

## CHAPTER III

### METHOD OF THE RESEARCH

#### A. The Research Design

The type of this research was an experimental research. According to Johnson, in an experiment, the writer's goal is to establish a cause-and-effect relationship between two phenomena<sup>1</sup>. An experimental research is simply a way of learning something by varying some condition and observing the effect of something else<sup>2</sup>. Thus, Creswell states that an experimental research is used when the writer wants to establish possible cause and effect between the independent and dependent variables<sup>3</sup>. Independent variables are variables selected by the writer to determine their effect on or relationship with the dependent variable<sup>4</sup>. Meanwhile, dependent variable is to ask which variable is being measured to determine the effect of other variables on it<sup>5</sup>.

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<sup>1</sup>Donna M. Johnson, *Approaches to Research in: Second Language Learning*, New York & London: University of Arizona, Longman, p. 165

<sup>2</sup> James H. Mcmilan, and Sally Schumacher, *Research in Education*, (Boston: Person Education Inc., 2006), p. 253

<sup>3</sup>Jhon, W..Creswell. *Educational Research: Planning, Conducting, and evaluating Quantative and Qualitative Research*. New Jersey: Pearson Education, 2008, p. 299

<sup>4</sup>James Dean Brown, *Understanding Research in Second Language Learning: A teacher's guide to statistics and research design*, New York: Cambridge University Press, 1988. p.10

<sup>5</sup> Brown, Ibid

This research was designed as a quasi experimental research with nonequivalent control group which was intended to find out the effect of using group critiques strategy on students' ability in writing analytical exposition paragraph of the second grade students at state senior high school 1 Dayun Siak regency. The design of this research was a quasi-experimental design which used two groups pretest-posttest. Cohen states that quasi-experiment is in the natural setting rather than the laboratory, but where variables are isolated, controlled and manipulated<sup>6</sup>. The experimental groups are separated from the non-equivalent control group that indicates the experimental and control groups that have not been equated by randomization<sup>7</sup>.

In investigating the research, there were two classes of the second grade students of state senior high school 1 Dayun Siak regency involved. The pretest was given to both of classes to know their writing ability in analytical exposition paragraph. After giving the treatment to the experimental group, the writer would give post test to both of them. The target of this research was the second grade students at state senior high school 1 Dayun Siak regency. The design of this research can be seen in the following table:

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<sup>6</sup> Louis Cohen, Lawrence Manion, & Keith Morrison, *Research Methods in Education Sixth Edition*, (New York: Routledge, 2007), p. 274

<sup>7</sup> Ibid, p. 283

**Table III. 1**  
**RESEARCH DESIGN**

<b>Group</b>	<b>Pretest</b>	<b>Treatment</b>	<b>Post-test</b>
<b>A</b>	<b>A1</b>	<b>X</b>	<b>A2</b>
<b>B</b>	<b>B1</b>	<b>Ø</b>	<b>B2</b>

Where:

- A** : Experimental Class
- B** : Control Class
- A1** : Pretest for Experimental Class
- B1** : Pretest for Control Class
- X** : group critiques
- Ø** : No treatment
- A2** : Posttest for Experimental Class
- B2** : Posttest for Control Class

## **B. Location and Time of the Research**

This research was conducted at state senior high school 1 Dayun Siak regency. This research was conducted on May to June 2014.

## **C. Subject and Object of the Research**

### **1. The Subject of the Research**

The subject of the research was the second grade students at state senior high school 1 Dayun Siak regency in the academic year of 2013/2014.

## **2. The Object of the Research**

The object of the research was the effect of using Group Critiques strategy on the students' ability in writing analytical exposition paragraph.

### **D. Population and Sample of the Research**

The population of this research was the second grade students of state senior high school 1 Dayun Siak regency in 2013-2014 academic year. There were five classes. Considering that this population of the research was bigger, thus the writer should take the sample of the population of the research. In this research, the writer used random sampling technique, especially cluster sampling technique.<sup>8</sup> Cluster sampling is most useful when the population is very large. According to Gay and Airasian Random sampling is the process of selecting a sample in such a way that all individuals in the defined population have an equal and independent chance of being selected for the sample<sup>9</sup>. Cluster sampling randomly selects the groups, not individuals<sup>10</sup>. All of the members of selected groups have similar characteristics.<sup>11</sup> The similar characteristics intended for both of classes: the students were taught by the same teacher of English, the students had the same level, and the students had the same material about learning of writing.

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<sup>8</sup> L.R. Gay and Peter Airasian, *Educational Research Competencies for Analysis and Application: Sixth Edition*, New Jersey: Prentice-Hall, Inc, 2000, p.129

<sup>9</sup> Ibid, p. 123

<sup>10</sup> Loc. cit, p. 129

<sup>11</sup> Ibid

Therefore, the writer took two classes to represent the population having similar characteristics. In this research, the writer took two of five classes as population.

**Table III. 2**  
**THE TOTAL POPULATION OF THE SECOND GRADE STUDENTS AT**  
**STATE SENIOR HIGH SCHOOL 1 DAYUN 2013-2014**

No	Class	Total
1	XI IPS 1	33
2	XI IPS 2	34
3	XI IPS 3	33
4	XI IPA 1	33
5	XI IPA 2	33
Total		166

Based on the research design above, the population is too large to be taken as sample of a research. So the writer selected two classes as the sample class, they were Class XI IPA 1 as an experimental class and class XI IPA 2 was a control class. Both XI IPA 1 and class XI IPA 2 consisted of 33 students, so that the total sample of this research was 66 students. The following table presents the number of sample:

**Table III. 3**  
**THE NUMBER OF SAMPLE OF THE SECOND GRADE STUDENTS AT**  
**STATE SENIOR HIGH SCHOOL 1 DAYUN 2013-2014**

No	Class	Type	Total
1	XI IPA 1	Experimental Class	33
2	XI IPA 2	Control Class	33
Total			66

### **E. Technique of Collecting Data**

In this research, the writer administered test to collect the data. According to Brown, a test is a method of measuring a person's ability, knowledge or performance in a given domain"<sup>12</sup>. The test had been used to find out the students' ability in writing analytical exposition paragraphs. The data of this research were the score of the students' writing ability obtained by using composition test. The test had been done twice, before and after treatment to both groups intended to obtain the students' ability in writing analytical exposition paragraphs at the second grade of state senior high school 1 Dayun. The students' ability in writing analytical exposition was measured by using writing assessment used by the English teacher of state senior high school 1 Dayun Siak Regency.

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<sup>12</sup>H. Douglass Brown, *Language Assessment: Principle and Classroom Practices*. (Boston: Pearson Education, Inc, 2007), p.3

**Table III. 4**

**ASSESSMENT ASPECTS OF WRITING ANALYTICAL EXPOSITION**

No	Aspects Assessed	Score			
		1	2	3	4
1	Content				
2	Organization a. Thesis b. Arguments c. Reiteration				
3	Vocabulary				
4	Grammatical features				
5	Spelling & Punctuation				

(Taken from Melgis)<sup>13</sup>

Explanation of score:

1 = incompetent

2 = competent enough

3 = competent

4 = very competent

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

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<sup>13</sup>Melgis Dilkawaty Pratama, *Teaching Writing A Handbook of Teaching Productive Skills*. (Pekanbaru: RIZQY Grafika, 2012), p. 205

## **F. Technique of Data Analysis**

In order to analyze the students' writing ability in analytical exposition paragraph, the writer used passing grade of English lesson at state senior high school 1 Dayun that was 70 for the students' ability in writing analytical exposition paragraph, it means that those students whose scores are below seventy ( $<70$ ), they do not pass the passing grade, while those students whose scores are more than and equals seventy ( $\geq 70$ ), they pass the passing grade.

In order to find out whether or not there is a significant difference of students' writing ability in analytical exposition paragraph between using and without using group critiques strategy, the data were analyzed by using inferential statistic method. The writer used the scores of post-test obtained from control and experimental group. The different mean was analyzed by using independent sample t-test formula.

According to McMillan and Schumacher, "the independent sample t-test, or t-test for independent group, is used to determine whether the mean values of a variable on one group of subjects is different from a mean value on the same variable with a different group of subject."<sup>14</sup> And, the data were analyzed through SPSS Version 17.0.

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<sup>14</sup>James H. McMillan and Sally Schumacher. *Research in Education: Evidence-Based Inquiry*. Sixth Ed. (Boston: Pearson Education, Inc, 2006), p.490

Before the independent sample t-test formula was employed, the post test data of both experimental and control group were analyzed in order to see whether or not the data were normally distributed, so that the parametric statistic can be employed.

The test for normal distribution of the data, chi-square was employed. This test was used for only post-test of both groups with the formula as follows:<sup>15</sup>

$$X^2 = \sum \frac{f_o - f_h}{f_h}$$

Explanation :  $f_o$  = Observed frequency

$f_h$  = Expected frequency

If the data have been normally distributed, so the analysis can be continued to analyze them by using parametric statistics of independent sample t-test. The data are categorized as the normal data if  $x^2_h < x^2_t$ .

For the purpose of this prerequisite analysis, the writer needed to process them by proposing hypotheses as follows:

$H_o$  is accepted if  $X^2_o <$  (smaller than)  $X^2$ -table or the data are normally distributed.

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<sup>15</sup>Sugiyono, *Statistika untuk Penelitian* (Bandung: Alfabeta, 2012), p. 107.

$H_a$  is accepted if  $X^2_o >$  (larger than)  $X^2$ -table or the data are not normally distributed.

### G. The Reliability and Validity

The reliability can be defined as consistency of measurement across different characteristics or facet of a testing situation.<sup>16</sup> The following table is the categories of reliability test used in determining the level of the reliability of the test:

**Table III. 5**  
**THE LEVEL 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)<sup>17</sup>

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<sup>16</sup>Sara Cushing Weigle, *Assessing Writing: Cambridge Language Assessment Series*. J. Charles Alderson & Lyle F. Bachman. (Cambridge: Cambridge University Press, 2002), p. 49

<sup>17</sup>ZellyPutriani, *The Correlation between Reported Speech Mastery and Speaking Ability of the Second Year Students of SMKN 1 Pekanbaru*. (Pekanbaru: Unpublished, 2011), p. 35

In determining the reliability of the test in the research, the writer used inter-rater reliability formula because the writer used two raters in assessing and giving score of students' writing. The scores given by rater 1 were correlated to scores given by rater 2. The higher correlation was, the higher inter-rater reliability. As explained by Henning that if rating of students' result of the test is rated by two or more judges or raters, the correlation between raters should be inter-correlated. Then, the inter-correlation of the raters was used in finding the reliability of the test.<sup>18</sup>

To determine the correlation between scores given by rater 1 correlated to scores given by rater 2, the writer used *Pearson Product Moment* formula through SPSS 17 version.

The  $r$  product moment could be obtained by considering the degree of freedom (df) as follows:

$$df = N - nr$$

where: df= the degree of freedom

N = number of cases

Nr = the total variable correlated

Statistical the hypotheses are:

$$H_0: r_o < r_t$$

$$H_a: r_o \geq r_t$$

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<sup>18</sup>Grant Henning, *A Guide to Language Testing: Development, Evaluation and Research*. (Boston:Heinle&Heinle Publisher, 1987), p. 82

$H_0$  is accepted if  $r_o < r_t$  or there is no significant correlation between scores given by rater 1 and rater 2

$H_a$  is accepted if  $r_o \geq r_t$  or there is a significant correlation between scores given by rater 1 and rater 2

Next, the writer used the *Spearman-Brown Prophecy Formula* to find the final reliability obtained between two raters. The following is the formula:

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

Where:

$r_{tt}$  = inter-rater reliability

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

$r_{A,B}$  = the correlation between raters, or the average correlation among all raters if there are more than two.<sup>19</sup>

The following table describes the correlation between scores given by rater 1 and rater 2 by using *Pearson Product Moment* formula through SPSS 17 version.

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<sup>19</sup>*Ibid.*, p. 83

**Table III. 6**  
**CORRELATIONS**

		rater1	rater2
rater1	Pearson Correlation	1	.569**
	Sig. (2-tailed)		.001
	N	33	33
rater2	Pearson Correlation	.569**	1
	Sig. (2-tailed)	.001	
	N	33	33

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

From the table above, it could be seen that the coefficient of correlation product moment  $r_{\text{obtained}}$  ( $r_o$ ) between scores given by rater 1 and rater2 was 0.569. Before comparing it to  $r_{\text{table}}$  ( $r_t$ ), the writer obtained the degree of freedom

$$df = N - nr$$

$$df = 33 - 2 = 31$$

After the degree of freedom ( $df$ ) = 31 was obtained, the coefficient of  $r_{\text{obtained}}$  product moment was compared to  $r_{\text{table}}$ , either at significance level of 5% or 1%. At significance level of 5%,  $r_{\text{table}}$  was 0.349; while at significance level of 1%  $r_{\text{table}}$  was 0.449. Based on  $r_{\text{table}}$ , it can be analyzed that ( $r_o$ ) was higher than ( $r_t$ ) either at level of 5% and 1%. It is clear that  $0.349 < 0.569 > 0.449$ . So that, the writer concluded that  $H_o$  is rejected and  $H_a$  is accepted. It means there was a significant correlation between scores given by rater 1 and rater 2. In the other words, the writing test was reliable. Then,  $r_{\text{obtained}}$  is adjusted by the *Spearman-Brown Prophecy Formula* below:

$$\begin{aligned}
r_{tt} &= \frac{nr_{AB}}{1+(n-1)r_{AB}} \\
r_{tt} &= \frac{(2)(0.569)}{1+(2-1)(0.569)} \\
&= \frac{1.138}{1+0.569} \\
&= \frac{1.138}{1.569} \\
&= 0.73
\end{aligned}$$

Based on the calculation above, the writer obtained inter-rater reliability that was 0.73. So, it could be concluded that the reliability of writing test was categorized into very high level.

Besides, the tests used also had the validity. A test is said to be valid if it measures accurately what it is intended to measure.<sup>20</sup> In the reseach, the writer used content validity. According to Sugiyono, content validity is a kind of test that is used to measure achievement and the effect of treatment or program. To measure achievement, the test must be created based on appropriate material, easy to be comprehended or suitable with student's level.<sup>21</sup> The test of the reseach was appropriate to students' knowledge and it was familiar materials to the students' daily life.

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<sup>20</sup> Athur Hughes, *Testing for Language Teachers . Second Ed.* (Cambridge: Cambridge University Press, 2003), p. 26

<sup>21</sup> Sugiyono, *Metode Penelitian Pendidikan: Pendekatan Kuantitatif, Kualitatif, dan R&D* (Bandung: Alfabeta) p. 129

## H. Effect Size

In this research, the writer used effect size. According to Miles and Banyard: “in the case of the independent groups *t*-test, an appropriate measure of effect size is called Cohen’s *d*.Cohen’s *d* is a measure of how far apart the means of the two samples are; in standard deviation units”.<sup>22</sup> To analyze the effect size the writer used the following formula:<sup>23</sup>

$$d = \frac{2t}{df}$$

Where:

- d* = The effect size
- t* =The result of the *t*-test
- df* = The degrees of freedom, which is N1 + N2 – 2

To interpret the effect size of the difference between the experimental and control group, the writer used the following criteria:<sup>24</sup>

**Table III. 7**  
**INTERPRETING OF THE STRENGTH OF A RELATIONSHIP**

No	General Interpretation of the Strength of a Relationship	The d family
1	Very large	1.00
2	Large	0.80
3	Medium	0.50
4	Small	0.20

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<sup>22</sup>Jeremy Miles and Philip Banyard.*Understanding and Using Statistics in Psychology*. (London: SAGA Publication, 2007). P. 154

<sup>23</sup>ibid

<sup>24</sup>Nancy L. Leech, et.al. *SPSS for Intermediate Statistics Use and Interpretation*. (New Jersey:Lawrence Erlbaum Associates Publishers, 2005). P. 56