $E_2$ ) was experimental class which got treatment through modified material.

The pretest was done first before the treatment. It was intended to measure the students' basic ability of both in order to ensure their entry point. Experimental class 1 ( $E_1$ ) was needed for comparison purposes because it let the writer interpret her findings more confidently.

Based on Hatch and Farhady (1982: 22), the researcher used the following design:

$E_1$  (Random) :  $T_1$   $X_1$   $T_2$

$E_2$  (Random) :  $T_1$   $X_2$   $T_2$

Notes:

$E_1$  = experimental 1 Group

$E_2$  = experimental 2 Group

$T_1$  = the pretest

$T_2$  = the posttest

$X_1$  = treatment 2 (Teaching writing using authentic material)

$X_2$  = treatment 1 (Teaching writing using modified material)

### 3.2 Variable

This research used 2 variables. One as X variable and one as Y variable. X is an independent variable and Y is dependent variable. In this research, Y variable (dependent) was writing achievement and X variable (independent) was materials. X variable (dependent) was divided into 2, authentic material and modified material.

### 3.3 Subject of the Study

The population of the research was the second year students of SMPN 6 Metro. The second year students in the second semester of academic year 2014/2015 were selected in this research. There are five classes of the second year students, those are VIII 1, VIII 2, VIII 3, VIII 4, VIII 5 and each class consists of 32 students. Their ages range from 14-15 years old.

The class as the sample was taken through lottery, because all the classes have the same opportunities to be chosen as the sample of this research. One is the experimental class 1 and the other one is the experimental class 2. In this case, the researcher asked the leader of each class to take a small piece of paper in order to know which the class would be as experimental class 1 or experimental class 2.

### **3.4 Instrument**

In collecting the data, writing test in the form of essay test was used as the instrument. There were two kinds of test, pre-test and post-test. Pre-test was administered in order to measure the student's writing achievement before conducting the treatment, and post-test was administered after conducting the treatment in order to know the achievement of writing ability. The tests were designed based on KTSP curriculum for the eight grade students.

The students were given the instructions to write their name and their class in a piece of paper. After that, the time around 80 minutes were given for the students to do the writing test. The topics of the instruments were two descriptive texts based on authentic materials and modified materials.

#### **3.4.1 Scoring Writing Test**

To gain the data in this research, the researcher considered the following components:

1. Content : the substance of writing, the idea expressed (unity)

2. Language Use : the employment of grammatical forms and syntactic patterns
3. Organization : the form of the content (coherence)
4. Vocabulary : the selection of word that suitable with the content
5. Mechanics : the conventional devices used to clarify the meaning

(Jacobs, 1981)

Table 3.1. Specification in Writing Test:

Writing Aspects	Criteria in writing test	Percent of the whole Score
Content	Make an effective descriptive text by seeing the topic sentence and controlling the idea	30%
Language Use	Use present tense, correct grammatical and syntactic pattern	25%
Organization	Use the correct generic structure	20%
Vocabulary	Use the suitable words	20%
Mechanics	Use correct graphic conventional of the language. Including spelling, punctuation, capitalization, and paragraphs	5%

In line with the explanation above, the aspects of writing descriptive text were evaluated based on the content 30%, grammar 25%, organization 20%, vocabulary 20%, and mechanics 5%. The lowest score for the test is 0 and the highest score is 100.

### 3.4.2 The Validity

Validity is the extent to which a test measures what it claims to measure. It is vital for a test to be valid in order for the results to be accurately applied and interpreted. Validity is not determined by a single statistic, but by a body of

research that demonstrates the relationship between the test and the behavior it is intended to measure. A test can be said valid if it measures the object to be measured and suitable for the criteria (Hatch and Farhady, 1982: 251).

There are four basic types of validity: content validity, criterion-related validity, face validity, and construct validity, (Hatch and Farhady, 1982:251). To determine the validity of the test, the researcher only pay attention on content validity.

Content validity is the extent to which a test measures a representative sample of the subject matter content. It concerned whether the tests were good reflection of the materials that need to be tested (Hatch and Farhady, 1982). The focus of content validity is on adequacy of the sample and not simply on the appearance of the text. To assure the researcher of content validity of a test, the content of whatever the test will measure must be carefully defined.

According to the explanation above, it can be concluded that the writing test that was used by the researcher in Experimental Class 1 and Experimental Class 2 were valid because the materials had completed the requirements of content validity.

### **3.4.2 The Reliability**

Reliability refers to the consistency of a measure. A test is said reliable if we got the same result of the test repeatedly, no matter when and in what condition, as long as the subject are same, the result will be same. For example, if a test is designed to measure writing ability, then each time the test is administered to a

subject, the results will be the same. Unfortunately, it was hard to calculate reliability, but it can be estimated in a number of different ways.

According to Hatch and Farhady (1982:243), the reliability of a test can be defined as the extent to which a test procedures consistent result when administered under similar conditions. To estimate the reliability of the test, inter-rater reliability was used. Inter-rater reliability was used because the test score was estimated by two or more judges.

The formula of the reliability can be seen as follows:

$$r = 1 - \frac{6 \cdot \sum d^2}{N(N^2 - 1)}$$

- r : coefficient of rank correlation  
 d<sup>2</sup> : Square of differences of rank correlation  
 d : Sum differences between each pair of ranks  
 N : Number of students

(Sugiyono, 2006: 228)

The criteria of the reliability are as follows:

- 0.8 – 1.0 : Very high reliability  
 0.6 – 0.79 : High reliability  
 0.4 – 0.59 : Medium reliability  
 0.2 – 0.39 : Low reliability  
 0 – 0.19 : Very low reliability

(Arikunto, 2005)

After calculating the result of the students' writing text, the data was calculated by using the formula above. From the criteria of reliability and calculation, it can be

concluded that the reliability of two raters in the two experimental classes were very high. The result of reliability can be seen in the Table 3.1.

Table 3.2. Reliability Test in Both Experimental Classes

	<b>Pre-test</b>	<b>Post-test</b>	<b>Criteria</b>
Experimental Class 1	0.824	0.875	Very High Reliability
Experimental Class 2	0.858	0.91	

### 3.5 Research Procedure

There were some procedures which were applied in collecting the data:

1. Determining the population and the sample.

Two classes were taken as the sample. The sampe were chosen by using random sampling. Those two classes were randomly assigned into Experimental Class 1 and Experimental Class 2.

2. Administering pre-test.

The pre-test was administered on both groups experimental class 1 and experimental class 2.

3. Conducting treatment.

The students in experimental class 1 were taught using authentic materials and the students in experimental class 2 were taught using modified materials.

4. Administering the post-test.

The post-test was administered in both of experimental class 1 and experimental class 2.

5. Scoring the student's work.

The learners' works were scored in order to get the data.

6. Analyzing the data.

After collecting the data, the data was analyzed by using *SPSS version 20 for windows*.

#### 7. Testing hypothesis.

After analyzing the data, the hypothesis was tested.

### **3.6 Data Analysis**

The data was computed by using the following steps:

- Scoring the pre-test and post-test.
- Tabulating the results of the test and calculating the score of the pre-test and post-test.
- Drawing conclusion from the tabulated results of the pre-test and post-test administered, that is by statistically analyzing the data using statistical computerization i.e. *Independent Groups T-Test of Statistical Package for Social Science (SPSS) version 20.0 for windows* to test whether the increase of students' gain is significant or not, in which the significance was determined by  $p < 0.05$ . It is used as the data come from the two samples (Hatch and Farhady, 1982:111).

#### **3.6.1 Data Treatment**

In order to determine whether the data was good or not, the researcher analyzes the data by:

1. Scoring the pre-test and post-test.
2. Tabulating the results of the test and calculating the score of the pre-test and post-test.



3. Calculating from tabulated results of the pre-test and post-test administered. It was statistically analyzed the data using **T-test** to test whether or not the difference between pretest and posttest was significant. It was used as the data comes from the same sample or known as paired data (Hatch and Farhady, 1982).

### 3.7 Hypothesis Testing

After being collected, the data was recorded and analyzed in order to find out whether there were any difference of student's writing achievement between the students who were taught using authentic material and those who were taught using modified material and which of the two materials were more effective for teaching writing. Independent Group T-test was used to know the level of significance of the treatment effect.

The formulation is:

$$t_{obs} = \frac{\bar{X}_e - \bar{X}_c}{S_{(\bar{X}_e - \bar{X}_c)}}$$

With:

$$S_{(\bar{X}_e - \bar{X}_c)} = \sqrt{\left(\frac{S_e}{\sqrt{n_1}}\right)^2 + \left(\frac{S_c}{\sqrt{n_2}}\right)^2}$$

$\bar{X}_e$  : Mean from the difference pre-test and post-test of experimental class 1 and experimental class 2

$\bar{X}_c$  : Mean from the difference pre-test and post-test of experimental class 1 and experimental class 2

$S(\bar{x}_e - \bar{x}_c)$  : Standard error of differences between means

n : Subjects on sample

(Hatch and Farhady, 1982:111)

The criteria are:

If the t-ratio is higher than t-table :  $H_1$  is accepted

If the t-ratio is lower than t-table :  $H_0$  is accepted

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