CHAPTER III

METHOD OF THE RESEARCH

A. Research Design

In this research, the researcher used experiment research. It is kind of research that is carried out in order to explore the strength of relationships between variable. According to Nunan stated that ”Experiment is a produce for testing an hypothesis by setting up a situation in which the strength of the relationship between variable can be tasted.’’[1] From the theory above, the researcher concluded that experimental is a research method that test the hypothesis.

The researcher used quasi-experimental research, because the aim of the method is to find the effectiveness of using problem based learning method in enhancing students’ reading comprehension. To get the data the researcher uses pre-test and post-test toward the subject of research. Two classes where involved in this research are experiment class and control class. The experiment class consists of the students who received treatment meanwhile control class non-treatment.

B. Research variable

According to sugiyono, “research variable is basically everything in any forms of which is determined by the researcher to be studied so that will be obtained information about it, then drawn the conclusion’’[2].

[1] David Nunan, *Research Method in Language Learning*, (New York: Cambridge University Press, 1992), p. 230.

[2] Sugiyono, *Metode Penelitian Pendidikan Pendekatan Kuantitatif Kualitatif dan R&D* (Bandung: Afabeta, 2015), 60.

In this research, there are two variable included, which are problem based learning as an independent variable (X) and the students' reading comprehension as dependent variable (y).

C. The Site and Time of Research

This research conducted on the eleventh grade of MAN 2 Kabupaten Serang. This school selected as the research site because when the researcher teaches there find difficulty of the students in reading comprehension. So the researcher tries to help the students to find the solutions of their difficulty.

D. Population and Sample

1. Population

According to Sugiono if the population is homogenous the sampling must use simple random sampling.[3] In addition, according to Nunan defines that population as the set all possible data on the observations recorded by a researcher. In other word population is all the cases, situation, or individuals wo share one or more characteristic.[4]

The population of this research is the eleventh grade of MAN 2 Kabupaten Serang, they are class XI Mia and XI Iis, with the total population are 50 students.

[3] Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif, dan RD* (Bandung: ALFABETA, 2016), p. 82

[4] David Nunan, *Research Method in Language Learning*, (New York: Cambridge University Press, 1992), p. 231.

2. Sample

According to Nunan stated that "Sample is a subset of individuals or cases from within a population.''[5] The researcher uses two classes which have 50 students. The first is as experiment class and second is as control class. The researcher chooses class XI Mia as experiment class that is consists 25 students and class XI Iis as control class that is consists 25 students. One group will give the treatment using problem based learning method and another group without giving the treatment.

E. Technique of Data Collecting

In this research, the researcher used quasi experimental method with two variables, this research using quasi experimental type Nonequivalent control group design to know the effectiveness of using problem based learning method in enhancing students' reading comprehension for the 11th grade of MAN 2 Kabupaten Serang. It involves two group, there are experiment group and control group. The experiment problem based learning method while the control group is without using problem based learning method.

the technique of data collecting in this research is use test and observation. The researcher uses the test for knowing the result of the study of reading comprehension before and after using problem based learning while Observation uses to aim analyzing student condition and to get information about students' capability in English subject especially in reading comprehension.

The data collection in this study includes:

[5] David Nunan, *Research Method in Language Learning*, (New York: Cambridge University Press, 1992), p. 232.

1. Test

   Test is an instrument or procedure designed to elicit performance from learners with the purpose of measuring their attainment of specifies criteria.

   a. Pre-test

      The researcher used pre-test for knowing the skill of the students before using problem based learning method. The pre-test will conduct once to experiment and control class, that is conduct in the first meeting in order to know basic od students' reading comprehension.

   b. Post-test

      Post-test also was conducted once to experiment and control class. The post-test will give after treatment. It will be uses to measure the effectiveness of using problem based learning in enhancing students' reading comprehension.

2. Observation

   The observation was conducted an observation at the 11^{th} grade of MAN 2 Kabupaten Serang. The reason is to analyzing students' condition in the class and also to know the problems and difficulties in learning English. The aim of this observation is to get information about students' capability in English subject especially in reading comprehension.

F. Technique of Data Analyzing

In this technique of data analyzing, the researcher used T-test to analyze the data. According to Supardi quoted directly to Sudijono "T-test is one of the statistical tests used to test the truth or the falsity of the null hypothesis which states that between 2 samples taken randomly

from the same population, there is no significant difference"[6]. The aim of t-test is to comparing mean score for two groups. To get know the result when taking the same test has the same score or not has the same score.

The researcher analyzes the data based on collected score data from pre-test and post-test of experimental class and control class.

The researcher will use formula[7]:

$t_o = \frac{M_1 - M_2}{SE_{M1-M2}}$

t_o = Nilai "t" yang di cari

M_i = The average score of experiment class

M_2 = The average score of controlclass

SE_{M1-M2} = Standar error rata-rata

X = Sum of the squared deviation score of Experiment class

Y = Sum of the squared deviation score of Control class

Calculation step:

a. Determining mean of variable X_1 and X_2 with the formula : $M_x = \frac{\sum X}{N}$

   $M_y = \frac{\sum Y}{N}$

b. Determining Standar Deviation (SD)) of Mean X_1 and X_2:

   $SD_1 = \sqrt{\frac{\Sigma \chi^2}{N}}$ $SD_2 = \sqrt{\frac{\Sigma y^2}{N}}$

c. Determining Standard Error of Mean X_1 and X_2 :

   $SE_{M_1} = \frac{SD_1}{\sqrt{N_1 - 1}}$ $SE_{M_2} = \frac{SD_2}{\sqrt{N_2 - 1}}$

d. Determining Difference of Mean between X_1 and X_2 using the formula : $SE_{M1-M2} = \sqrt{SE^2{}_{M1} + SE^2{}_{M2}}$

[6] Supardi, *Statistik Penelitian Pendidikan*, (Depok: Rajawali Pers), 268.

[7] Anas Sudijono. *Pengantar Statistik Pendidikan.* (Jakarta: Raja Grafindo Persada, 2005),

e. Determining value of "t" using the formula : $t_o = \frac{M_1 - M_2}{SE_{M1-M2}}$