

CHAPTER III

RESEARCH METHOD

3.1 Research Design

This research was a quantitative approach that used experimental research with a comparison technique to analyze data. According to Ary et al. (2016), experimental research involved the study of the effect of systematically manipulating one variable on another variable. The variable that was manipulated was called the experimental or independent variable. And the variable that was observed and measured was called the dependent variable. The experimental research was designed in which the writer manipulated at least one independent variable and its effect on one variable.

A quantitative research study was one that collected numerical data to answer a given research question. Quasi-experiments were experiments that did not place subjects in either the experimental group or the random control group. There were four types of experimental-qualified designs. Each type of plan was further detailed into a more specific plan. The experimental elements were four, namely the placement of subjects into experimental and control groups, measurement of dependent variables, comparison groups, and treatment. Quasi-experimental research involved two groups: an experimental group and a control group. In this research, the researcher used purposive sampling. In this study, the researcher used a pre-test and post-test control group design, as seen in the table below:

Table 3.1 Pre-Test and Post-Test Control Group Design

Group	Pre-Test	Treatment	Post-Test
Experimental	Q1	X1	Q2
Control	Q3	X2	Q4

Sugiyono (2013) Information:

Q1: Initial test (before treatment) in the experimental group

Q2: Final test (after treatment) in the experimental group

Q3: Initial test (before treatment) in the control group

Q4: Final test (before treatment) in the control group

X1: Treatment using Snakes and Ladders in students' mastery in vocabulary

X2: Treatment without using snakes and ladders in students' mastery in vocabulary

3.2 Population and Sample

3.2.1 Population

According to Sugiyono (2013), Population is a generalization area consisting of objects/ subjects that have certain quantities and characteristics determined by researchers to be studied and then drawn conclusions. The population is eight classes of SMP Sinar Husni Helvetia. The research population was class: VIII -1, VIII-2, VIII-3.

Table 3.2 The Population of Research

No.	Class	Students
1	VIII-1	35
2	VIII-2	35
3	VIII-3	30
TOTAL		100

3.2.2 Sample

According to Sugiyono (2013), sample is part of number and characteristic those set-in population. Sample form a part of population representative population, if the researcher finds information from the sample, it is means it constitutes from the population. In this study, the sampling technique is used to take sample is purposive sampling. According to Arikunto (2010), purposive sampling is the process of selecting sample by taking subject that is not based on the level or area, but it is taken based on the specific purpose. Purposive sampling is where a researcher selects a sample based on the needs about the study. The participants are selected based on the purpose of the sample. Participants are selected according to the needs of the study. In this study, the researcher takes the whole of the second grade students at SMP Sinar Husni Helvetia Medan in Academic Year 2022/2023. So, the writer only takes two classes named VIII-1 and VIII-2 as samples.

Table 3.3 Sample of Research

Group	Class	Students
Experimental Class	VIII-1	35
Control Class	VIII-2	35
Total		70

3.2.3. Treatment

Table 3.4 Meeting in Control Class

Meeting 1	
Opening:	The teacher introduces himself in class.
	Pray before study
	The teacher invites his students to introduce themselves
Main Activity:	The teacher explains about definition of vocabulary
Closing:	Pray before go home and the teacher tells the next meeting activity
Meeting 2	
Opening:	Pray before study
	The teacher greets the students “good morning “
	The teacher asks “how are you today? “
Main Activity:	The teacher explains about function of vocabulary
Closing:	Pray before go home and the teacher tells the next meeting activity
Meeting 3	
Opening:	Pray before study
	The teacher greets the students “good morning “
	The teacher asks “how are you today? “
Main Activity:	The teacher explains about kinds of vocabulary
Closing:	Pray before go home and the teacher tells the next meeting activity
Meeting 4	
Opening:	Pray before study
	The teacher greets the students “good morning “
	The teacher asks “how are you today? “
Main Activity:	The teacher explains about divided kinds about vocabulary with specific
Closing:	Pray before go home and the teacher tells the next meeting activity
Meeting 5	
Opening:	Pray before study
	The teacher greets the students “good morning “
	The teacher asks “ how are you today ? “
Main Activity:	The teacher asks students about material in meeting 1-4
Closing:	Pray before go home and the teacher tells the next meeting activity

Advanced of Table 3.4

Meeting 6	
Opening:	Pray before study
	The teacher greets the students “good morning “
	The teacher asks “ how are you today ? “
Main Activity:	The teacher gives assignment about vocabulary to students
Closing:	Pray before go home and the teacher tells the next meeting activity
Meeting 7	
Opening:	Pray before study
	The teacher greets the students “good morning “
	The teacher asks “ how are you today ? “
Main Activity:	The teacher give assignment about vocabulary noun
Closing:	Pray before go home and the teacher tells the next meeting activity
Meeting 8	
Opening:	Pray before study
	The teacher greets the students “good morning “
	The teacher asks “ how are you today ? “
Main Activity:	The teacher correct assignment the students
Closing:	Pray before go home

Table 3.5 Treatment in Experiment Class

Meeting	Teacher Activity	Student Activity
1	Opening	
	The teacher gives a greeting to the students.	Students answered greetings from teacher.
	The teacher prayed with students before study.	Students introduced themselves.

Advanced of Table 3.5

Meeting	Teacher Activity	Student Activity
1	Main Activity	
	A. Stimulation	
	The teacher asks students to introduce themselves one by one.	
	Students fill out a questionnaire given by the teacher. The aim is for students to know about English.	
	B. Problem statement	
	Students have little vocabulary they know in English.	
	C. Data Collection	
	Students will be asked to name the vocabulary they know.	
2	Closing	
	The teacher ends the first meeting and prays before going home	
	Opening	
	The teacher gives a greeting to the students.	Students answered greetings from teacher.
	The teacher prayed with students before study.	

Advanced of Table 3.5

Meeting	Teacher Activity	Student Activity
2	Main Activity	
	A. Data processing	Students listen to the teacher's explanation.
	The teacher explains about vocabulary material.	
	Students will be asked to explain vocabulary functions.	
	B. Verification	Students begin to record some new vocabulary.
	Students will be asked to answer questions about the vocabulary given by the teacher.	
	C. Generalization	
3	Students are asked to record new vocabulary that they know from the teacher.	
	Closing	
	The teacher ends the second meeting and prays before going home.	
3	Opening	
	The teacher gives a greeting to the students.	Students answered greetings from teacher.
	The teacher prayed with students before study.	

Advanced of Table 3.5

Meeting	Teacher Activity	Student Activity
3	Main Activity	
	A. Explanation	
	- The teacher gives an explanation about the material, namely types of vocabulary. - Students write down the types of vocabulary.	Students pay attention to the teacher's explanation about the types of vocabulary and write into the book.
		Students answer the types of vocabulary.
	Closing	
	The teacher ends the third meeting and prays before going home.	
4	Opening	
	The teacher gives a greeting to the students.	Students answered greetings from teacher.
	The teacher prayed with students before study.	

Advanced of Table 3.5

Meeting	Teacher Activity	Student Activity
4	Main Activity	
	The teacher explain about vocabulary noun (kinds of noun in vocabulary).	Students pay attention when the teacher gives an explanation.
		Students make a summary of the teacher's explanation.
	Closing	
	The teacher ends the fourth meeting and prays before going home.	
5	Opening	
	The teacher gives a greeting to the students.	Students answered greetings from teacher.
	The teacher prayed with students before study.	
	Main Activity	
	The teacher explain about common noun proper noun and collective noun.	Students pay attention while teacher explain about common noun.
		Students make example of common nouns and proper noun.

Advanced of Table 3.5

Meeting	Teacher Activity	Student Activity
5	Closing	
	The teacher ends the fifth meeting and prays before going home.	
6	Opening	
	The teacher gives a greeting to the students.	Students answered greetings from teacher.
	The teacher prayed with students before study.	
	Main Activity	
	The teacher explained about snake and ladders game and rules of snakes and ladders game in vocabulary.	Students pay attention while teacher explain about material.
	Closing	
	The teacher ends the sixth meeting and prays before going. home.	
7	Opening	
	The teacher gives a greeting to the students.	Students answered greetings from teacher.
	The teacher prayed with students before study.	

Advanced of Table 3.5

Meeting	Teacher Activity	Student Activity
7	Main Activity	
	The teacher explain how to play snakes and ladders game in vocabulary.	Students pay attention while teacher explain.
	The teacher gathers students into group.	Students play snakes and ladders game vocabulary.
	The game start while teacher give instruction.	
	The game is play so that each group gets a sticker or different colour as the figure walking on the board of snakes and ladders.	
	The group then rolls any dice that are readily available and proceeds according to the numbers on dice.	
	When the students rolls the number on the dice, stop in one of the boxes students gave themselves for the vocabulary researcher choose.	

Commented [A1]: GRAMMAR

Advanced of Table 3.5

Meeting	Teacher Activity	Student Activity
7	Main Activity	
	The last if group members can not say the vocabulary they removed, put a person, animal, or object the group that continues the game until the group with the most remaining members wins.	
	Closing	
	The teacher ends the seventh meeting and prays before going. home.	
8	Opening	
	The teacher gives a greeting to the students.	Students answered greetings from teacher.
	The teacher prayed with students before study.	
	Main Activity	
	Explanation	
	The teacher re-explains the vocabulary and snakes and ladders game that was taught in the previous meeting.	Students listen to the teacher explaining the material again.

Advanced of Table 3.5

Meeting	Teacher Activity	Student Activity
8	After the teacher has finished explaining all the subjects, the teacher will give a quiz to see how far the students have mastered the lesson that has been taught.	Students do a final quiz from the teacher to see the results
	Closing The teacher ends the eighth meeting and prays before going home.	

3.3 Research Instruments

Research instrument is tool of collecting data that should be valid and reliable. According to Arikunto (2006), the device the researcher uses to collect data is called instrument. The instrument in this research was test.

Arikunto (2006) states that “test is a series question, exercise or other means which are used to measure the skill, knowledge, intelligent, ability or talent that have by individual or group”. Thus, a test is a method to gain the data by giving some question to the respondent.

In this research the researcher used achievement test, Isnawati (2011), “achievement test is test that is used to measure the process that students making after learn something”. This test used to measure the student’s mastery in vocabulary before and after they taught by using Snakes and Ladders Game Strategy in SMP Sinar Husni Helvetia.

The test was multiple choice. It consisted of 20 items to assess the students, which consisted of a pre-test and a post-test. Form of pre-test and post-test content 20 question. The students were learning and teaching process. Every single word in pre-test and post-test was same.

3.4 Reliability and Validity of Instrument

In this case, it was necessary to distinguish between valid and reliable research results.

3.4.1 Reliability

The reliability test according to Sugiyono (2013), is carried out to find out how far the measurement results remain consistent if two or more measurements are made of the same symptoms using the same measuring device. If $\alpha > 0.90$, reliability is perfect. If α is between 0.70 - 0.90, the reliability is high. If α is 0.50 - 0.70, the reliability is moderate. If $\alpha < 0.50$ then reliability is low. If α is low, it is possible that one or more items are unreliable.

$$r_{11} = \frac{\left(\begin{matrix} n \\ n-1 \end{matrix} \right) \left(\begin{matrix} S^2 & \sum pq \\ & S^2 \end{matrix} \right)}$$

Information:

r_{11} = instrument reliability coefficient

n = number of questions

$\sum pq$ = number of item variants

S^2 = total number of variants

1.4.2 Validity

According to Sugiyono (2013), valid means that the instrument can be used to measure what should be measured. Valid shows the degree of accuracy between the data that actually occurs on the object and the data that the researcher can collect.

$$r_{xy} = \frac{N\sum xy - (\sum x)(\sum y)}{\sqrt{\{N\sum x^2 - (\sum x)^2\}\{N\sum y^2 - (\sum y)^2\}}}$$

Where:

r_{xy} = correlation coefficient

n = number of samples

x = Find the place of the statement

y = total score of statement items

$\sum x$ = total score of the statement items

$\sum y$ = total item total score turned out to be

$\sum xy$ = the number of times x and y

3.5 Techniques of Data Collection

According to Sugiyono (2013) states that data collection techniques are the most strategic steps in research, because the main purpose of research is to obtain data. Without knowing data collection techniques, researcher will not get data that meets predetermined data standards.

The test is used as an instrument to evaluate students' ability to pronounce vocabulary. By using the test, the writer will find out the weaknesses and developments of students in the learning process. The writer will prepare 20 questions in multiple measures of student understanding. In this study, the authors prepared pre-test, post-test 1 and 2.

1. Pre test

Researcher will make a pre-test to students before doing treatment. This is used to find out the difficulties and weaknesses of students.

2. Post-test

Researcher will make post-test 1 and 2 to students after doing treatment. This is used to determine the development of students after receiving treatment.

3.6 Technique of Data Analysis

According to Sugiyono (2013), what is meant by data analysis techniques is the process of searching for data, systematically arranging data obtained from interviews, field notes and documentation by organizing data. The data analysis technique is methods or ways to get data into information. So that the data became easy to understand, of course it is also useful for finding solution to problem in a study.

The data from the experiment class and the control class. The researcher used normality and homogeneity test, after the data was collected from the pre-test and post-test.

1. Normality Test

This test is carried out as one of the requirements for analyzing data. The normality test is also carried out before the data is analyzed. The normality test used is the *Kolmogorov-Smirnov* test with the following formula:

$$KD = 13,6 \sqrt{\frac{n1+n2}{n1.n2}}$$

Information:

KD = number of Kolmogorov-Smirnov searched

n1 = number of samples obtained

n2 = number of samples expected

2. Homogeneity

According to Sugiyono (2013), the level of significance used is $\alpha = 0.05$. Homogeneity test using SPSS with the criteria used to retrieve conclusion if F count is greater than F table then it has homogeneous variant. However, if F count is greater than F. table, then the variance is not homogeneous.

$$F = \frac{\text{The Largest Variant}}{\text{The Smallest Varriant}}$$

3. Hypothesis

Hypothesis based on the gain score, namely using the difference post-test and pre-test. The gain score is obtained using a formula as follows:

$$t = \frac{Mx-My}{\sqrt{\frac{dx^2-dy^2}{nx+ny} \frac{1}{nx} + \frac{1}{ny}}}$$

Information:

M_x = the mean score of experiment group

M_y = the mean score of control group

dx = the deviation standard of experiment group

dy = the deviation standard of control group

n_x = the total sample of experimental group

n_y = the total control group