CHAPTER III

RESEARCH METHOD

A. Research Type

This study is classified into quantitative research. Quantitative research can be conceptually divided into two types: associational and experimental. This study adopted experimental research. In experimental studies, researches deliberately manipulate one or more variables (independent variables) to determine the effect on another variable (dependent variable). This manipulation is usually described as a treatment and the researcher's goal is to determine whether there is a causal relationship.[1]

B. Research Design

In this study, it used quasi-experimental design. Quasi-experimental design are similar to randomized experimental research in that involve manipulation of an independent variable but differ in that subjects are not randomly assigned to treatment group. There are many situations in educational research in which is not possible to conduct a true experiment. Neither full control over the scheduling of experimental conditions nor the ability to randomize can be always realized. It is not possible to randomly

[1] Alison Mackey and Susan M.Gass, *Second Language Research (Methodology and Design),*LEA, New Jersey London: Marwah, , 2005 p.137-138.

assign subjects to treatment groups.[2] This design was compatible with the writer's purpose which wanted to evaluate the effectiveness of experiential learning method in teaching writing. To observe the data about the students' achievement in writing skill, the writer obtained the data from the results of the students' score both in pre-test and post-test.

The writer used nonrandomized control group pre-test, post-test design with a kind of treatment. There are two groups in this model, control group and experiment group. Both groups were given pre-test to measure the score of students before treatment given (Y1 and Y2). The treatment was given for experiment group (X). Post test was given for both groups to measure the students score after treatment given (Y1 and Y2). The scheme of this model is:

Table 3.1
The Scheme of Quasi-Experimental Design
Nonrandomized control group, pretest-posttest design

Subject	Pre-test	Treatment	Post-test
E	Y1	X	Y1
C	Y2	-	Y2

Where :
E : Experiment group
C : Control group

[2] Donald Ary, Lucy Cheser Jacob, Chris Sorensen, Asghar Razavieh, *Introduction to Research in Education 8th Edition*, Canada: Wadsworth Cencage Learning, 2010, p: 316.

In this experiment, the writer taught the students directly with the same material. Therefore, the use of Mind Mapping technique was applied on experiment group only, and for the control group the writer applied conventional method. Meanwhile, the control group was not given the treatment.

C. Population and Sample

1. Population

Population is the larger group to which a researcher wishes to generalize; it includes all member of a defined class of people, events or objects[3]. The population of this study is the students of 10th Grader of Islamic Senior High School (MAN Model) Palangka Raya.

Table 3.2
The Number Population of the 10th Graders of MAN Model Palangka Raya

No.	Classes	Number of Students
1.	X-1	35
2.	X-2	35
3.	X-3	36
4.	X-4	36
5.	X-5	35
6.	X-6	35
7.	X-7	35

[3] *Ibid*, p: 647.

8.	X-8	36
Total Number		283

2. Sample

Sample is a group selected from a population for observation in study[4]. In this study, Because of the large number of population, the researcher takes samples as the representative of the population. The writer used cluster sampling to take the sample. Cluster sampling is a probability technique that randomly selects and uses whole naturally occurring groups such as intact classrooms[5]. By cluster sampling, the researcher chose two classes that became the experiment group and become the control group.

Table 3.3
The Number of Sample of the 10th Graders of MAN Model Palangka Raya

No.	Classes	Number of Students
1.	X-1	35
2.	X-7	35
Total Number		70

[4] *Ibid*, p: 649.
[5] *Ibid*, p.637

In this study, X-7 class was an experiment group which taught by using Mind Mapping technique and X-1 class was a control group which taught by non-Mind Mapping technique.

D. Research Instrument

1. Test Type

The type of the test used to collect the data was in the form of writing test, especially writing descriptive paragraph using and without using Mind Mapping technique. The post test was conducted on Saturday, 31st May 2014 and taken place at X-1 and X-7 class of MAN Model Palangka Raya. The test consist of the instructions/ directions and statements the subjects addressed in their writing. In this sense, the students are asked to write a descriptive text containing about 100-150 words by using Mind Mapping for experiment group and non Mind Mapping for control group. The allocated time for writing is 45 minutes.

2. Test Construction

The test construction is based on the objectives of the study. The study is aimed at finding out the effect of Mind Mapping technique in writing descriptive paragraph. In order to investigate the effect; the subjects are assigned to write descriptive paragraph using and without using Mind Mapping technique. The result of the two tests was

investigated using statically analysis and outcomes are compared to see the effects of Mind Mapping technique on writing descriptive.

3. Research Instrument Validity

Validity is concerned with the extent to which an instrument measures what one thinks it is measuring.[6] Simply, it can be said that the test will be valid, if it measures accurately what intended to measure.

In this study, the validation of instrument is mainly direct to the content validity. Related to the writing test, the content validity is check by examining and the test use to measure the objectives. The writer used inter-rater method (test of validity). Inter-rater is two raters who score the students' writing to get the score compositions as possible. The researcher used product moment correlation as the formula to calculate the validity from the result.[7]

$$r_{xy} = \frac{\sum XY - (\sum X)(\sum Y)/n}{\sqrt{[\sum X^2 - \frac{(\sum X)^2}{n}][\sum Y^2 - \frac{(\sum Y)^2}{n}]}}$$

Where:

r_{xy} : Index correlation number "r" product moment

N : Number of class

∑xy : Multiplication results between score X and score Y

∑x : Total value of score X

[6] *Ibid.* p. 213

[7] Anas Sudijono, *Pengantar Ilmu Statistik Pendidikan*, Jakarta: PT. Raja Grafindo Pustaka, 1997, p.193

$\sum y$: Total value of score Y

Interpretation:

$r_{xy} > r_t$ = valid

$r_{xy} < r_t$ = Invalid

Riduwan in Mayasarah states the criteria of interpretation of validity:[8]

0.800 – 1000 = very high validity

0.600 – 0.799 = high validity

04.00 – 0.599 = fair validity

0.200 – 0.399 = poor validity

0.000 – 0.199 = very poor validity

4. Research Instrument Reliability

The reliability of a measuring instrument is the degree of consistency with which it measures whatever it is measuring.[9]

In rater reliability, there are inter-rater and intra-rater reliability. A simple way to determine the reliability of ratings is to have two or more observers independently rate the same behaviors and then correlate the observers' ratings. The resulting correlation is called the inter-rater.[10] Meanwhile intra-rater reliability referred to consistency of rater in scoring

[8] Mayasyarah, *The effectiveness of Video Compact Disc as an Audiovisual Medium toward the Students' Listening Comprehension Score of the teent grade students at MAN Model Palangka Raya*, Palangka Raya: Unpublished Thesis: State Islamic College of Palangka Raya, 2010

[9] Donald Ary, Lucy Cheser Jacob, Chris Sorensen, Asghar Razavieh, *Introduction to Research in Education 8th Edition*, p. 236

[10] *Ibid.* 256

the same paper or two different point of time. It point out and individual accuracy in scoring a particular composition.

In this study, the researcher applied inter-rater reliability to correct students' score. The scoring rubric for the measurement can be seen in table 2.1. The coefficient correlation and interpretation of inter-rater reliability according to Djiwandono as show in table 3.4.[11] The writer interpreted the result of pre test by rater 1 and rater 2. It was found that the $r_{obseverved}$ was higher than r_{table} at 5 % and 1 % or 0.324 < 0.604 > 0.418. And the result of post test taken by rater 1 and rater 2 found that the $r_{obseverved}$ was higher than r_{table} at 5 % and 1 % significance level and 0.324 < 0.768 > 0.418.

Table 3.4
Inter-rater reliability coefficient correlation and interpretation

Correlation coefficient	interpretation
0.80 to 1.00	Very high
0.60 to 0.79	High positive
0.40 to 0.59	Moderate
0.20 to 0.39	Low
0.00 to 0.19	Little

[11] M. S. Djiwandono, *Tes Bahasa – Pegangan Bagi Pengajar Bahasa*, Jakarta: PT. Indeks, 2008, p. 168.

5. Normality

Normality is a test normal to whether or not the distribution of research data. Testing the normality of the data it's done by comparing a normal curve formed by the data that has been collected with the standard normal curve/ standard.[12] This study was used SPSS 21 program to test the normality of the data. The result of the test of normality can be seen in table 4.10.

6. Homogeneity

Homogeneity test aims to test the equality some samples.[13] Homogeneity is also known if all random variables in the sequence or vector have the same finite variance. The testing of homogeneity was described in table 4.11.

E. Data Collection Procedures

In the study, the writer will used several procedures in collecting the data, as follows:

[12] Sugiyono, *Statistika untuk Penelitian*, Bandung: CV. Alfabeta, 2006, p.77
[13] *Ibid*.p. 136

1. The writer observed the location, the number of class, the number of students, and class activities.
2. After doing the observation, the writer determined the class into experiment group and control group by using cluster sampling.
3. The writer was given the pre-test to the both groups. For experiment group the pre test was conducted on Saturday, 3rd May 2014 and for control group the pre test was conducted on Thursday, 24 April 2014
4. The writer taught writing descriptive paragraph to the experiment group using Mind Mapping technique in pre writing activity.

Table 3.5
Procedure of Teaching Writing of Descriptive Text by Using Mind Mapping Technique

Procedure	Activities
Pre Writing	• The teacher shows slides that contained pictures • The teacher let the students choose a picture which will be described as a topic • The teacher asks the students to observe characteristic of the picture and asks them to note down the ideas. • The teacher designs a Mind Map with the picture as the topic • The teacher asks the students to complete the Mind Map with the words that they have noted

	• The teacher guides the students to complete the Mind Map • The teacher tells the students the topic which will be discussed
Whilst Writing	• The teacher explains about descriptive text • The teacher distributes a handout and shows the model of descriptive text to each student • The teacher asks the students to read the model of descriptive text and try to understand it • The teacher and the students discuss about the paragraph. And the teacher explains about the generic structure and language features of descriptive text • After the students understand about the descriptive text, the teacher brings them back to the Mind Map before • The teacher asks the students to make descriptive text based on the Mind Map • The teacher guides the students to make sentences to develop each supporting idea based on the Mind Map • The teacher guides the students how to make rough draft using the sentences before • The teacher guides the students how to revise and polish their rough draft • The teacher asks the students to exchange their work in pair for further correction • The teacher allows the students to ask about the discussed material • The teacher shows other pictures to the students, then asks them to make a Mind Map using the given picture as the centre • The teacher assigns the students to make a descriptive text based on the picture using the Mind Map
Post Writing	• The teacher gives the students some suggestions • The teacher gives the students a conclusion of the topic

5. The writer taught the control group without using mind mapping technique.

Table 3.6
Procedure of Teaching Writing of Descriptive Text by Using Non-Mind Mapping Technique

Procedure	Activities
Pre Writing	• The teacher shows slides that contained pictures • The teacher let the students choose a picture which will be described as a topic • The teacher asks the students to observe characteristic of the picture and asks them to note down the ideas. • The teacher tells the students the topic which will be discussed
Whilst Writing	• The teacher explains about descriptive text • The teacher reads the example of descriptive text and the students pay attention and also try to understand the text • The teacher explains about the generic structure and language features of descriptive text • The teacher explains the steps how to make a descriptive text • The teacher guides the students how to make rough draft • The teacher guides the students how to revise and polish their rough draft • The teacher allows the students to ask about the discussed material • The teacher shows other pictures to the students and also gives different picture to some students • The teacher assigns the students to make a descriptive text with the picture as the topic.
Post Writing	• The teacher gives the students some suggestions • The teacher gives the students a conclusion of the topic

6. The writer was given the post-test to both groups. The post test for both groups was conducted on Saturday, 31st May 2014 at X-1 and X-7 class of MAN Model Palangka Raya
7. The writer gave score to the students' writing result of both groups. There were two raters who scored the result of students' writing, the first rater was the writer of this study and the second rater was the teacher of MAN Model of Palangka Raya.
8. The writer analyzed the obtained data from pre-test and post-test using manual calculation and using SPSS 21 Program.
9. The writer interpreted the data analysis result.
10. The writer concluded the activity of effectiveness of teaching writing descriptive paragraph using Mind Mapping technique to improve students' score or not, based on the obtained data

F. Data Analysis Procedures

In order to analyze the data, the writer did some procedures.

1. Collecting the students' score 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. Calculating validity, reliability, normality and homogeneity

5. The writer used statistical t-test and SPSS to answer the problem of the study with formula: $\mathbf{t_o} = \frac{M_1 - M_2}{SEm_1 - m_2}$

Description:

$M_1 - M_2$: The difference of two means

$SEm_1 - m_2$: The standard error of the difference between two means.[14]

By the criteria:

If $t_{test} \geq t_{table}$, Ha is accepted and Ho is rejected.

If $t_{test} < t_{table}$, Ha is rejected and Ho is accepted

Since the kind of hypothesis is a non directional hypothesis, the level significance which will be used is 5%. If the result of t_{test} was higher than t_{table} it means that Ha was accepted but if the result of t_{test} was lower than t_{table} it mean that Ho was accepted.

6) Calculating the degree of freedom
7) Determining the level of significant of $t_{observed}$ by comparing the $t_{observed}$ with the t_{table}.
8) Interpretation the result of analyzing.

   If $t_{test} \geq t_{table}$, Ha is accepted and Ho is rejected.

   If $t_{test} < t_{table}$, Ha is rejected and Ho is accepted.
9) Giving discussion to clarify the research finding about result of this study

[14] Suharsimi Arikunto, *Manajemen Penelitian* , Jakarta: PT. Rineka Cipta, 2003 p. 507.

10) Interpretation the result analyzing
11) Giving conclusion.