

CHAPTER III

METHODOLOGY OF THE RESEARCH

A. Research Method

In this method of the research, the writer used experimental research. The experimental method is basically a collection of research designs, guidelines for using them, principles and procedures for determining statistical significance, and criteria for determining the quality of the study.¹ There are three kind of experimental research, such as: true experiments, pre-experiments and quasi-experiments. A pre- experiment may have pre and post treatment test but lack of control group. A quasi experiment has both pre-test and post-test, and control and experimental group, but no random assignment subject.

In this research the writer takes the quasi experimental design because it is good designs that have class control as compare class experiment and increase of students reading skill using the group investigation technique. Quasi experiment is one that resembles an experiment but lacks at least on of its defining

¹ David Nunan dan Kathleen M. Bailey, *Exploring Second Language Classroom Research: A Comprehensive Guide* (United States: Heinle, Cengage Learning, 2009), 83.

characteristic.² In this research the writer take two classes uses quasi experimental in which the writer give certain treatment to the students to find assessment of how is the effect of using group investigation technique. The experiment class consist of students who are given Group Investigation Technique and control class without it.

B. Population and Sample

Population and sample of the research will be conducted at SMAN 14 Pandeglang located at Jl. Raya Maja- Cibiuk Kec. Banjar Pandeglang. The sample consisted of 62 students of 2 classes.

C. Population

Population in this research is the first grade of SMAN 14 Pandeglang is 62 students consist of 2 class. Population is people or other discussed in the research. Furthermore, according to Arikunto said that “Population is the total number of subjects of an investigation.”³

² Donald H. McBurney dan Theresa L. White, *Research Methods: Eighth Edition* (USA: Wadsworth Cengage Learning, 2010), 345.

³ Suharsimi Arikunto, *Prosedur Penelitian: Suatu Pendekatan Praktek* (Jakarta: PT. Rineka Cipta, 2010), 173.

In this research, the writer took XC as the controlled class and XD as the experimental class.

D. Sample

Sample is the representative of the population being studied.⁴

Based on statement before, the writer take 2 class consist 62 students as the sample, it is divided into two groups, experimental group 31 students and control group 31 students.

E. Instruments

Instrument is a facility that use by researcher in collecting data. Researcher uses to know the students reading skill. Test is a method of measuring person's ability or knowledge.

To get data of students' reading skill, the researcher carries pre-test before giving treatment and post-test after treatment.

1. Validity

Validity is elaborated upon to determine whether a test measures what it is supposed to measure and to include the

⁴ Arikunto, *prosedur penelitian: Suatu Pendekatan Praktek*, 174.

idea of justification of inference.⁵ In testing of items validity used product moment formula from Pearson as follow:

$$r_{xy} = \frac{\frac{\Sigma x'y'}{N} - (C_{x'})(C_{y'})}{(SD_{x'})(SD_{y'})}$$

r_{xy} = coefficient of correlation between X variable and Y variable

N = sum of sample

2. Reliability

The reliability of an observed measurement depends upon the relative proportion of the true score and error score components.⁶

F. Data Collection and Data Analysis

1. Data Collection

The writer uses several techniques of collecting data in this research, the writer does:

⁵ Ian S. Peers, *Statistical Analysis for Education and Psychology Researchers* (USA: The Falmer Press, 1996), 28.

⁶ Ian S. Peers, *Statistical Analysis for Education and Psychology Researchers*, 29.

a. Test

In collecting data, the writer used two types of test. They were pre-test and post-test. Pre-test and post-test were intended to investigate the initial condition, the development during of the treatment process, and the final of the research.

a) Pre-test

Pre-test is a test given before learning has occurred or is supposed to have occurred.⁷ Pre-test is that given to students before treatment, this test given to know the student ability before treatment.

b) Post-test

Post-test is a test given before learning has occurred or is supposed to have occurred.⁸ Post-test is a test that given to students after treatment, this test given to know the student ability after treatment. In this test, the writer would know the result of this research.

2. Data Analysis

⁷ Jack C. Richard and Richard Schmidt, *Longman Dictionary of Language Teaching and Applied Linguistics*, (Edinburgh: Pearson Education Limited, 2010), 447.

⁸ Richard, *Longman Dictionary of Language Teaching and Applied Linguistics*.
447

The writer used a quantitative data which is related to numerals and it is analyzed by statistics. The writer used “t-test” formula to calculate the data by comparing students’ pre-test and post-test.

The writer gets two data. The first data is the result of pre-test and the second data is the result of post-test. After getting the data from pre-test and post-test the writer used “t-test” formula. “t” test is one of statistic test that used to test the validity of null hypothesis that in the between two means of simple that randomly taken from the same population, there is significance different or no. ‘t’ test is test that usually used for experimental method.

After collecting the data, the writer needed in research, the data processed and analyzed through the following steps:⁹

- a. Investigating student’s worksheets, giving score, and describing score in table.
- b. Determining mean of variable X (variable I) with formula:

$$M_x = \frac{\sum X}{N_1}$$

⁹ Anas Sudijono, Pengantar Statistik Pendidikan, (Jakarta: PT. Raja Grafindo Persada, 2014), 305.

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

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

- d. Determining standard deviation of variable X with formula:

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

SD_x = Standard Deviation of Variable X

N = Number of the Student

- e. Determining standard deviation of variable Y with formula:

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

SD_y = Standard Deviation of Variable Y

N = Number of the Student

- f. Determining standard error of mean variable X with formula:

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

SE_{M_x} = Standard Error of Mean Variable X

SD_x = Deviation Standard of Variable X

N = Number of the Student

- g. Determining standard error of mean variable Y with formula:

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

SE_{M_y} = Standard Error of Mean Variable Y

SD_y = Deviation Standard of Variable Y

N = Number of the Student

- h. Determining standard error of mean difference variable X and variable Y with formula:

$$SE_{M_x - M_y} = \sqrt{SE_{M_x}^2 + SE_{M_y}^2}$$

$SE_{M_x - M_y}$ = Standard Error of Mean Difference Variable X and Variable Y

SE_{M_x} = Standard Error of Mean Variable X

SE_{M_y} = Standard Error of Mean Variable Y

N = Number of the Student

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

$$t_o = \frac{M_x - M_y}{SE_{M_x - M_y}}$$

- j. Determining degrees of freedom (df) with formula:

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

G. The Statistical Hypothesis

Before deciding the result of hypothesis, there are statistical research hypotheses as follows:

$$H_o : \{\mu_1 = \mu_2\}$$

$$H_a : \{\mu_2 \neq \mu_2\}$$

Notes:

H_o = Null hypothesis

H_a = Alternative hypothesis

μ_1 = students' reading skill achievement, who are taught through group investigation technique.

μ_2 = students' reading skill achievement, who are taught without group investigation technique.

H_a (alternative hypothesis): there is a significant difference of students' reading skill achievement between students who are taught using group investigation technique and students who are taught without using group investigation technique.

H_o (null hypothesis): there is not significant difference of students' reading skill achievement between students who are taught using group investigation technique and students who are taught without using group investigation technique.

The writer's assumption of those hypotheses are as follow:

1. If $t_o \geq t_{table}$, the Null Hypothesis (H_o) is rejected and alternative hypothesis (H_a) is accepted. It means there is a significant difference of students' reading skill achievement between students who are taught by using group investigation technique and students who are taught without using group investigation technique.
2. If $t_o \leq t_{table}$, the Null hypothesis (H_o) is accepted and alternative hypothesis (H_a) is rejected. It means there is no a

significant difference of students' reading skill achievement between students who are taught by using group investigation technique and students who are taught without using group investigation technique.