

## **CHAPTER III**

### **RESEARCH METHODOLOGY**

In this chapter, the writer described about research method that used in conducting the research. It was purposed to answer the problem of the study. This chapter consist of research type, research design, population and sample, research instrument, data collection procedures, research instrument reliability, research instrument validity, and data analysis procedures.

#### **A. Research Type**

In this research, the writer used the quantitative research using cluster sampling. It was beacuse the writer measured the writing score by test (pre-test and post-test). Quantitative is a research that relies less on focus groups, subjective reports and case studies but is much more focused on the collection data and analysis of numerical data and statistics. It meant the writer collected the data which contained of numbers and it was analyzed by statistic method. The writer took two classes as experiment and control class. Experiment class was sample class that gave treatment which the teaching learning process used picture series in teaching writing recount text. In the other hand, control class was class that the teaching learning process did not use picture series in teaching writing recount text.

#### **B. Research Design**

The research design of this study is experimental design using T-test to analyzethe data. Experimental design involves a study of the effect of the systematic manipulation of one variable on another variable. The manipulated

variable is called the experiment treatment or the independent variable (picture series as instructional media in teaching recount writing). The observed and measured variable is called the dependent variable (students' writing score in recount text).<sup>47</sup>

The writer did field study, especially quasi experimental design. An experiment involves the comparison of the effects of a particular treatment with that of a different treatment or without treatment. Quasi experimental design or similar to randomized experimental design in they involve manipulation of an independent variable, but different in that subjects are not randomly assigned to treatments group.<sup>48</sup> The writer used the Quasi-Experimental design because it was not possible to randomly assign subjects to treatment groups. The characteristics of Quasi-Experimental Design are: 1). having more than one variable, 2). having control group, 3). independent variable is manipulated, 4). and the other variables are controlled.<sup>49</sup>

The design consisted of two groups that were chosen without random; they were experiment group and control group. Both of groups were given pre-test before having treatment. The experiment group was given treatment (teaching recount text by using Picture Series) and the control group was taught usually that was used by the English teacher before this study. After having treatment, both groups (experiment and control group) were given post- test. Finally, the results of post-test were compared using T test.

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<sup>47</sup>Donald Ry, Lucy Cheser Jacob, and Cristine K, Sorensen, *Introduction to Research in Education*, USA: Wadsworth Cengage Learning, 2010, p. 266.

<sup>48</sup>*Ibid*, p.316.

<sup>49</sup>Sukardi, *Metode Penelitian Pendidikan, Kompetensi dan Praktik*, Jakarta: Bumi Aksara, 2007, p. 186.

Why the writer chose this design, because experimental design was aim to investigate the cause and effect between the object of research. This was related to the objectives of the study that find the significant effect to the students' writing score taught by Picture Series and without Picture Series.

**Table 3.1**  
**Scheme of quasi experimental design**  
**Nonrandomized control group, pretest-posttest design**

Subject	Pre-test	Independent Variable	Post-test
E	Y1	X	Y2
C	Y1	-	Y2

where:

E : Experimental group

C : Control group

X : Independent variable

Y1 : Pre-test

Y2 : Post-test

### **C. Population and Sample**

#### **1. Population**

Population is defined as all members of any well-defined class of people, events, or subjects. If someone wants to research all of the elements in research area the research is called population research on survey study.

In this study, the writer chose the students from MTs Muslimat Nu Palangka Raya. The population was the eighth graders of MTs Muslimat Nu Palangka Raya.

**Table 3.2**  
**The Number of Population MTs Muslimat NU**  
**Palangka Raya**

No.	Grades	The Number of the Students
1.	VIII-A	36
2.	VIII-B	36
3.	VIII-C	36
Total		108

## 2. Sample

Sample is a subset of individuals or case from within a population.<sup>50</sup> Based on the population which is grouped into classes, the sample of this study was class or cluster. In this way, the writer took two classes, class VIII C as an experimental class and class VIII A as a control class which would be related to this study. In a typical situation, schedules could not be disrupted nor classes reorganize to accomodate a research study. In this case, group samples already organized into classes or group. So, the writer took two class without randomized.

## D. Research Instrument

### 1. Test Type

The types of the test used to collect the data was writing test, especially recount paragraph writing test using Picture Series and without Picture Series. The test consisted of the instructions which students were asked to write recount paragraph based on the picture series. The students could develop their ideas based on their version. The allocated time to do each writing test was 80 minutes.

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<sup>50</sup>David Nunan, *Research Methods in Language Learning*, Cambridge: Cambridge University Press, 1992, p. 232.

## **2. Test Construction**

The construction was based on the objective of the study. The study was aimed at finding the effectiveness of Picture Series in writing recount text. To investigate the effectiveness of Picture Series, the subjects were assigned to write recount text by Picture Series and without Picture Series. The result of the two tests was investigated using statistical analysis and the outcomes were compared to see the effects of Picture Series on writing.

To gain the appropriate writing test for the aim of this study, the writer did some steps: (a). planning the writing test, (b). preparing the writing test, (c). trying out (pre-test) the test and analyzing the result, and (d).carrying out the test.

### **a. Planning The Writing Test**

To produce a good writing test, the writer made plan on the test construction. In this sense, the objective of the test was determined. Then, the writer decided the appropriate type of test. The test type and test objectives were very close. The test objective cannot be achieved without having appropriate test type. Then, the writer determined the adequacy of the content. The test content should match with test types and objectives.

### **b. Preparing The Writing Test**

The writing test was used to elicit the data covering direction and instructions of what the subjects have to do. To make the instruction clear and understood by the students, the instructions must be simple.

In Sabarun thesis, to construct the directions, the writer took into account the guidelines applied by Clouse as follow: (1).The question should be clear, (2).

The question should be brief, (3).The question should be definite, (4). Avoid question requiring yes or no answers, (5).Average students should be able to write answer to the questions, (6).The vocabulary used and the concepts expressed in the topic should not be too difficult for ordinary students to understand immediately, (7).The instructions should provide an organizing principle for composition.<sup>51</sup>

The writing instructions were designed to measure the students' writing score. It was scored on the basis of the marking scheme that contains some features or component of writing such as content, organization, sentences structure, and grammar, usage and mechanics of the students' writing.

### **E. Data Collection Procedures**

In this study, the writer used some procedures to collect the data. The procedures contain some steps as follows:

1. The writer determined the class into experimental group and control group.
2. The writer gave pre-test to both classes that would be assigned as the sample of the study.
3. The writer gave treatment to the experimental group taught by picture series and control group without picture series.
4. The writer gave post-test to both classes after giving the treatment.
5. The writer collected the students' written scores of Pre-test and Post- test.
6. The writer analyzed the data by using t-test to answer the problem of the study.

In addition, the SPSS program was applied.

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<sup>51</sup>Sabarun, *The Effectiveness of Using Clustering Technique in Writing Expository Essays of the Fourth Semester English Department Students of Palangka Raya*, Unpublished Individual Research Proposal, Palangka Raya: STAIN Palangka Raya, 2013, p.37.

7. The writer interpreted the result of analyzing data and concluded the data.

#### **F. Research Instrument Reliability**

Reliability is a necessary characteristic of any good test for it to be valid at all. A test must first be reliable as a measuring instrument. It is the degree of consistency with which it measures whatever it is measuring.<sup>52</sup> The good instrument in a study is not only the instrument valid, but also reliable to measure what suppose to be measured.

Sekaran stated that reliability is the extent of consistency and stability of the measuring instrument. In this case, to score composition is fairly and consistently as possible. Reliability refers to the consistency with which a test measured whatever it measured.<sup>53</sup> In analyzing the reliability could be used the internal consistency method. This method is done by test-retest reliability, because the instrument will be tried to same group but different time and those scores are measured. If the result is same, so the instrument is declared reliable to measuring of variables.

In rather reliability, there are inter-rater reliability and intra-rater reliability. Inter-rater reliability is the consistency of the judgment of several raters on how they see a phenomenon or interpreted the responses of the subject. It indicates accuracy in scoring composition of two different raters. Meanwhile, intra-rater reliability referred to the consistency of the rater in scoring the same paper

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<sup>52</sup>Donald Ary, Lucy Cheser Jacobs, Chir Sorensen, Asghar Razavieh, *Introduction to Research in Education*, p. 236.

<sup>53</sup>Hopkins, C.D & Richard, L.A, *Classroom Measurement and Evaluation*. Illinois: F.E. Peacock Publisher, Inc, 1990, p. 295.

at two different points of time. It points out an individual accuracy in scoring a particular composition.<sup>54</sup>

In this study, the writer applied inter-rater reliability; two raters would employed to score the students' writing. The two raters were the writer self and English teacher of MTs Muslimat Nu Palangka Raya. One important thing in using the inter rater method in rating process was focused with the training of the raters. It can maximize the accuracy of the writing assessment.

Relevant to this, Nunan stated that the acceptance reliability on composition score is possible to get through careful training of raters.<sup>55</sup> Furthermore, Latief argue that reliability on composition is affected by both raters and writers of the text. Raters' reliability refers to the accuracy of the rater judgment. Meanwhile, writers' reliability refers to the accuracy of the writers' performance.<sup>56</sup>

To obtain inter-rater reliability, the score of two raters were correlated using SPSS program. Then the writer got the interpretation of coefficient correlation, whether they belong to high, moderate, or positive weak negative inter rater reliability category. The obtained coefficient should indicate that the students' writing products both using picture media and without using picture media have achieved the acceptable level of reliability. Calculation result of  $r$  is compared with  $r_{table}$  by 5% degree of significance with  $df=N-2$ . If  $r$  is higher than  $r_{table}$  so it meant reliable and if  $r$  is lower than  $r_{table}$  so it meant unreliable. In this case, the

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<sup>54</sup>Sabarun, *The Effectiveness of Using Clustering Technique in Writing Expository Essays of the Fourth Semester English Department Students of Palangka Raya*, p. 43.

<sup>55</sup>David Nunan, *Research Methods in Language Learning*, p. 56.

<sup>56</sup>M. Latief Adnan, *Reliability of Language Skill Assessment Result*, *Jurnal Ilmu Pendidikan* VIII No. 3, 214-224, 2010.



writer applied the coefficient correlation and the interpretation of inter-rater reliability proposed by Winkle et al as shown in table 3.3.<sup>57</sup>

**Table 3.3**  
**Inter-Rater Coefficient Correlation and Interpretation**

Correlation Coefficient	Interpretation
.90 to 1.00 or -.90 to -1.00	Very high positive or negative correlation
.70 to .89 or -.70- to -.89	High positive or negative correlation
.50 to .69 or -.50 to -.69	Moderate positive or negative correlation
.30 to .49 or -.30 to -.49	Low positive or negative correlation
.00 to .29 or -.00 to -.29	Little if any correlation

### G. Research Instrument Validity

According to Heaton, stated that,

“The validity of the test is the extent to which it measures what it is supposed to measure and nothing else. Every test, whether it is a short, informal classroom test or a public examination, should be as valid as the constructor can make it. The test must aim to provide a true measure of the particular skill which is intended to measure”.<sup>58</sup>

Therefore, a test is said to be valid when it actually measures what it is intended to measure.

An instrument is called a valid one when it can measure something which is wanted by covering the variable studied exactly. The method used in measuring the validation of the instrument is called content validity. To valid the result of the test, the writer asked for the real teacher to analyzes it.

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<sup>57</sup>Antony C. Winkle, and Jo Roy Mc Cuen, *Writing the Research Paper*, Orlando: Harcourt Brace Jovanovic Publisher, 1989, p. 35.

<sup>58</sup> *Writing English Language*, pdf. www.ttms.org (Accessed on 1 November 2014)

### **a. Face Validity**

The types of face validity, if the test items look right to other testers, teacher, indicators and test. The types of test items, which would use in this research, can be suitable to the others at the same level was Senior High school.<sup>59</sup>

For face validity of the test items as follow:

- 1) The test used written test in writing test instruction.
- 2) The evaluation by written test based on scoring system.
- 3) Kind of the written test was writing recount text.
- 4) The Language of items uses English
- 5) The written test was suitable with syllabus of English writing for eighth graders at MTs Muslimat Nu Palangka Raya.

### **b. Construct Validity**

Construct validity is type of validity which assumes the existence of certain learning theories or construct underlying the acquisition of abilities and skills. In this case, the test was written in order to measure the writing score.

### **c. Content Validity**

This kind of validity depends on a careful analysis of the language being testes and of the particular course objective. The test should be so constructed as to contain a representative sample of the course, the relationship between the test items and the course objective always being apparent.<sup>60</sup> The instrument which used test, the testing of content validity was matched with the curriculum that was used by MTs Muslimat Nu Palangka Raya.

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<sup>59</sup>J. B. Heaton, *Writing English Language Test*, 1975, p. 152.

<sup>60</sup>*Ibid*, p. 154.

## H. Data Analysis Procedures

The data of this study was students' writing score. To analyzed the data, the writer applied an appropriate technique to find out whether teaching writing using picture series as media was effective to improve students' writing score or not. In inferential analysis, hypothesis testing was done. The technique of the data analysis, the writer used descriptive analysis (mean, mode, median, standard deviation) and inferential analysis (test of normality, test of homogeneity, and test of hypothesis).

### 1. Normality Test

It is used to know the normality of the data that is going to be analyzed whether both groups have normal distribution or not. In this study to test normality the writer applied SPSS 16.0 program using Kolmogorov Smirnov with level of significance  $\alpha=5\%$ . Calculation result of asymptotic significance is higher than  $\alpha(5\%)$  so the distribution data was normal. In the contrary, if the result of asymptotic significance is lower than  $\alpha (5\%)$ , it meant the data was not normal distribution.<sup>61</sup>

### 2. Homogeneity Test

Homogeneity is used to know whether experimental group and control group, that are decided, come from population that has relatively same variant or not. To calculate homogeneity testing, the writer applied SPSS 16.0 program using Levene's testing with level of significance  $\alpha (5\%)$ .

If calculation result was higher than 5% degree of significance so  $H_a$  was

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<sup>61</sup>Jean D. Gibson and Subhabrata C., *Nonparametric Statistical Inference*, 4<sup>th</sup> Ed., New York: Marcel Dekker, Inc., 2003, p. 111

accepted, it meant both groups have same variant and homogeneous.<sup>62</sup>

### 3. Testing Hypothesis

The writer calculated the data t-test with formula:<sup>63</sup>

$$t_0 = \frac{Mx_1 - Mx_2}{SEmx_1 - mx_2}$$

Where:

$Mx_1 - Mx_2$  = Differentiation of two means

$SEmx_1 - mx_2$  = The standard error of the difference between two means.

With the criteria:

If  $t_{test} > t_{table}$  =  $H_a$  is accepted and  $H_0$  is rejected

If  $t_{test} < t_{table}$  =  $H_a$  is rejected and  $H_0$  is accepted

The writer used the level of significance at 1% and 5%. If the result of  $t_{test}$  is higher than  $t_{table}$   $H_a$  was accepted but if the result of  $t_{test}$  is lower than  $t_{table}$   $H_0$  was accepted.

The writer used SPSS 16.0 after t-test to answered the problem of the study. Whether there was difference on students' writing score in recount text between using picture series and without picture series. After that, the writer calculated the degree of freedom with formula:  $df = N_1 + N_2 - 2$

where:

df : Design of freedom

$N_1/N_2$ : Number of cases

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<sup>62</sup>Analisis Data dengan SPSS, <http://pasca.undiksha.ac.id/elearning/staff/dsnmateri/4/1-45.pdf> (online 24 June 2014).

<sup>63</sup>Nana Sudjana, *Metode Statistik*, Bandung: PT. Tarsito Bandung, 1996, p 242.

The writer did some ways in the data analysis procedures, they were as follows:

1. Collecting the students' written scores of Pre-test and Post- test.
2. Arranging the obtained score into the distribution of frequency of score table.
3. Calculating mean, median, modus, standard deviation and standard error of students' score.
4. Measuring the normality, homogeneity.
5. Analyzing the data by using t-test to answer the problem of the study. In addition, the SPSS program is applied.
6. Interpreting the result of analyzing data.
7. Making discussion to clarify the research finding.
8. Giving conclusion.

**Figure 3.1 Steps of collecting, data analysis procedure and testing hypothesis**

