CHAPTER III

RESEARCH METHODOLOGY

A. Research Method

In this research, the writer uses the experimental research to know the real data that got from the respondent. Experimental research is a research method that tests the hypothesis which has the form of cause and effect relations by manipulating dependent variables during manipulating time, the writer has to control extraneous variables, perhaps the transitional that occurred really as an effect of manipulating which is out caused by other variables. Donald et, al. stated that "An experiment is a scientific investigation in which the researcher manipulates one or more independent variables, controls any other relevant variables, and observes the effect of the manipulations on the dependent variables (s)."[29] The kinds of experiment methods are pre experimental design, true experimental design, and quasi experimental design that one of other has different characteristics.

The data analysis uses is the quantitative research it means that the writer collects the data from the field and must go to place of the research. Moreover, in this research the writer uses quasi-experiment because in the research there will be pre-test and post-test to get the data. Two classes where involved in this research, it is experimental class and control class. The experimental class

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[29] Donald Ary, Lucy Cheser Jacobs and Chris Sorensen, *Introduction to Research in Education,* (New York: CBS College Publishing, 2007), 265.

consists of the students who received treatment. However, the control class was not. Both classes received a pre-test in whatever instrument is used to assess the effect of the experiment before the treatment has been given. To make this research more clear, the writer provided the research design as follows:

Table 3.1

Quasi Experiment Design

No	Class	Pre-test	Treatment	Post-test
1.	Experimental class	X	X	X
2.	Control class	X	0	X

B. Place and Time

The writer takes a place of this research at the first grade of SMAN 1 Kramatwatu-Serang, which is located at Jl.Pancoran No.1 Plamunan, Kramatwatu Serang- Banten. This research was conducted on 9-18 April 2019, it was during four meetings. The writer chose that school to conduct this research because students in SMAN 1 Kramatwatu felt difficult in English learning, and the learning strategy such as reading the whole text is not effective, it makes students were bored in English learning process.

C. Population and Sample

1. Population

According Fraenkel and Wallen that "In educational research, the population of interest is usually a group of persons (students, teachers, or

other individuals) who possess certain characteristics."[30] The population of this research are entire students of first grade of SMAN 1 Kramatwatu period 2018/2019. There are seven classes in first grade of SMAN 1 Kramatwatu. The details of data class is represented in the below table:

Table 3.2

Population of the research

Class	Total
X MIPA 1	30 Students
X MIPA 2	30 Students
X MIPA 3	32 Students
X MIPA 4	33 Students
X IPS 1	28 Students
X IPS 2	27 Students
X IPS 3	26 Students
Total of population	206 Students

2. Sample

According to Fraenkel and Wallen that "A sample is any part of a population of individuals on whom information is obtained."[31] In this

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[30] Jack R. Fraenkel and Norman E. Wallen, *How to Design and Evaluate Research in Education,* (New York: McGraw- Hill, 2009), 91.

[31] Fraenkel and Wallen , *How to Design and Evaluate Research in Education,* 105.

research, the writer uses Probability sampling where to get the data using simple random sampling. Simple random sampling is part of Probability sampling where to determine the sample from population using random technique with lottery the number class appeared out with lottery.[32] The writer took two classes as sample research from the first grade students at SMAN 1 Kramatwatu. The writer took class X MIPA 1 as Experimental class with 30 students and X MIPA 2 Control Class with 30 students.

D. Technique of Data Collecting

The research used two kinds of research instruments namely observation and test. This technique is used in order to get specific data related to problems of research. The instruments of research will be discussed in the followings paragraphs.

1. Observation

    The writer observes the application activities of method and the way to learn reading comprehension in the class. Information will be got from:

    a. The student's enthusiastic in teaching reading using group investigation.

    b. The situation in the class of English subject, especially in teaching and learning reading comprehension using group investigation.

2. Test

    According to Noam Chomsky "Test one of method or process to know about students' ability, knowledge or performance (skills) in a given

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[32] Sugiyono, *Statistika untuk Penelitian* (Bandung: Alfabeta, 2013), 64.

domain."[33] Then, the writer uses test to get data and information for student's value. In this research, the writer gives the students two test. Test consists of pre-test and post-test. The test is purposed to find out whether students reading score is better than before or not.

a. Pre-test

The test includes 15 question related to the passage, it involves basic information of the text. It is intended to know the first condition of students reading comprehension in descriptive text.

a. Post-test

The test includes 15 questions related to get passage, it is intended measure how students reading comprehension in descriptive text using Group Investigation strategy. In addition, this test will describe the differences between both control and experiment class after treatment.

E. Technique of Data Analyzing

To analyze the data, the writer applied the following techniques:

1. Preparing the key

2. Correcting and scoring the students' answer sheet

3. Computing the students' correct answer on the test

After the data collected, and then analyzing the data, to find out the result of using Group Investigation strategy in teaching reading

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[33] H. Douglas Brown, *Language Assessment Principles and Classroom Practice,* (New York: Longman, 2004), 3.

comprehension in descriptive text. Quantitative is analyzed by statistic calculation of t-test with the formula are follow:[34]

a. Determining mean of variable X (variable I) with formula:

$$M_1 = \frac{\Sigma X}{N_1}$$

b. Determining mean of variable Y (variable II) with formula:

$$M_2 = \frac{\Sigma Y}{N_2}$$

c. Determining deviation standard of variable I with formula:

$$SD_x = \sqrt{\frac{\Sigma x^2}{N_1}}$$

d. Determining deviation standard of variable II with formula:

$$SD_y = \sqrt{\frac{\Sigma y^2}{N_2}}$$

e. Determining standard error of mean variable I with formula:

$$SE_{M_x} = \frac{SD_1}{\sqrt{N_1 - 1}}$$

f. Determining standard error of mean variable II with formula:

$$SE_{M_y} = \frac{SD_2}{\sqrt{N_2 - 1}}$$

g. Determining standard error of mean difference variable I and variable II with formula:

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[34] Anas Sudijono, *PengantarStatistikaPendidikan*, (Jakarta: PT Raja Grafindo Persada, 2014), 313-316 cet. 23.

$$SE_{M_1-M_2} = \sqrt{SE_{M_1}{}^2 + SE_{M_2}{}^2}$$

h. Analyzing the result by using calculation of the t-test as follow:

$$t_o = \frac{M_1 - M_2}{SE_{M_1-M_2}}$$

i. Determining degrees of freedom (df) with formula:

$$df = (N_1 + N_2) - 2$$

Note :

t_o = t-test

M_x = Mean of the Experimental Class (X)

M_y = Mean of the Control Class (Y)

$SE_{M_1-M_2}$ = Standard Error of Variable X And Y

df = Degree of Freedom

F. Research Hypothesis

Donald et al., in Introduction to Research in Education, said that a research hypothesis states the relationship one expect to find as a result of the research. It may be a statement about the expected relationship or the expected difference between the variables in the study.[35] A hypothesis is a specific statement of prediction. It describes in concrete (rather than theoretical) terms what the writer expect will happen in this study.

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[35] Ary, Jacobs and Sorensen, *Introduction to Research Education*, 91.

Related to the objective of the research and definition of hypothesis above, the study proposes the null hypothesis (H_0) and alternative hypothesis (H_a) which is be formulated as follows:

If $t_0 > t_t$: the alternative hypothesis (H_a) is accepted and null hypothesis (H_0) is rejected. It means that there is significant difference between teaching reading comprehension using Group Investigation strategy and teaching reading comprehension without Group Investigation (strategy. It means that using Group Investigation strategy has significant influence in teaching reading comprehension at first grade senior high school of SMAN 1 Kramatwatu.

If $t_0 < t_t$: the null hypothesis (H_0) is accepted and alternative hypothesis (H_a) is rejected. It means that there is no significant difference between teaching reading comprehension using Group Investigation strategy and teaching reading comprehension without Group Investigation strategy. It means that using Group Investigation strategy has no significant influence in teaching reading comprehension at first grade senior high school of SMAN 1 Kramatwatu.