

## CHAPTER III

### RESEARCH METHOD

This chapter consist of research design, population and sample, data collection, and data analysis.

#### 3.1 Research Design

This research uses quantitative method, especially experimental research design to test the theory whether it gives significant effect or not in students' writing skill. An experimental design is chosen for this research because experiments provide answers for cause-effect relations (Abbott & McKinney, 2013). More specifically, this study will use quasi experimental design. It is because the school had been classification the class. It means that the researcher does not allowed to do randomization class. So the researcher does not have access to full control the target and the time for this study is also limited.

There are two variables in this study, among others are dependent variable and independent variable. Dependent variable is writing skill. While independent variables are graphic organizer and schoology. In this study there are two groups, namely experimental group and control group. The experimental group will be given treatment by using graphic organizer with schoology while control group will be given by only using graphic organizer.

**Table 3.1 Experimental research design can be described as follows:**

| Group      | Pre-test | Treatments | Post-test |
|------------|----------|------------|-----------|
| Experiment | X        | X          | X         |
| Control    | X        | -          | X         |

Where:

+ : With treatment (Using graphic organizer with schoology)

- : Without treatment (Only using Graphic Organizer)

From the table above, it can be seen that both of the groups will be given pre-test in the beginning of the research. The two groups will be taught with same topic but in different technique teaching. The experimental group will give the treatment by applying graphic organizer with schoology. Meanwhile, the control group will be taught by only using graphic organizer. After giving the treatment, the researcher will give post-test to both of groups, then the results will be compared with computed statistically.

### 3.2 Population and Sample

#### 3.2.1 Population

The population of this study is students of 11<sup>th</sup> grade at MA Masyhadiyah Giri which consist of 4 classes: three class of science and one class of social. The total number of the students in 11<sup>th</sup> grade at MA Masyhadiyah Giri is 120 students. As the information, in MA Masyhadiyah Giri there is computer lab facility, so this will support the researcher to conduct a study.

#### 3.2.2 Sample

For the sample of the study, the researcher will take two classes at 11<sup>th</sup> grade in order to get the data. They are 11 MIPA 2 and 11 MIPA 3. Those are divided into two categorize, namely 11 MIPA 2 as the experimental group that will be taught by using graphic organizer with schoology. While 11 MIPA 3 as the control group that will be taught by only using graphic organizer.

**Table 3.2 The number of the sample research:**

| No                                  | Grade     | Group        | Number of Students |
|-------------------------------------|-----------|--------------|--------------------|
| 1.                                  | X1 MIPA 2 | Experimental | 30                 |
| 2.                                  | X1 MIPA 3 | Control      | 30                 |
| <b>Total number of the students</b> |           |              | 60                 |

### **3.3 Data Collection**

In this study, the researcher collect the data from writing test by conducting pre-test and post-test. The first data is pre-test. Pre-test will be conducted in the beginning of the study. Then post-test will be given at the end of study to know the influence of using graphic organizer with schoology in students' writing skill. The last, the researcher will analyse the data by SPSS 16.0 program.

#### **3.3.1 Research Instrument**

To obtine the data, the resaecher uses written test instrument. Furthermore, in this study, the research using pre-test and post-test. By using pre-test and post-test, researcher want to get information about the score of students writing in control group and experimental group. To get a score, the researcher using a scoring guide that chosen as an assessment criterion for aspect writing skills.

##### **3.3.1.1 Test**

There are two kinds of test that used by the researcher, among others are pre-test and post-test. It is given to experimental and control group to know whether there is a progress or not in students' writing skill. The researcher develop the test based on syllabus which focuses on writing skill and the material is about analytical exposition text.

##### **a. Pre-test**

The researcher will give pre-test to control group and experimental group which is conducting before the treatment. So pre-test happened in the beginning of this study. The aim of pre-test is to find the information about the students' writing scores before the treatment. The researcher will give the different test between pre-test and post-test, but the tests are still equal in the term of material (analytical exposition text) and item. The differences is lies on the themes that will be written into analytical exposition text.

#### b. Post-test

The researcher will give post-test which is conducting after the treatment. The purpose of post-test is to find the information about the students' writing scores after given a treatment. In the post test the students will write the same material with the pre-test, namely analytical exposition text but the themes that the teacher will give to the students is different with the pre-test.

### **3.3.2 Validity**

Validity is needed before give the students a test. The function is to measure the test to know it valid or not. Because validity is the one of requirement to produce the appropriate and useful in term of purpose of the test. The researcher uses content validity to analyse the test. According to Ary (1990) content validity can be determined by whether the test's items suitable with the subject and objectives in the curriculum guides, syllabus and course book so content validity is not always in numeric form.

In this study, the researcher will use content validity to guarantee the validity of test. The researcher compares the test based on curriculum and syllabus of Senior High School. If the test appropriate with curriculum and syllabus, it means that the test is valid so the test can give to the students. The test should be determine whether the items of the test represent objective or subjective item. This study include in subjective test, the content of validity will measured by relating the content of the instrumen with standard in Indonesia curriculum. The instrumen of this study is writing form which measured the ability of students' writing skill. Here the researcher helped by English teacher to check the instrument based on curriculum and syllabus.

### **3.3.3 Reliability**

Reliability refers to the consistency of assessment scores. In other words, reliability is the consistency of the measurement, or degree to which an instrumen measures the same way each time it is under the same condition. So the reliability in writing test is used to know whether the rubric is reliable or not. In writing test,

rubric is the things that must be consistent and trusty. In this study the researcher adoption a rubric from Jacob (1981) to score students' writing skill.

### 3.3.4 Procedure of Collecting Data

In collecting data, the researcher has some procedures. The first step is researcher makes pre-test and post-test. The second is the researcher divides the subjects into two groups namely experimental and control group. After that, the researcher gives treatment to experimental group by using graphic organizer with schoology. Meanwhile, the control group will given the treatment by only using graphic organizer. Then, the researcher gives post-test to both of groups. And the last step is analyzing the data from the pre-test and post-test by using SPSS 16.0 program.

**Table 3.4 The schedule of Implementation**

| No | Date           | Activities   |
|----|----------------|--|
| 1. | First meeting  | Giving pre-test for experimental group and control group.  |
| 2. | Second meeting | Giving the first treatment about analytical exposition text about " <i>Fast Food</i> ".                        |
| 3. | Third meeting  | Giving the second treatment about analytical exposition text with the different theme ( <i>Trees</i> ).        |
| 4. | Fourth meeting | Giving the third treatment about analytical exposition text with the different theme ( <i>Cellphones</i> ).    |
| 5. | Fifth meeting  | Giving the fourth treatment about analytical exposition text with the different theme ( <i>Social Media</i> ). |
| 6. | Sixth meeting  | Giving post-test for experimental group and control group.   |

### 3.3.5 Scoring Guide

This study using scoring technique based on standard criteria of writing skill. According to Hughes (2008, p. 103), there are five components of writing,

namely content, organization, vocabulary, language use, and mechanics. The researcher adopt the assessment rubric from Jacob (1981). It can be seen from the following table:

**Table 3.5 Assessment Rubric of Writing (adoption from: Jacob, 1981):**

| <b>Aspect</b>       | <b>Level</b>             | <b>Score</b> | <b>Criteria</b>  |
|---------------------|--------------------------|--------------|--|
| <b>Content</b>      | Excellent –<br>Very Good | 30-27        | Relevant to the topic, give the detail information, and match the purpose of the text. |
|                     | Good –<br>Average        | 26-22        | Mostly relevant to the topic, lacks of detail.   |
|                     | Fair – Poor              | 21-17        | Inadequate development of the topic, almost match to the purpose of the text.          |
|                     | Very poor                | 16-13        | Does not relate to the topic and does not match the purpose.                           |
| <b>Organization</b> | Excellent –<br>Very Good | 20-18        | Fluent expression, ideas clearly stated, well organized, logical sequencing cohesive.  |
|                     | Good –<br>Average        | 17-14        | Loosely organized, limited support, logical but incomplete sequencing.                 |
|                     | Fair – Poor              | 13-10        | Non-fluent, ideas confused or unconnected, lacks logical development and sequencing.   |
|                     | Very poor                | 9-7          | Does not communicate, no organization, not enough to evaluate.                         |
| <b>Vocabulary</b>   | Excellent –<br>Very Good | 20-18        | Use effective word/word choice/word usage, word form mastery.                          |
|                     | Good –<br>Average        | 17-14        | Occasional errors of word form, choice/word usage but meaning not obscured.            |

|                     |                       |       |   |
|---------------------|-----------------------|-------|---|
|                     | Fair – Poor           | 13-10 | Frequent errors of word form, choice, usage and meaning obscured/confused.  |
|                     | Very poor             | 9-7   | Essentially translation, little knowledge of English, not enough to evaluate.   |
| <b>Language use</b> | Excellent – Very Good | 25-22 | Few errors of agreement, tense, and word order.   |
|                     | Good – Average        | 21-18 | Several errors of agreement, tense, and word order.   |
|                     | Fair – Poor           | 17-11 | Frequent errors and meaning obscured.   |
|                     | Very poor             | 10-5  | Dominated by error, does not communicate, not enough to evaluate.   |
| <b>Mechanics</b>    | Excellent – Very Good | 5     | Exemplary mechanism, may have minor errors in punctuation, capitalization, and spelling, need little or no editing.                   |
|                     | Good – Average        | 4     | Adequate mechanism, have some errors in punctuation, capitalization, and spelling, need editing but does not impede readability.      |
|                     | Fair – Poor           | 3     | Limited mechanism, consistent errors of punctuation, capitalization, and spelling, impede readability.                                |
|                     | Very poor             | 2     | Inadequate mechanism, serious and consistent errors in punctuation, capitalization, and spelling impedes understanding/communication. |

**How to Total the Score :**

Total Score of Content + Organization + Vocabulary + Language Use +  
 Mechanics = ..... + ..... + ..... + ..... + ..... = .....

### **3.4 Data Analysis**

After conducting pre and post test, the researcher needs to analyze the result. The accuracy from the aspects of writing skill content, organization, vocabulary, language use, and mechanic. The researcher identifies the progress of the students in writing skill due to the actions. The data will analyzed by quantitative. Quantitative test was carried out statistically using t-test. The researcher employed statistical program of SPSS to get rapid and accurate data calculation. The instrument that analyzed quantitatively is the results of pre-test and the post-test.

#### **3.4.1 Normality Distribution Test**

Normality distribution test is used to find out whether or not the data between two groups are normally distributed. The researcher uses normality distribution test because she wants to know the data between experimental group and control group toward writing skill are in normal distribution or not.

To analyze it, this researcher uses Kolmogorov-Smirnov test in SPSS. The procedure to analyze the normal distribution is selecting Analyze, choose Descriptive Statistics, then Explore, input the variable score to Dependent List, group variable to Factor List, click Plots and tick Normality Plots with test, click Continue, and then click OK. After that compare the Sig. with the level of significance for testing the hypothesis. If the Sig. is more than the level of significance (0.05) the null hypothesis is accepted. It means that the score normally distributed. On the other hand, if the Sig. is less than the level of significance (0.05) the null hypothesis is rejected. To interpreting the data is as follows :

Ho : The score of the experimental and control group are normality distributed.

H1 : The score of the experimental and control group are not normality distributed.



### 3.4.2 Homogeneity Test

Homogeneity test is used to find out whether the research population has the same variance or not. The researcher also uses homogeneity test because she wants to know the variance between experimental group and control group toward writing skill are homogeneous or not. To analyze it, the researcher uses Lavene's test. The test statistic of Lavene's test (W) is defined as follows:

$$W = \frac{(N - k) \sum_{i=1}^k n_i (Z_{i.} - Z.)^2}{(k - 1) \sum_{i=1}^k \sum_{j=1}^{n_i} (Z_{ij.} - Z_{i.})^2}$$

Where:

W : The result of the test

K : The number of different groups to which the samples belong

N : The total number of samples

N<sub>ij</sub> : The number of sample in the i<sup>th</sup> group

Y<sup>ij</sup> : The value of J<sup>th</sup> sample from the i<sup>th</sup> group

$$Z_{ij} = |Y_{ij} - \gamma_i|, \gamma_i \text{ is mean of } i\text{-th group}$$

$$Z_{ij} = |Y_{ij} - \gamma_i|, \gamma_i \text{ is median of } i\text{-th group}$$

The significance of W is tested against F ( $\alpha$ , K-1, N-K) where F is a quintile of F test distribution, with K-1 and N-K its degree of freedom, and  $\alpha$  is the chosen level of significance (usually 0,05 or 0,01).

The procedure to analyze the homogeneity test is inserting the pre-test data both experimental and control group, click Analyze, then Compare Means, choose Independent Sample T-Test and then click OK. The output automatically shows the result of Lavene's test.

### 3.4.3 Hypothesis Testing

In this study, the researcher uses independent t-test to know the significant difference between experimental group and control group is accepted or rejected. There are two steps of hypothesis testing. The first step is starting the hypothesis and setting the alpha level at 0.05 (2-tailed). The hypothesis can be formulated as follow:

Null hypothesis is  $\mu_1 = \mu_2$  ( $\mu_1 = \mu_2$ )

Alternative hypothesis is  $\mu_1 \neq \mu_2$  ( $\mu_1 \neq \mu_2$ )

Hypothesis testing in this study is as follows :

H<sub>0</sub>: There is no significant effect of graphic organizer with schoology on students' writing skill at MA Masyhadiyah Giri.

H<sub>1</sub>: There is a significant effect of graphic organizer with schoology on students' writing skill at MA Masyhadiyah Giri.

The second step is finding t-value using independent t-test formula and comparing the probability with the level of significance for testing the hypothesis. After the scores were computed in SPSS 16.0, see the output of independent t-test and interpreted the output that if sig (2-tailed) > (0.05), the researcher should accept the H<sub>0</sub> but if sig (2-tailed) < (0.05), the researcher can reject H<sub>0</sub>, it means H<sub>1</sub> is accepted.

T-test was calculated to find out the comparison of two means between experimental and control group pre-test and post-test. In analyzing the data, the researcher uses independent t-test formula. The formula is:

$$t = \frac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{S_{x_1 - x_2}}$$

Where:

t : t value

- $X_1$  : Average group 1
- $X_2$  : Average group 2
- $S$  : Standard error of the two groups
- $\mu_1 - \mu_2$  : Always defaults to 0

Where:

$$S_{x_1 - x_2} = \frac{\sqrt{S^2_{\text{pooled}} + S^2_{\text{pooled}}}}{n_1 + n_2}$$

$S_{x_1 - x_2}$  : Standard error of two groups

$S^2_{\text{Pooled}}$  : Variants of the two groups

$n_1$  : Number of sample group 1

$n_2$  : Number of sample group 2

Pooled variance : the average of two sample variances, allowing the larger sample to weight more heavily.

Formula :

Estimated standard error of the difference

$$S_{x_1 - x_2} = \frac{\sqrt{(SS_1 + SS_2)(1 + 1)}}{(n_1 + n_2)(n_1 + n_2)}$$

To calculate t-test, the researcher uses SPSS (Statistical Product and Service Solution). It aims to find out the significance effect of using Graphic Organizer with Schoology on students' writing skill. The post-test score both experimental group and control group will analyzed by using SPSS 16.0 with some procedures. The first procedure is inserting the post-test data both experimental group and control group using the data view. The second procedures is selecting Analyse, then Compare Means, and choose Independent Sample T-

Test output, automatically it could answer to the research question about the comparison between two groups. The final result is collecting by means of pretest and post-test score.

