

CHAPTER III

RESEARCH METHODOLOGY

A. The Research Design

This research was experimental research and used quasi-experimental design. Kerlinger in Cohen stated that quasi-experiment was an apt description when applied to much educational research where the random selection or random assignment of schools and classrooms is quite impracticable.¹ Quasi Experiment was used when the researcher need to use intact group.² The research design form was the pre-test post-test non-equivalent group design.

There were two variables used in this research. The first was the use of paired writing method which was symbolized as (X) and the second was students' writing ability which was symbolized as (Y).

In conducting this research, the writer involved the second year students of MA Hasanah, the classes were divided into an experimental class and a control class. Both of the classes were given a pre-test to know the students' ability in writing. After that, the experimental class was given the treatment by using paired writing method for 6 meetings while the control class was given conventional technique. At the end, both of the classes were tested again to find out the students' result in a post-test

¹ Louis Cohen, et al, *Research Method in Education*, Sixth ed, (New York: Routledge, 2007), p. 282

² John W. Creswell, *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*, (Boston: Pearson Education, 2008), p. 309

According to Louis, the type of this research can be illustrated as follows:³

**Table III. 1
Research Design**

Class	Pre-test	Treatment	Post-test
Experimental	O1	X	O2
Control	O3	-	O4

Where:

X : Treatment

O1 : Pre-test of Experimental Class

O2 : Post-test of Experimental Class

O3 : Pre-test of Control Class

O4 : Post-test of Control Class

Thus, the writer adapted the design above in which the subject of the research was the second year students at MA Hasanah Pekanbaru. Then, the treatment was done for six meetings.

B. The Location and the Time of the Research

This research was conducted at MA Hasanah Pekanbaru located on Cempedak Street. This research was done for a month, started from August 29th until September 28th 2013.

C. The Subject and the Object of the Research

The subject of this research was the second year students of MA Hasanah Pekanbaru in academic year of 2013/2014. Then, the object of this research was paired writing method and students' writing ability.

³ Louis Cohen, *op.cit.*, p.283

D. The Population and the Sample of the Research

The population of this research was the second year students of MA Hasanah Pekanbaru in 2013/2014 academic years which consisted of two classes. The writer took all of the population as a sample, because the population was below 100 individuals. From two classes, they were science class and social class, in science class had 4 male and 10 female while in social class had 6 male and 8 female. So, the two classes were taken to be the sample.⁴

The description of the sample can be seen as follows:

Table III.2
The Population and Sample

No	Class	Students		Population	Sample
		Male	Female		
1	Science	4	10	14	14
2	Social	6	8	14	14
	Total	10	18	28	28

Based on the table, it was clear that the writer took 28 students as the sample in this research

E. Technique of Collecting Data

In this research, to collect the data of writing ability, the technique used was test. The test was used to determine the students' writing ability in narrative paragraph. The pre-test was given before the treatment to the experimental class and control class to know the effect of using paired

⁴ Jack R. Fraenkel, Norman E. Wallen, *How to Design and Evaluate a Research in Education*, (New York: Mc Graw-Hill Companies Inc, 2006), p.104

writing method towards students' writing ability in narrative paragraph. And the post test was given twice: during the treatment and after the treatment in experimental and control class to know the effect of using paired writing method towards students' writing ability in narrative paragraph of the second year at MA Hasanah Pekanbaru. Then, in collecting the data of paired writing method as variable x, the researcher used observation list.

After the students were given the test, the writer calculated the total score of students' writing ability based on the score given by the raters.

Table III.3
ASSESSMENT ASPECTS OF WRITING NARRATIVE
PARAGRAPH

Name: _____ Class: _____

No.	Aspect Assessed	Score			
		1	2	3	4
1.	Content				
2.	Organization				
	a. Orientation				
	b. Complication				
	c. Resolution				
3.	Vocabulary				
4.	Grammatical Features				
	a. Action Verb				
	b. Temporal Connectives				
	c. Past Tense				
5.	Spelling and Punctuation				
Total					
Maximum Score		20			

Explanation of score:

1 = incompetent

2 = competent enough

3 = competent

4 = very competent

$$\text{Final Score} = \frac{\text{TotalScore}}{\text{MaximumScore}} \times 80$$

In this research, the writer took 80 as the highest score. Then the score was interpreted into the following category:⁵

1. $80 - 100 = A$ (Very good)
2. $66 - 79 = B$ (Good)
3. $56 - 65 = C$ (Enough)
4. $40 - 55 = D$ (Less)
5. $30 - 39 = E$ (Bad)

F. Technique of Analyzing Data

In this research, the data of the research were picked from students' pre-test and post-test scores of the experimental and the control classes. In order to answer this research questions, writer analyzed the data by using 't' test formula through SPSS 16 version.

In the first step, researcher obtained the mean scores of experimental class and control class. The formula was:

$$Mx = \frac{x}{N}$$

Where:

Mx : Mean scores of Experimental class

⁵ Suharsimi Arikunto. *Dasar-dasar Evaluasi Pendidikan : Edisi Revisi*. (Jakarta: Bumi Aksara, 2009), p. 245

X: Total scores of experimental class

N : Numbers of students

Then, to find the mean scores of control class, the researcher used the same formula in which the scores of students in experimental class changed to scores of students in control class.

After finding each mean score, the finding of Standard deviation was necessary. The formula was:

$$SD_x = \sqrt{\frac{x^2}{N}}$$

Where:

SD_x : Standard Deviation of Experiment Group

x^2 : Total Square

N : Number of students of experiment group

Standard Deviation of control class used the same formula as experiment class; it only changed the score of experiment class to control class. Then, to find whether the result was significant or not, the data were analyzed by using the formula as follows:⁶

$$t_0 = \frac{Mx - My}{\sqrt{\left(\frac{SD_x}{\sqrt{N-1}}\right)^2 + \left(\frac{SD_y}{\sqrt{N-1}}\right)^2}}$$

Where:

t_0 : the t-obtained

Mx : the mean score of experimental class

My : the mean score of control class

⁶ Hartono, *Statistik Untuk Penelitian*, (Yogyakarta: Pustaka Pelajar, 2010), pp. 207-208

SDx: standard deviation of experimental class

SDy: standard deviation of control class

N : the number of cases

After calculating the t-test, to know whether the score was significant or not, the writer should know the distinction between t_o and t_{table} . It was necessary to obtain the degree of freedom (df) in order to get the t_{table} . The formula of degree of freedom was:

$$df = (N_E + N_C) - nr$$

Where:

df = the degree of freedom

N_E = number of students from experiment class

N_C = number of students from control class

nr = number of variable

Finally, when the writer knew the result, the writer concluded that if $t_o < t_{table}$, H_o was accepted. It means that there was no significant effect of using paired writing method towards students' writing ability in narrative paragraph of the second year at MA Hasanah Pekanbaru. If $t_o > t_{table}$, H_a was accepted. It means that there was a significant effect of using paired writing method towards students' writing ability in narrative paragraph of the second year at MA Hasanah Pekanbaru

G. The Validity and Reliability of the Test

In order to know the validity of writing ability test, the writer used content validity. Content validity is partly a matter of determining if the instrument contains an adequate sample of the domain of content, it is supposed to represent.⁷ Thus, the test was given based on the material studied by the students. The material of the test was taken from the textbook used by the second year students at MA Hasanah Pekanbaru.

Reliability is the degree to which a test consistently measure whatever it is measuring.⁸ The testing of students' speaking ability had to have reliability in order to get the same scores obtained. There were five types of reliability: stability, equivalence, equivalence and stability, internal consistency, and rater agreement. In this research, the writer used the rater agreement type of reliability concerned with inter-rater reliability as the scores were given by two raters.

The writer used *Spearman-Brown Prophecy formula* as follows:⁹

$$r_{tt} = \frac{nr_{A,B}}{1+(n-1)r_{A,B}}$$

Where,

r_{tt} = inter-rater reliability

n = the number of raters whose combined estimates the final mark for the examines

⁷ Jack R. Fraenkel, Norman E. Wallen, *How to design and evaluate a research in education*, (New York: McGraw-Hill Companies Inc, 2006), p. 153

⁸ L.R. Gay and Peter Airisian, *Educational Research Competencies for Analysis and Application*, (New Jersey: Pearson Education,2000),p.169

⁹ Grant Henning, *A Guide to Language Testing; Development, Evaluation, and Research*, (Boston: Heinle&Heinle, 1987), p.83

$r_{A,B}$ = the correlation between raters, or the average correlation among all raters if there are more than two

The writer used the categories of reliability that can be seen in the following table.

**Table III. 4
The Categories of Reliability**

No	Reliability	Level of Reliability
1	0.0 – 0.20	Low
2	0.21 – 0.40	Sufficient
3	0.41 – 0.70	High
4	0.71 – 1.0	Very high

(Taken from Tinambunan in Meltiawati in Zelly)¹⁰

**Table III. 5
Correlations**

		VAR00001	VAR00002
VAR00001	Pearson Correlation	1	.407
	Sig. (2-tailed)		.149
	N	14	14
VAR00002	Pearson Correlation	.407	1
	Sig. (2-tailed)	.149	
	N	14	14

**. Correlation is significant at the 0.01 level (2-tailed).

From data output above, it can be seen that r_o (r_{obtained}) is 0.407 will be correlated to r_t (r_{table}). It is necessary to find the df (degree of freedom).

$$df = N - nr$$

¹⁰ Zelly Putriani, *The Correlation between Reported Speech Mastery and Speaking Ability of the Second Year Students of SMKN 1 Pekanbaru*, (Pekanbaru: Unpublished, 2011), p. 35

df: degree of freedom

N: Number of cases

Nr: number of correlated variable

$$df = 14 - 2 = 12$$

The writer took df= 12 to be correlated either at level 5% or 1%. At level 5%, r_{table} is 0.532; while at level 1% r_{table} is 0.661. Thus, the $r_{obtained}$ is higher than r_{table} , either at level 5% or 1%. So the researcher concluded that there is a significant correlation between score given by rater 1 and score given by rater 2. In the other words, the written test is reliable.

Then, it was calculated by using Spearman-Brown Prophecy Formula as follows:

$$r_{tt} = \frac{nr_{AB}}{1 + (n-1)r_{AB}}$$

$$r_{tt} = \frac{2(0.407)}{1 + 2 - 1.407}$$

$$r_{tt} = \frac{0.814}{1.407}$$

$$r_{tt} = 0.578$$

Based on the data obtained above, the writer concluded that the inter-rater reliability in this research was 0.578 categorized into high level.