CHAPTER III

RESEARCH METHODOLOGY

A. Method of Research

The method used is a quantitative method, Quantitative research methods are focused on the premise that comprehensive quantitative data collection with a broad range of measurements, as well as systematic, supervised, and unified numerical expression, are valuable tools in the process of gathering knowledge so that research questions can be answered. Quantitative studies are usually deductive, with researchers gathering data from a broad sample to validate their theories and theoretical claims. Since reliable results can only be obtained by using a sample that accurately reflects the population being studied, sample selection is an important part of quantitative study. The use of mathematical-statistical methods is important in this type of study due to the large sample size and the fact that the research findings are reported in numerical form, taking into account the requirements of statistical reliability tests. The questionnaire-based survey (survey technique) is its primary research instrument, but it also employs a variety of other techniques, such as structured interviews and structured observation, among others. Quantitative analysis is used in health science research, such as satisfaction tests, need studies, or the examination of health status and the factors influencing it[1].

Nunan stated that there are three types of experiments: Pre-experiment, quasi-experiment, and true-experiment, with each type having the following characteristics:[2].

1. Pre-experiment: a control group may be present, but there is no pre and post treatment testing.Quasi-experiment: has a pre and post-test, as well as experimental and control groups, but no randomization.

[1]mre Boncz, *Introduction to research methodology* (University of Pecs 2015), 22

[2] David Nunan, *Research Method in Language Learning*,(Cambridge: Cambridge University Press, 1992), 41

2. True-experiment: has pre and post-test, experimental and control groups, and subject are assigned at random.

The research design was a quasi-experiment. The effectiveness of the PLAN strategy (prediction of finding add and note locations) on students' reading comprehension is investigated using a quasi-experimental design. A pre-test and post-test, as well as a control and experimental group, are all included in a quasi-experiment.

B. Time and Place of Study

The research was conducted at class XI SMAN 10 Pandeglang which is located on Jl. Pandeglang 24 km Labuan. Ds. Pasireurih, Kec. Ciata. Kab. Pandeglang Banten Kode Pos 42273 and started in 2021. This research will started in April by making observations at the SMAN 10 Pandeglang State Junior High School in April 2021.

C. Population and Sample

The population in this were students of class XI SMAN 10 Pandeglang totaling 60 students from to classes. The sample used is class XI MIPA 1 an experimental class with total of 30 students and XI MIPA 4 as a control class totaling 30 students.

D. Data Collection Techniques

The researcher provides the appropriate reading text to be discussed so that students are able to understand the text in question to be administered using the PLAN strategy used, then the researcher gives a multiple choice question and finally the researcher asks students to submit their respective assignment and will be discussed together.

E. Data Analysis Techniques

The level according to the frequency used is the significance for the test formula, which uses:

1. Determine mean of square experiment class (MX), with formula: MX = $\frac{\sum \chi}{N}$
2. Determine mean of square control class (MY), with formula: MY =$\frac{\sum Y}{N}$
3. Determine the total square of error of experiment class (X), with formula: $\sum x^2 = \sum x^2 \frac{(\sum x)^2}{N}$
4. Determine the total square of error of control class (Y), with formula: $\sum y^2 = \sum y^2 \frac{(\sum y)^2}{N}$
5. Calculates T-test

To calculate t-test, the researcher used to formula stated by Suharsimi Arikunto as follows[3]:

Determine the degree of freedom, with formula:

DF = Nx + Ny – 2

Notes:

MX	= Mean of experiment class
MY	= Mean of control class
$\sum X^2$	= The total square of error or experiment class
$\sum Y^2$	= The total square of error or control class
N	= The numbers of subject
Df	= Degree of freedom.

[3]Suharimi Arikunto. *Prosedur Penelitian,* (Jakarta: Rineka Cipta, 2019), 351