

CHAPTER III

RESEARCH METHOD

This chapter deals with research methods. The research method used by the researcher was quantitative methods. The research methodology of this research consists of time and place of the study, population and sample, research method, instrumentation, and technique of analyzing the data.

3.1 Place and Time of Research

This research was conducted on Mei 2023. It was taken place at SMP Pahlawan Nasional Medan which is located in Jl. Durung no. 205, Sidorejo Hilir. The researcher conducted the research to know is there any significant correlation between students' sentence mastery and their achievement in learning English at SMP Pahlawan Nasional Medan.

3.2 Population and Sample

3.2.1 Population

The population is the entire research subject (Arikunto, 2010: 173). Similarly, Sugiyono (2010: 117) also said that the population is a generalization area consisting of objects or subjects that have certain characteristics and qualities determined by the researcher to be studied and then drawn conclusions. The population in each study has been reflected in the title, including the area or geography as well as immovable objects and people or others. Each term or concept contained in the title requires clear boundaries to make it easier to determine the research sample (Syahrums & Salim, 2012: 113)

The population of this research was the eighth grade students of SMP Pahlawan Nasional Medan . The eighth grade students of SMP Pahlawan Nasional Medan consist of six classes. The total of the students in the eighth grade of SMP Pahlawan Nasional Medan are 172 students.

Table 3.1 Number of Population

No.	Class	Total
1	VIII-1	29
2	VIII-2	30
3	VIII -3	28
4	VIII-4	28
5	VIII-5	29
6	VIII-6	28
Total		172

3.2.2 Sample

The sample is part or representative of the population being studied (Arikunto, 2010: 174). The sample is part of the number and characteristics possessed by the population, or a small part of the population members taken according to certain procedures so that they can represent the population. Sample that will be taken from the population must be truly representative or able to represent. The population of this study are all students of the grade eighth of SMP Pahlawan Nasional Medan which consisted of 172 students.

In this research, the writer determined the sample by using used a random sampling technique, namely a sampling technique that provides equal opportunities for each element or students of the population to be selected as a sample. The name of the classes were written on a piece of paper and were rolled up, mixed them, and the researcher choose one of them. The writer took VII-2 consisting of 30 students as the sample. .

3.3 Quantitative Research

Quantitative research as a research method is research with tools for processing data using statistics, by therefore the data obtained and the results

obtained in the form of numbers Sahir (2022: 13). It is an approach which would be expected to test a theory by creating a variable hypothesis that measure up to the use of elements of instruments. This research use the correlation analysis as method. Supardi cited in (Ananda & Fadhli, 2018: 198) stated that correlation analysis is a form of inferential analysis that is use to know the degrees or strengths of the relationships between research variables. Besides, this analysis can be used to determine the strength of the influence of an independent variable or several independent variables together on the dependent variable through the analysis of the coefficient of determination.

This research intends to know the correlation between two variables, namely the independent variable and the dependent variable. To see the correlation between the students' sentence mastery (variable X) and their achievement in learning English (variable Y). The researcher used documentation and test for collecting the data.

1. Documentation

Documentation contains information that can be used to gather data. Documentation is the process of storing information or data in the form of a catalog, transcript, books, newspapers, magazines, agendas, etc. Documentation is used to gather information from a database.

1. Test

The test is used as a data collection tool. Supardi (2017) define Tests are a set of questions, exercises, or other instruments used to test a students individually or a group's knowledge, attitude, skill, ability, intellect, or talent. The main goal of testing is to determine a student's "ability and the effectiveness of the learning process." A test is a simple way to assess someone's skill, knowledge, or performance in a certain area. A test, in simple terms is a method of measuring a person ability, knowledge, or performance in a given dominance (Sugiyono: 2012:134). In this research, the researcher used the sentence testing for students' sentence mastery. In this research test applied to the eighth grades students of SMP Pahlawan Nasional Medan.

3.4 Research Instrument

Instrument in data collection are tools that are selected and used by researcher in their activities to collect the data or information so that these activities become systematic and easier by the researcher. The researcher use instruments to collect data. The instrument is used to measure the value of the variable studied. Therefore, the total instrument that will be used for research depends on the number of variables that are researched.

The instrument of collecting the data that will be used by the researcher to get the data observation as follows:

1. Documentation

The documentations are used to gain the data about students' achievement in learning English. The students' achievement in learning English obtained from the results of the first semester exams in the eighth grade students of SMP Pahlawan Nasional Medan. In this research the writer got the data about students' achievement in learning English through their final score (reports book) in the first semester. It will carry out by copying the form administration.

2. Test

The researcher used the test to determine the level students' sentence mastery. It will determine by having some questions dealing with sentences. To collect data from the samples, the writer use multiple-choice. Multiple choice items from which they had to choose one correct answer among four provided options; a, b, c, d. These tests will use to measure the students' sentence mastery. The tests consisting of 30 items number of questions. Indicators of questions are taken from indicator of sentence mastery in the tense of simple present can be seen in the table below.

Table 3.2 Indicators of Questions

Variable	Indicators	Items of number		
		Positive form	Negative form	Interrogative form
Sentence mastery	Nominal	1, 4, 7, 10, 13	2, 5, 8, 11, 14,	3, 6, 9, 12, 15,
	Verbal	16, 19, 22, 25, 28	17, 20, 23, 26, 29	18, 21, 24, 27, 30

The indicators of the questions are nominal sentence and verbal sentence. In nominal sentence; positive, negative, and interrogative form. There are 5 questions in positive form (1, 4, 7, 10, 13), 5 questions in negative form (2, 5, 8, 11, 14), and 5 questions in interrogative form (3, 6, 9, 12, 15). The total of questions in nominal are 15 questions. Then, in verbal; positive, negative, and interrogative form. There are 5 questions in positive form (16, 19, 22, 25, 28), 5 questions in negative form (17, 20, 23, 26, 29), and 5 questions in interrogative form (18, 21, 24, 27, 30). The total of questions in verbal sentence are 15 questions. In conclusion, there are 30 questions for test the students' sentence mastery in the tense of simple present.

3.5 Validity and Reliability

a. Validity Test

Validity comes from the word 'valid' means legitimate or . Validity means the extent to which the determination and accuracy of a measuring instrument in carrying out its measuring function. So a valid instrument means that the instrument is a fixed measuring instrument for measuring an object. To see the value in this study using the value table of product moment with a significant level of 5% (0.05). In this study, 30 respondents were taken, in which there were 30 samples, the value was 0.361. The validity test used in this research was used Microsoft excel 2010.

If the coefficient is lower than r_{table} of correlation, it means that the test that were previously given out will not be given out again. So, the items are not becomes as the instrument of collecting data.

b. Reliability Test

Reliability refers to the consistency of the measurement. The test is reliable when it can show stable outcome. The more reliable the test is, the more confidence the scores obtain from administration of the test. In this research, in checking the reliability test of the sentence mastery the researcher uses the help of Microsoft Excel in data processing, then the data obtained by analysis by using the Kuder Richardsson – 20 formula (Supardi ,2017: 161).

The formula is as follow:

$$r_{11} = \frac{n}{n-1} \left(1 - \frac{s^2 - \sum pq}{s^2} \right)$$

Where:

n = Number of student

p = Total of right answer

q = Total of wrong answer

s^2 = The square of the standard deviation of the test score

After the data is analyzed to predict the reliability of the instrument according to Sudijono, as cited in Ananda and Fadhli (2018: 155) an instrument is said have reliable value if the reliability coefficient is ≥ 0.70 .

3.6 Techniques of Data Analysis

In analyzing the data obtained, it presents analysis of students score in sentence mastery test, analysis of students' achievement in learning English, correlation analysis and Statistical hypothesis

3.6.1 Analysis of students, score in mastery of English sentence test.

Data analysis techniques use to analyze the students' score in mastery of English sentence is Correlation Pearson Product Moment. The first step in analysis the data about the students' sentence mastery is by scoring their answer. The students will get 1 if it is correct 0 if it is incorrect.

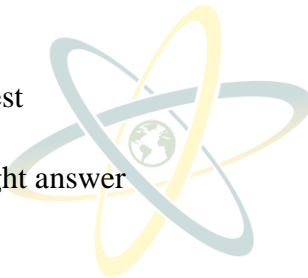
$$S = \frac{r}{n}x 100$$

Notes:

S = the score of the test

r = the total of the right answer

n = the total item



3.6.2 Analysis correlation

The data analysis technique that will be used by the researcher in this study is used the product moment correlation data analysis. Correlation analysis is a calculation analysis used to determine the relationship between two variables, namely between the independent variable and the dependent variable.

The analysis of this study is using the correlation analysis. Correlation analysis is a calculation analysis used to determine the relationship between two variables, namely between the independent variable and the dependent variable. The data that the researcher obtained will be calculated using the help of a computer through the SPSS version 16 program. The product moment correlation technique can be calculated by the following formula:

$$r_{xy} = \frac{N(\sum XY) - (\sum X)(\sum Y)}{\sqrt{[N(\sum X^2) - (\sum X)^2][N(\sum Y^2) - (\sum Y)^2]}}$$

Where:

r_{xy} : Product moment correlation coefficient between variables x and y.

N : Number of respondents.

$\sum X$: Sum of X score

$\sum Y$: Total variable score

$\sum X^2$: Sum of X quadrate

$\sum Y^2$: Sum of Y quadrate

$\sum XY$: Sum of multiplication of X and Y score

The basis of making decision of the results of product moment correlation as following criteria:

1. If $r_{count} > r_{table}$, then there is a relationship between variable x and variable y.
2. If $r_{count} < r_{table}$, then there is no relationship between variable x and variable y.

Meanwhile, according to Supardi (2017: 201) to see the level of closeness of the correlation relationship between variables can be seen in table 3.5 as follows:

Table 3.5 Interpretation of the Correlation Coefficient

The r score scale	Interpretation of r correlation
0.00 – 0.20	Very weak correlation (no correlation)
0.20 – 0.40	Low Correlation
0.40 – 0.70	Moderate correlation
0.70 – 0.90	Strong Correlation
0.90 – 1.00	The correlation is very strong

The basis for making a decision on the correlation test between variables

has the following criteria:

If the significant value (Sig) < 0.05 then there is a correlation between variable x and variable y.

If the significant value (Sig) > 0.05 then there is no correlation between variable X and variable Y.

3.7 Statistical Hypothesis

A statistical hypothesis is a statement that has not been proven regarding a population in a study which is expressed by statistical figures and the types of hypothesis that are formulated in the form of statistical notation. This hypothesis is formulated based on the researcher's observation of the population in the form of numbers (quantitative). The statistical hypothesis formula in this study is:

H_0 : $P \leq 0$ or if $r_{xy} < r_{table}$, H_0 is accepted, and H_a is rejected

H_a : $P > 0$ or if $r_{xy} > r_{table}$, H_a is accepted, and H_0 is rejected