CHAPTER III

RESEARCH METHOD

A. Research Design

This research used experimental design using quantitative approach with one group Pretest- Posttest design. According to Ary et al (2006:26) experimental study is scientific investigation in which an investigator manipulates and constructs one or more independent variables and observes the dependent variable or variables for variation concominant to the manipulation of the independent variables. Experimental research can be done in laboratory, in the class, and in the field. In this study the experimental research has been done in the class with taking students as population. According to Creswell, experiment is testing an idea (or practice or procedure) to determine whether it influences an outcome or dependent variable.

This study used pre- experimental design in the fotrm of one group pretest-posttest design using quantitative approach. In pre-test and post-test group the observation do two times, before giving treatment called pre-test and after giving treatment called post-test. In this study the researcher just puts one group and uses pre-test and post-test to see the result of the treatments. This research used two variables. They were variable X and Y, which are; variable X Was the effect of using Microsoft teams application and

variable Y was the students reading achievement. The design of this research was pre-experimental design, which used the one group of pretest-posttest design. The characteristics of pre- experimental design are this design may have pre- and posttest, without a control group.

According to Sugiyono, the type of pre-experimental design of this research is comparing the result after and before giving treatment. The writer only compared the score of pretest and posttest, where the first was before using Microsoft teams application and the second was after using Microsoft teams application. According to Donald T. Campbell and Julian C.Stanley, the types of this research can be designed as follows:

Table 3.1
Research type

Group	Pre-test	Treatment	Post test
E	Y_1	X	Y_2

Where:

E = experimental group

Y_1 = pre- test

X = treatment

Y_2= post- test

The procedure of experimental research that use one pretest – posttest design:

1   Administering a pretest with a purpose measuring student reading ability in twelve grade students of SMA Negeri 2 Pringsewu.

2. Applying the experimental treatment by using Microsoft teams application to the subjects in twelve grade students of SMA Negeri 2 Pringsewu.

3. Administering a Posttest with purpose to measure effectiveness microsoft teams application on students reading achievement in twelve grade students of SMA Negeri 2 Pringsewu.

In this study, the researcher wanted to know effectiveness microsoft teams application on students reading achievement in twelve grade students of SMA Negeri 2 Pringsewu by conducting pre – experimental research. The impact was assessed by providing a specific treatment. The effectiveness of using media was known after knowing the significant differences between the students who were taught before and after applying microsoft teams application.

B. **Research Subject and Setting**

This research was conducted by SMA Negeri 2 Pringsewu which is located in Pringsewu, Pringsewu District, Pringsewu Regency, Lampung. . In this study, researchers took class XII MIPA 3, 23 students. Researchers chose this class because this class is less interested in learning English on reading skill and students are less motivated or less interested in teaching and learning activities that take place in the Microsoft Teams application.

C. Population, Sample and Sampling

1. Population

Population is the total subject in the research.the population of this research was the Twelve grade students of SMA Negeri 2 Pringsewu in the academic year of 2021/2022. There are 3 classes of the Twelve grade students XII MIPA 1, XII MIPA 2 ,XII MIPA 3 and each class consists of 28, 26, and 23 students. The total number of students is 77 students.

Table 3.2
The total number of students

NO	CLASS	STUDENTS
1	XII MIPA 1	28
2	XII MIPA 2	26
3	XII MIPA 3	23
	TOTAL	77

2. Sample

Sample is a portion of a population. Actually the researcher is unable to take data or information from all of the population, since the limitation of time, energy, and accessibility so the researcher takes smaller one called sample that can reflect the whole population. Therefore the researcher often need to be able to obtain data from a smaller group or subset of the total population in such a way that the information gained is representative of the total population under the study. in this case the researcher investigates 23 students from only one class that is class XII

MIPA 3 as the experimental group. Because the English teacher has recommended the researcher to take them to be the sample and the students of twelve grade class had average proficiency in studying English. This sample is taken by sampling.

3. Sampling

sampling is technique to take sample the number of sample taken should appropriate to collect the data. The way to get the representative sample is by considering the nature and the distribution of population. Generally, sampling is divided into two types; systematic sampling called probability sampling and the second, unsystematic non-probability sampling. The main character of probability sampling is that every member or element of the population has a known probability of being chosen in the sample. In this case, the researcher uses probability sampling. It means that all of individual in the population can be selected as sample and there is no some consideration in selecting sample. In this research, the researcher chooses one kind of probability sampling that is simple random sampling because all of the classes have similar characteristics. the intent of simple random sampling is to choose individuals to be sampled who will be representative of the population. It means that all of the element or subject in a population is given an equal probability to be chosen as sample of study. The result, the researcher took XII MIPA 3 class as the sample with 23 students.

E. Technique of Collecting Data

The data collected by using pretest and posttest. Pre-test was given to the students at the beginning of the research. Then, the post-test was given to the students at the end of the research.

The procedures of collecting data are as follows:

1. Pre-test

The pretest was done before treatment intended to obtain students' English comprehension of XII MIPA 3 at SMA Negeri 2 Pringsewu. In the Pre-test using multiple choice totaling 20 questions in which there are questions that tend to explore the ability to remember, understand , and apply. In addtion the questions will explore the analysis, evaluation, and creation, skills of the student.

2. Treatment

The treatment is using Microsoft teams application to increase students Reading achievement. The time to apply this strategy was about eight meetings.

3. Post-test

The posttest was given at the end of research. the test was different from the pretest but both of them had the same level of difficulties. In the posttest using multiple choice totaling 20 questions in which there are questions that tend to explore the ability to remember, understand , and apply. In addtion the questions will explore the analysis, evaluation, and creation, skills of the student.

D. Technique of Data Analysis

In this research, the writer analyzed the data by using statistical method. To find out the students' individual score, the writer used a formula as follows:

$$\text{Students score} = \frac{correct\,answer}{total\,number\,of\,question} \times 100$$

Then, to interpret the score, the writer used the criteria of measuring the test score to find the effect of using Microsoft teams application toward students   Reading achievement the second year at SMA Negeri 2 Pringsewu, the criteria can be seen as follows:

Table 3.3
The criteria students score in english comprehension

No	Score's Criteria	Grade	Criteria
1	91-100	A	Excellent
2	81-90	B	Very Good
3	71-80	C	Good
4	61-70	D	Average
5	41-60	E	Poor
6	0-40	F	Very Poor

The writer used t-test to know whether or not the result of research was statistically significant. According to Hartono, t-test is one of the

statistical tests used to know whether or not there is significant difference between the two samples of mean in two variables. The data were analyzed byusing statistical analysis. The different mean was analyzed by using paired sample t-test on SPSS v.16. Next, give interpretation to the t value in which the formula for degrees of freedom is df = N-1

The analysis of the t-test formula described whether the hypothesis is accepted or rejected. If the t-calculation is the same or less than the critical value of t-table, it means the null hypothesis is accepted. However, if the value of t-calculated is bigger than t-table, it means the alternative hypothesis is accepted.

G. The Item Difficulties, Validity and Reliability of the Test

1. The item difficulties

   To find out the result of validity, the writer gave tried out to 23 students before the test was given to the sample of this research. The purpose of try out was to obtain validity and reliability of the test. The test was given to the students was considered not too difficult or not too easy. According to Arikunto, the test is accepted if the degree of difficulty is between 0.30 – 0.709 . It is determined by finding of the difficulty level of each item. The formula for item difficulty is as follows:

   $$P = \frac{B}{JS}$$

In Which:

P : Index of difficulty

B : The number of correct answer

JS : The number of students

Then, the proportion correct was represented by "p" , whereas the proportion incorrect was represented by "q"

Table 3.4
The standard level of validity used is[11]:

No	Classification	Standard level
1	Difficult	1.00-0.30
2	Accepted	0.30-0.70
3	Easy	0.70-1.00

4. Validity

The instrument of the test is valid if the instrument that used measures what it purpose to measure12 .The writer did try out twice. The purpose of try out was to obtain validity and reliability of the test. It was determined by finding the difficulty level of each item. To find out validity of the test, the writer use correlation product moment follows the formula by Arikunto:

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}}$$

Where:

r_{xy}= correlation product moment x and y

$\sum xy$= total x and y

X^2 = X quadrant

Y^2 = Y quadrant

According to Suharsimi Arikunto state the ranges of validity are:

Table 3.5
Classifications of Validity

Classification	Score
Excellent	0,800-1,00
Good	0,600-0,800
Fair	0,400-0,600
Poor	0,200-0,400
Very Poor	0,00-0,200

5. Reliability

Reliable instrumentation showed that there was a trustworthy or reliable of the test to take the data. Arikunto stated that it is possible for the test is reliable but it is not valid, whereas the test is valid automatically, it is reliable. To obtain the reliability of the test given, the writer used Spearman- Brown formula as follows:

$$r_{11} = \frac{2\, r_b}{1 + r_b}$$

Where :

r_{11}: Instrumen of reliability

r_b : r_{xy} that mean as correlation of product moment

According to Susetiyono state the ranges of reliability are:

Table 3.6
Criteria of reliability[17]

Classification	Score
Excellent	$0{,}80 < r_{11} \leq 1{,}00$
Good	$0{,}60 < r_{11} \leq 0{,}80$
Fair	$0{,}40 < r_{11} \leq 0{,}60$
Poor	$0{,}20 < r_{11} \leq 0{,}40$
Very Poor	$0{,}00 < r_{11} \leq 0{,}20$