

CHAPTER III

RESEARCH METHODOLOGY

A. Research Design

Research is scientific for gaining the knowledge by using an investigation for finding out empirical fact which verifies the hypothesis.¹ Research is careful study or investigation especially in order to discover new factors and information.

This research applies quantitative research because uses numerical data as reference to find out information about object of the research. Quantitative has been defined as a numerical method of describing observation of numerical and characteristics.² When a defined portion of the material or characteristic is used as standard for measuring any simple, a valid and precise method of data description is provided.

This research uses regression analysis method. Regression analysis is tool that is used to learn the relationship between two or more variable.³ There are some kind of regression analysis and the writer uses simple regression analysis because in this research just consist of two variable, they are one dependent variable and one independent variable.⁴ The independent variable is student achievement and the dependent variable is homework.

¹ joko subagiyo, *Methodologu Penelitian Suatu Pendekatan Praktek* (Jakarta: PT. Asdi Mahstya, 2004), p.2

² John W. Best, *Research in Education: Fourth Edition* (United State of America: Prentice-Hall, Inc., 11981), p.154

³ Budi Susetyo, *Statistika Bentuk analysis Data Penelitian* (Bandung: refrik Aditama, 2012) p.125

⁴ ibid

This research has goal of finding the effect Homework toward the students' English achievement or not. This research promotes a hypothesis:

1. Null Hypothesis (Ho)

There is no effect of homework on students' English achievement at the eighth grade of MTs Al-Madani Grogol in academic years 2015-2016.

2. Alternative Hypothesis (Ha)

There is effect of homework on students' English achievement at the eighth grade of MTs Al-Madani Grogol in academic years 2015-2016.

B. Population and Sample

1. Population

Population refers to all member of a particular group. Population is area of generalization consisting of object/subject which has a certain quality and character determined by researcher to study and then take the conclusion. Population is not only person, but also object and other nature things.⁵ So, population is a complete collection from element-element of kind, but it can be differenced based on the characteristics.

Based on the definition above, the researcher used the population of this research all of students in the eighth grade of MTs Al-Madani Grogol in academic years 2015-2016. The total population is 34 students.

2. Sample

⁵ Sugiyono, Statistika untuk Penelitian (Bandung: CV Alfabeta, 2017), p. 61

Sample is a part or a group that represent the population.⁶ A sample in a research study is the group on which information is obtained.⁷ On the other hand, sample is unit that connected suitable with certain criteria that applied based on the significance of the research.

Sampling technique is the way used to determine sample. This research, the researcher takes all of the population as the sample, because the population is the less than 100. So, this research called research population. Suharsimi also states that if the researcher would like to research all of elements in the zone of population, so those research can called as research population.⁸ Research population is also used if the subject which will be research limited.

C. Technique of Collecting Data

Technique of collecting data in this research is documentation. Documentation is the technique of collecting data which is taken from written such as books, newspaper, opinion which related of the research.⁹ In this research documentation as supporting data include history of school, geographies location, vision, mission, and purpose of school.

In this research, the researcher takes data using the documentation. A document is a record of past events; a document can be a form of writing or drawing monumental works of a person.¹⁰

⁶ *ibid.*, p.104

⁷ Jack R. Fraenkel and Norman E. Wallen, *How to Design and Evaluate Research*, P. 90.

⁸ Suharsimi Arikunto, *Dasar-Dasar Evaluasi Pendidikan* (Jakarta: PT. Bumi Aksara, 2010), p.60

⁹ *Ibid.* 158

¹⁰ Sugiyono, *metode Penelitian Pendidikan* (Bandung:Alfabeta, 2013) p.329

The researcher get documentation from English teacher in MTs Al-Madani. The teacher takes the score from written test. The test consist of 50 multiple choice questions. Thus in this research a documentation method uses student English achievement value at the eighth grade of MTs Al-Madani Grogol in academic years 2015-2016.

Besides that, in this research to get homework score the researcher was taken data from documentation. The documentation is Homework score which was owned by English teacher in MTs Al-Madani. So, the researcher get the homework score from Homework value which was owned by English teacher in MTs Al-Madani.

D. Technique of Analyzing Data

After collecting data, the next step to be done by researcher is how to analyze those data. The purpose of this step is to arrange and interpret data, to know the effect of homework toward students' English achievement. The researcher used regression formula. In this case, researcher counts the data to answer statement of the problem and try to test the hypothesis.

Before testing the hypothesis, the data must fulfill the assumption in which the data must be normally distributed and homogenous. Therefore, normality and homogeneity test be provided.

- Normality

This research used Kolmogorov-Smirnov to test normality. Each of two populations being compared must follow a normal distribution. This can be tested by this.

The step of analyzing normality test as follows:¹¹

- a. Formulated hypotheses.

Ho: the data were not normally distributed.

Ha: the data were normally distributed.

- b. Calculate the average (mean) to create a table.

$$M_x = \left(\frac{\sum f x'}{n_1} \right)$$

$$SD_x = \sqrt{\frac{\sum f x'^2}{n_1} - \left(\frac{\sum f x'}{n_1} \right)^2}$$

- c. Calculating the value of fbk.
- d. Calculated each frequency divided by the number of data (f/n)
- e. Fbk calculating each divided by the number of data (fbk/n)
- f. Calculated the value of Z by the formula where X is the original value of data and μ is the population mean can be estimated using the average of the sample or the mean while σ was the standard deviation of a population could be estimated by the standard deviation of the sample values. Z values would be calculated each value after sorted from smallest to largest.

$$Z = \frac{X - \mu}{\sigma}$$

- g. Calculate $P \leq Z$

¹¹ Retno Widyaningrum, statistic, (ponorogo: STAIN PO Press, 2009), p.206

- h. For a2 values obtained from the difference between columns 5 and 7 (fbk/n P≤Z)
- i. For a1 values obtained from the difference between columns 4 and 8 (f/n and a2)
- j. Comparing the highest number a1 with Kolmogorov-Smirnov table.
- k. Test the hypothesis.

The step of analyzing data simple linear regression formulate as follows:¹²

1. Hypothesis

Ho : $\beta_1 = 0$ (there is any significant effect of variable X to variable Y)

Ha : $\beta_1 \neq 0$ (there is not any significant effect of variable X to variable Y)

2. Test-Statement

- $\bar{x} = \frac{\sum x}{n}$
- $\bar{y} = \frac{\sum y}{n}$
- $b_1 = \frac{\sum x_1 y_1 - n \bar{x} \bar{y}}{\sum x_1^2 - n \bar{x}^2}$
- $b_0 = \bar{y} - b_1 \bar{x}$
- $\hat{Y} = b_0 + b_1 x$

3. Find the magnitude of the effect of variable X to variable Y.

- a. Make the ANOVA table
- b. determiner the coefficient of determination (R^2)

$$R^2 = \frac{SSR}{SST}$$

¹² Andhista Dessy Wulandari, Penelitian Pendidikan : Suatu Pendekatan Praktik dengan Menggunakan SPSS, p. 118-130

Where :

y = dependent Variable

x = Independent variable

β_0 = Intercept of population

β_1 = Slope of population

\hat{Y} = Estimation of Y

b_0 = Estimation of population intercept (constant or \hat{Y} if $x = 0$)

b_1 = Estimation of population slope (if b_0 (+) so dependent variable is up and if b_1 dependent variable is down)

n = total of observation

x_i = The data i^{th} of variable y

\bar{x} = Mean of variable X

\bar{y} = Mean of variable Y

- Homogeneity

The researcher used Barlett of test homogeneity. The two populations being compared must have the same variance (homogenous).