CHAPTER III

RESEARCH METHODOLOGY

3.1. Research Design

Research design is defined as a framework of methods and techniques chosen by a researcher to combine various components of research in a reasonably logical manner so that the research problem is efficiently handled. Research design is experimental research using a quantitative approach. Experimental is a research which involves groups in the research, experimental and control group. There are two groups of students' namely experimental group which was taught by using Picture and control group which was taught conventionally. The purpose of experimental research is to examine the effect that certain types of treatment can have on the symptoms of one group over another that employ different treatment. For example, an experiment in education is meant to assess/prove the effect of education treatment to test hypotheses as to the extent or extent of its influence by conventional methods.

Furthermore, the action in the experiment is called treatment and is defined as any action, any variation or manifestation of the conditions that was be assessed will affect. While what we mean to evaluate is not limited to measuring or doing the description of treatment's effects but also wants to test to the extent of

It's significance that influence versus the same group but is treated in a different way.

The approach used in the research design an Coleration Approach that where collecting data use a technique random sampling. Each member of the population has the same opportunity to be selected as sample.

3.2. Population and Sample

3.2.1. Population

A research population is generally a large collection of individuals or object that is the main focus of a scientific query. It is for the benefit of the population that researches are done. However, due to the large sizes of populations, researchers often cannot test every individual in the population because it is too expensive and time-consuming. The research population on the tenth grade SMK Swasta PAB 2 Helvetia Medan, which are has a total 150 grade X students divided into three major, including; AP, OTKP, and RPL. in located street Veteran Pasar IV Helvetia, sub-district Labuhan Deli, regency Deli Serdang, Medan, North Sumatera.

3.2.2. Sample

In research terms a sample is a group of people, objects, or items the taken from a larger population for measurement. The sample should be representative of the population to ensure that we can general the findings from the research sample to the population as a whole. For the sample, the

researcher divided two classes, namely the experimental class and the control class, by using purposive sampling. Purposive sampling is one of the non-random sampling techniques where the researcher determines the sampling by specifying specific characteristics that was suitabled with the objectives of the research so that it is expected to answer the research problems. The Tenth grade SMK Swasta PAB 2 Helvetia Medan, consist of two classes with 35 students in class X RPL1 and 35 students in class X RPL2. So, After the sampling selection, X RPL1 was choose as the experimental class and X RPL2 as the control class. So, the total of samples score is 70 students.

Table 3.2.2. The Research Sample by Class

No.	Class	The Number of Students
1.	X RPL 1	35
2.	X RPL 2	35
Total Students		70

3.3. Treatment

In an experiment, the factor (also called an independent variable) or combinations of factor levels are called treatments. In this treatment is experiment using Pictures media. The teacher presents the material in detail as a start for learning, and conducts a discussion about the pictures that will be conveyed in groups.

3.3.1. The Steps of Picture Method

- **The teacher conveys the competencies to be achieved.**

The teacher conveys what constitutes Basic Competence in English subject about Descriptive Text. In addition, teachers must submit indicators of achievement of KD, so to what extent the KKM that has been set can be achieved by students.

- **The teacher shows / shows pictures of activities related to the material.**

  In the process of presenting the material, the teacher teaches students to be actively involved in the learning process by observing each picture shown by the teacher or by his friend. With a picture we will save our energy and students' will more easily understand the material being taught.

- **The teacher point / calls on students alternately to install / sort the picture into a logical sequence.**

  In this step the teacher must be able to innovate, because direct appointment is sometimes less effective and students feel punished. One way is by lottery, so students feel they must carry out the assignments that must be given. Existing pictures are asked by students to be sorted, created, or modified.

- **The teacher asks the reasons/ rationale for the picture sequence.**

  The teacher invites students to discuss with a group of friends to explain sequence of images that have been presented.

- **From the reason / sequence of the picture the teacher begins to embed the concept/ material in accordance with the competencies to be achieved.**

In the process of discussion and reading this picture the teacher must give emphasis to this achieved by asking other students to repeat, write or other forms with the aim of students knowing that it is important in the achievement of basic competencies and indicators that have been determined. Ensure that students have mastered the indicators set.

- **Conclusion / summary**

  At the end of the lesson, the teacher and students draw conclusions as a rein for cement of subject matter and provide grades.

3.4. Research Instrument

The instruments to collect the data are pre-test, post-testandobservation. The collected data are the scores obtained from the pre-test and the post-test of both the control group and the experimental group. The scores from the pre-test is used to see the writing ability of both classes. On the other hand, the scores from the post-test is used to measure whether the use of implementedmethod affected the experimental group or not. Observations aremade to add and strengthen the data needed.

3.5. Reliability and Validity of Instrument

- **Reliability**

Reliability relates to the consistency of a measure, to give an exact calculation of reliability, an estimate of reliability can be achieved through different

measures. Reliability refers to the extent to which the results of measurements, calculations, or specifications can depend on accurate or consistent test results. The oral test in the form of a Picture media is aimed at discovering the effects of the Picture media making. The score for the Picture media is assessed by researcher and teacher who evaluate student performance based on the scoring system. The purpose of using this Picture media is to achieve an objective assessment of using Picture media.

In order to test instrument reliability and know instrument levels in this study, researchers use the kr-20 formula with the following formula:

$$r_{11} = \left(\frac{k}{k-1}\right)\left(1\frac{\sum\sigma^2}{\sigma_i^2}\right)$$

Information:

r_{11} = reliability

K = the number of question

$\sum\sigma^2$= the number of variant total

σ^2 = variant total

To determine the high levels of low religious ability using doer-based criteria koestoro and basrowi (2006; 244) thus far:

0.8 – 1.000 = Excellent

0.6 – 0.799 = Good

0.4 – 0.599 = Average

0.2 – 0.399 = Poor

< 0.200 = Very Poor

- **Validity**

Validity is defined as the extent to which a concept is accurately measured in a quantitative research. Validity is the extent to which a test measures what it claims to measure. In other words, that means the accuracy of a test. Therefore, this is a scientific test or part of research that really measures what is set to measure. Oral tests in the form of Picture media are assessed from mastery of vocabulary and grammatical to improved writing skills.

Koestoro and Basrowi (2015) states that:

"In the validity of conformity every aspect about which will be revealed is defined first by definition as measuring whether the matter of each item is really sufficient in it. That definition is viewed as a theoretical construct of a symptom. Therefore, when the item of the gauge is seen to have contained all the symptoms included in the definition, they are then valid."

For their validity, researchers conducted trials by looking at variable indicators that were then translated into question items. The very validity test used in this research is to use the Pearson product formula, following this:

$$r_{hitung} = \frac{n\sum xy - \sum x \sum y}{\sqrt{\left\{n\sum x^2 - \left(\sum x\right)^2\right\}\left\{n\sum y^2 - \left(\sum y\right)^2\right\}}}$$

Information:

r_{hitung} = the coefficient of correlations

n = the number of respondent

$\sum x$ = the amount of item score

$\sum y$ = the total amount of total valuation (of the entire item)

Rianse and Abdi (2015), states that rule of decisions: if r-table means valid, and if ranse < ranse means invalid.

3.6. Technique of Data Collection

The data is collected during the second semester of the academic year 2019-2020. The data is collected from the pre-test and post-test of the control group and experimental group. The pre-test result is compared to the post-test result in order to find out a significant difference of the students' writing ability.

- Pre-test

  Is where a questionnaire is tested on a (statistically) small sample of respondents before a full-scale study, in order to identify any problems such as unclear wording or the questionnaire taking the research. The same pre-test was given to both experimental and control group in order to

investigate the students writing ability. Both experimental and control group were asked to write descriptive paragraph based on the topic given.

- Post-test

  A test given to students after completion of an instructional program or segment an often used in conjunction with a pre-test to measure their achievement and the effectiveness of the program.

3.7. Technique of Data Analysis

Data analysis is one of the most important steps in research activity. With it will be able to prove a hypothesis and draw conclusions about the problems to be examined. Experimental research aims to understand the effect of treatment, to achieve something, and then to examine the results of that treatment.

In order to analyze the experimental data the researcher uses pre-test and post-test one group design is used. Sugiyono (2015), the states that then the formula used is the t-test with the formula as follows:

$$T - test = \frac{(\bar{x}_1 - \bar{x}_2)}{\sqrt{\frac{S_{1^2}}{n_1} + \frac{s_{2^2}}{n_2}}}$$

Where:

T-test = The Effect

X_1 = Mean of Post-test – Pre-test in Experimental Group

X_2 = Mean of post-test – Pre-test in Control Group

S_1^2 = Variant of Pre-test – Post-test in experimental Group

S_2^2 = Variant of Pre-test – Post-test in Control Group

N_1 = Sample in Experimental Group

N_2 = Sample in Control Group

The formula is used to calculate the effectiveness of the treatment given to research subjects. This formula is used for research design a single subject, that is, observations made when the subject is not yet received treatment and after the subjects received treatment. The results of this data which is then analyzed using the t-count formula then the results are obtained can indicate whether the treatment given is effective or not.