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CHAPTER III

RESEARCH METHOD

III.1 Research Design

The design of this research was quasi-experimental research. Gay (2000:367) states that experimental research is the only type of research that can test hypotheses to establish cause-and-effect relationships. Creswell (2008:299) states that, this research was used when the writer wanted to establish possible cause and effect between the independent and dependent variables. The design of this research was quasi-experimental research. Gay (2000:394) states that quasi-experimental design is used when the research keeps students in existing classroom intact and entire classroom are assigned to treatments.

In this research, there were three variables; Imagery Strategy (X1) and Cubing Strategy (X2) were independent variables, while the students' writing ability was a dependent variable. Both classes had been taught by using Imagery and Cubing strategies.

Gay (2000:364) states that the major difference between experimental research and causal-comparative research is that in the experimental research the independent variable the alleged cause, is manipulated, and in causal-comparative research is not, because it has already occurred. In the experimental research the researcher can randomly form groups and manipulate independent variable. In causal-comparative research the groups were already formed and already divided on the independent variable. Furthermore, causal-comparative studies identify relationships that may lead to experimental studies, but only relationship is

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established. Cause-effect relationships established through causal comparative research are at best tenuous and tentative. Only experimental research can truly establish cause-effect relationship. So that to investigate the students' writing ability is provided with post-test. They can be drawn in the following table:

Table III.1 Research Design

Group	Independent Variable	Dependent Variable
E	X1	Y
	X2	Y
C	-	Y

Figure (Gay, 2000: 353)

E : Experimental Group; (X1) indicates no manipulation

C : Control Group

X1 : Independent variable 1 (Imagery)

X2 : Independent variable 2 (Cubing)

Y : dependent variable (Students' writing ability)

Based on the diagram above Gay (2000: 354) states that the definition and selection of comparison group are a very important part of the causal-comparative procedure. The independent variable differentiating the groups must be clearly and operationally defined, since each group represents a different population. The way in which the groups were defined affect the generalizability of the results.

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III.2 The Location and Time of the Research

This research was conducted at State Junior High School 2 Kampar which is located in Padang Mutung of Kampar Regency. The research was done within two months, starting from April up to May 2017.

III.3 The Population and Sample of the Research

1. Population

The population of this research was the eighth grade students of Junior State Junior High School 2 Kampar. There were four classes. The total number of the eighth grade students were 119 students. The following table was presented in details.

Table III.2
The Total Population of The Eighth Grade at
State Junior High School 2 Kampar

No	Classes	Population		Total
		Male	Female	
1	VIII A	14	16	29
2	VIII B	10	20	30
3	VIII C	12	18	30
4	VIII D	17	13	30
Total		53	67	119

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2. Sample

The kind of sample of this research was cluster sampling, Gay (2000:12) states that cluster sampling randomly selects groups, not individual. All the members of selected groups have similar characteristics. The homogenous characteristics were the consideration. Because all classes were homogenous classes, the sample was chosen randomly, VIII B as Experimental class 1, VIII D as experimental class 2, and VIII C as a control class. Three classes were taken as the sample of this research as follows:

Table III.3
The Sample of The Eighth Grades at
State Junior High School 2 Kampar

Class	Male	Female	Total of Students
VIII C	12	18	30
VIII D	17	13	30
VIII B	10	20	30
Total Participants	39	51	90

Since this research was a comparative study with quasi-experimental research design that had a certain purpose, the researcher used a cluster sample technique. It consisted of two groups taught by using different treatments; two classes were taken as experimental classes; B for an experimental class 1 and D for experimental class 2, while C for a control class.

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III.4 Research Instruments

To collect the data writing test were administered as the instrument of this study. The test applied for pre-test and post-test. It was administered to three classes which consisted of C, D and B. The pre-test aimed at finding out the prior writing of the students. While post-test aimed at finding out the students writing ability after being given the treatment with Imagery Strategy and Cubing Strategy. This activity was also intended to find out whether the students' skill kept holding of the material after being given the treatment.

After the students did the test, the writer then counted the scores by using scoring guidance formula:

$$\text{Total score} = \frac{\text{correct answer}}{\text{Total question}} \times 100$$

Total question

By using the formula above, the writer was able to determine that the scores of students' writing ability includes in a certain classification of the score. The classification of the students' scores were shown based on Suharsimi (2007:245) below:

Table III.4 Classification scores

Score	Categories
80-100	Very Good
66-79	Good
56-65	Failure
40-55	Poor
0-39	Very poor

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III.5 Data Collection Technique

To find out the effect of using the technique on the second year students' writing ability of descriptive paragraph at State Junior High School 2 Kampar.

The data were collected by using the following instruments:

a. Observation

Observation was used to observe directly the students using Imagery and Cubing strategies, writing in descriptive text and to observe the influence of Imagery and Cubing strategy toward the students' ability in writing of descriptive text. In observation technique the researcher had a list of observational items to be observed in the class during teaching and learning process by using Imagery and Cubing strategy.

b. Test

A test was administered to assess students' writing ability of descriptive paragraphs. The students were given some topics related to description. Then they chose one of the topics and they write about topics on the answer sheet. The test has been done in two stages. The first is pretest before the treatment. The second is posttest after the treatment.

III.7 Data Analysis Technique

In this research, there were three variables; one independent variable (X) and two dependent variables (Y). The score of the pre-test and the post-test of the experimental and control class were used in analyzing the data. This score was analyzed statistically. There are two formulas used in analyzing the data, they are:

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1. Independent sample t-test

To find out whether there is a significant difference or there is no significant difference between two or more variables can be analyzed by using an Independent Sample Ttest. Gay adds that the t-test for independent sample is used to determine whether there is probable a significant difference between the means of two independent samples.

To analyze the final-test scores of the experimental group and the control group, the following formula is used:

$$t = \frac{M_X - M_Y}{\sqrt{\frac{SD_X^2}{N_1-1} + \frac{SD_Y^2}{N_2-1}}}$$

Where:

t = The value of comparing two means

M_X = Mean of the score in pre-test

M_Y = Mean of the score in post-test

SD_X = Standard deviation of experimental group

SD_Y = Standard deviation of control group

N_1 = Number of the sample in pre-test

N_2 = Number of the sample in post-test

1 = the constant number

The t-table has the function to see if there is a significant difference between the mean of the score of both experimental and control groups. The t-obtained value is consulted with the value of the t-table at the degree of freedom (df) = (N1+N2)-2 which is hypothesized

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Ha: $t_o > t\text{-table}$

Ho: $t_o < t\text{-table}$

Ha is accepted if $t_o > t\text{-table}$ or there is effective after giving the treatment of Imagery Strategy and Cubing strategy on students' writing ability.

Ho is accept if $t_o < t\text{-table}$ or there is no effect after giving the treatment Imagery Strategy and Cubing strategy on writing ability.

2. Paired Sample T-Test

Non-independent sample $t\text{-}t_{\text{test}}$ is known also as Paired-Sample t_{test} . The researcher used this formula to obtain the result of the seventh, eleventh and ninth hypothesis that is to find out whether there is a significant effect of using Imagery, Cubing and conventional teaching strategy on students' writing ability at the eighth grade of State Junior High School 2 Kampar. L.R Gay states that $t\text{-test}$ for non-independent sample were used to compare groups that are formed by some types of matching or to compare a single group's performance on a pre-test and post-test or on two different treatments. (L.R Gay, 2000: 488).

To obtain the data, SPSS 20 is used.

The formula of paired-sample t_{test} :

$$t = \frac{\bar{D}}{\frac{\sqrt{\sum D^2 - \frac{(\sum D)^2}{N}}}{N(N-1)}}$$

D : Gain Score ($D=X_2-X_1$)

The $t\text{-table}$ has the function to see if there is a significant improvement among the mean of the score of both pretest and posttest. The $t\text{-obtained}$ value is

consulted with the value of t-table at the degree of freedom (df) = N-1 which is statistically hypothesis:

H_a : $t_o > t\text{-table}$

H_o : $t_o < t\text{-table}$

H_a is accepted if $t_o > t\text{-table}$ or there is a significant effect after giving the treatment Imagery and Cubing toward students' writing ability at the eighth grade of State Junior High School 2 Kampar.

H_o is accepted if $t_o < t\text{-table}$ or there is no significant effect after giving treatment Imagery and Cubing toward writing ability at the eighth grade of State Junior High School 2 Kampar.

Afterward, it is better to find the coefficient effect of T-test by following a formula:

$$\tilde{\eta}^2 = \frac{t^2}{t^2 + n - 1}$$

$$kp = \tilde{\eta}^2 \times 100\%$$

Where:

kp : Coefficient effect

$\tilde{\eta}^2$: Coefficient

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