CHAPTER III

RESEARCH METHODS

This chapter presents and discusses methodology of the research which consists of research design, variable, population, sampling, sample, data sources, research instrument, validity and reliability testing, normality and homogeneity testing, data collecting method, data analysis, and hypothesis testing.

A. Research Design

Research design is all process in conducting a research. In fact, there are two kinds of research approaches namely quantitative and qualitative approach. This research used quantitative approach with experimental design. There are many kinds of experimental research design, such as pre-experimental, true experimental, and quasi experimental (*Ary et al*, 2010:302). This research used quasi experimental design that was directed to know cause and effect of two variable reflected in both control group and experimental groups.

The design was employed to prove the effectiveness of LINE Webtoon on students' vocabulary mastery of the first grade at MAN Kota Blitar which was indicated the significance different mean score in vocabulary test of the two groups. Wiersma and Jurs (2009:187) stated that "quasi-experiment is an approximation of a true experiment that uses groups that have not been formed randomly. In this design the experimental group was given treatment by using LINE Webtoon Application and the other group as control group was given a

treatment using a conventional method. For the study used two groups pre-test and post-test, before being given treatment both of the groups were given and after being given treatment post-test was administered to the two groups.

This study took two classes of the first grade students of MAN Kota Blitar as experimental and control classes to see the effectiveness of LINE Webtoon by comparing the gained pre-test and post-test scores of the two classes. The effectiveness could be seen from the students' mean scores of experimental class in post-test after they were given a treatment and from the computation of the gained scores of the classes. The experimental class was given the media by using LINE Webtoon but the control class was not given treatment by using LINE Webtoon.

Table 3.1 Quasi – Experimental research design

Group	Pre-test	Independent variable	Post-Test
A	Y_1	X	Y_2
B	Y_2	-	Y_4

A: Experimental group

B: Control group

Y_1: Pre-test for experimental group

Y_3: Pre-test for control group

X: Represent the independent variable. It will also refer to ask the experimental variable or the treatment (LINE Webtoon)

$Y_{2:}$ Post-test for experimental group

Y_4: Post-test for control group

B. The Population, Sampling Technique, and Sample.

This sub-heading presents about population, sample, and sampling in this research;

1. Population

A population is defined as the whole subject of the research. Setiyadi (2006:38) states research population is all individuals which are being target in research while research sample is individual who give the data. The population of this research was the first grade students of MAN Kota Blitar (sosial class) in academic year 2019/2020. The totals of first grade students are 135 students.

Table 3.2 The Member of Population and Sample.

No	Class	Male	Female	Total
1.	X IPS 1	10	25	35
2.	X IPS 2	12	23	35
3.	X IPS 3	11	22	33
4.	X IPS 4	0	32	32
			Total	135

2. Sampling Technique

Sampling is as a way the researcher select number of individuals as a sample which represents the population. Sampling is the process of selecting a number of individuals for a study in such as a way that the individuals represent the large group from which they were selected.

In this research, the researcher used Purposive Sampling Technique to obtain the sample. Arikunto (2000:139) explains that:

> Purposive sampling is technique which researchers do not consider strata, random or area when they handpick a subject. However, they consider the certain purpose. In addition, this technique is done because there are some consideration such as the limitation of time, energy, and money.

The researcher used purposive sampling because the researcher found some characteristics of the sample. They were good attitude, active in the class, and almost have the same average ability. The classroom having those characteristics were X IPS 1 Class and X IPS 2 Class. It was stated by one of English Teacher during the teaching and learning process that the students of X IPS 1 class and X IPS 2 class participate actively and always pay attention on the teacher's explanation. Meanwhile, from the academical record the students of the two classes have similiar and average score. So, these two classes belong to normal classes meaning that they tend to develop when they are given treatment of LINE Webtoon and Conventional method.

3. Sample

Selected of the sample is very important step in conducting a research. According to Charles (1995:96), a sample is a small group of people selected

to represent the much larger entire population from which it is drawn. It means that a good sample must be representative of the entire as possible, so that the generalization of the sample as true as population. Based on some criteria used to select sample above, there two classes fulfilling the set criteria; X IPS 1 class and X IPS 2 class as experimental and control groups.

C. Research Variable

According to Fraenkel (1996:61) a variable is any characteristic or quality that varies among the members of particular group. In experimental research, there are two variables: Independent Variable and Dependent Variable.

1. Independent Variable (X)

   Independent variable is variable that consequence of upon antecedent variables. In this research the independent variable was using LINE Webtoon Application.

2. Dependent Variable (Y)

   Dependent variable is the response on the criterion variable that is presumed to be caused by or influenced by the independent treatment conditions and any other independent variable. In this research the dependent variable was students' vocabulary mean score.

D. Research Instrument

Instrument of the research are tools to measure something that we observe in order to obtain the data and answer the research problems, stated by Sugiyono (2011). The instrument used in this research was vocabulary test which was administered in the pre-test and post-test. Those tests were administered before and after teaching and learning vocabulary in the two groups using LINE Webtoon Application media in experimental group and using a conventional method in control group. According to Ary et, al (2010:20), "Test is a set of stimuli which presented to an individual in order to elicit responses on the basis of which a numerical score can be assigned". The format of the test was objective multiple-choice test. The questions consisted of 20 multiple-choice items, and the time alocation was 40 minutes. The correct answer from each question was multipled by 5. Then, the score will be 20 X 5 = 100. On the other hand, if the students answer incorrectly for each item, they will get 0.

Table 3.3. Score Criteria

Score	Criteria
85 – 100	Excellent
75 – 80	Good
55 – 70	Average
35 – 50	Poor

0 – 30	Very Poor

E. Validity and Reliability Testing

1. Validity Testing

One of the criteria of a good instrument is valid. According to Ary et al (2010:225) Validity as the extent to which as instrument measured what it claimes to measure. While, Fraenkel and Wallen (2006:150) stated that validity is the most important idea to consider when preparing or selecting an instrument for use. In other words, validity can be defined as the instrument that measures what is supposed to be measured. In this research, the researcher used content validity as a non-empirical expert judgment of the extent to which the content of a test is comprehensive and representative of the content domain purported to be measured by the test, construct validity as the criteria of a person who full filled the success speaking ability, and face validity as the subjective measurement.

a. Content Validity

The content validity of the test is showed with relevancy of the objective of the test and the content of the test items. According to Ary et al (2010:225) states that validity is to have teachers examine the test and judge whether the test is adequate sample of the content and objective to be measures. The test was said to have content validity if its contents constitute a representative sample of language skills,

structures, etc., being tested. The content of the test was constructed based on competency of standard and basic competency of school - based curriculum grade eight of the English subject. Content validity is a kind of validity which depends on careful analysis of the language being tested and of the particular test subjective. According to Gay (2010) in his book, Educational Research Competencies for analysis and Application Fourth Edition, "Content validity is of prime importance for achievement test. A test score cannot accurately reflect a student's achievement if it does not measure what the student was supposed to learn (Gay, 2010:156). A test is said to have content validity if its contents constitutes a representative sample of the language skill, structure, etc. Being tested, the try out test was valid in terms of content validity because this test referred to the syllabus of the school. Thus, it can be concluded that the test used in this study was valid in content validity because the materials tested were those have been taught to the students as it is presented in following matrix.

Table 3.4. Matrix of Content Validity

Syllabus Basic Competence	**Indicator**	**Learning Material**	**Technique**	**Test Item**
4.11 Read meaningful short functional simple	Student can identify the vocabulary from	Text 1. A Budgie's Life – Day	Written Test	Pre-Test

text or story of LINE Webtoon by pronunciation, stress, and intonation which acceptable involving surrounding.	the content of the story or the text.	One and Day Two. Eps. 1 – Eps. 4 and Eps. 6 – 9	Students answer multiple-choice question based on the text	
	Student can identify the vocabulary from the content of the story or the text.	Text 2. Meow Man Eps. 1 and 2	Written Test Students answer Multiple-Choice question based on the text.	Post-Test

Based on the matrix above, the instrument of the test could be said to have the content validity because the test has equal purpose with the core competence and basic competence in syllabus of Curriculum of 2013, which was testing the students' ability in vocabulary with the correct structures.

b. Construct Validity

Brown (2003:25) explained that "Construct is any theory, hypothesis, or model that attempts to explain observed phenomena in our universe of perception." In the term of construct validity, the test is considered to have construct validity if it can be demonstrated that it measured just the ability which is hypothesized in a theory of language ability. Both in the pre-test and post-test, the researcher gave vocabulary test through written test. The test were considered to have construct validity for the purpose of testing proficiency in vocabulary mastery.

c. Face Validity

According to Ary et al (2010:225) Face validity refers to the extent to which examine believe the instrument is measuring what it is supposed to measure. Henning (1987, p. 192) defines face validity as a subjective impression, usually on the part of examinees, of the extent to which the test and its format fulfills the intended purpose of measurement.

Face validity refers to the degree to which a test looks right, and appears to measure the knowledge or abilities it claims to measure based on subjective judgment or the examine who take it, the administrative personnel who decide on its use, and other psychometrically unsophisticated observers (Brown, 2004). The test in this research was design to measure students' vocabulary mastery. Thus, to achieve face validity, the researcher provided the instruction to ask students to test

vocabulary. The researcher uses face validity in this research by consulting with expert and lecturer.

2. Reliability Testing

Another criteria of a good test is reliability. Reliability is a necessary characteristic of any say good test for it to be valid at all and test must be reliable as meaning instruments. According to Ary (2002:250) reliability is concerned with the effect of such a random errors of measurement on the consistency of the scores. Reliability is the consistency the scores. Reliability is the consistency of the measurement, or degree to which an instrument the same subject. To measure the reliability of the result of the test, the researcher conducted a try-out. The try-out was administered to 33 students of X IPS 3. The try-out was held to know how far the reliability of the result of the test. For there should be two row score in determining the level of reliability, test-retest was conducted. Those two row scores were computed using SPSS 16.0 version to know the reliability of the test instruments.

The procedures were, inputting the data, then click ‘analyze’ and choose ‘scale’. After that click the ‘reliability analyses. There would be a table after clicking it, then move the data on the left table to the right table. After that click ‘statistics’ and choose item; scale, the procedures were inputting the data, then click ‘analyze’ and choose ‘scale’. After that click the ‘reliability analyses. There would be a table after clicking it, then move the data on the

left table to the right table. After that click 'statistics' and choose item; scale, in inter-item part choose "correlations".

The result was matched with the result of Cronbach's alpha to determine the reliable of the test. According to Triton in Sujianto (2009:97) the value of Cronbach's alpha can be interpreted as follows:

Table 3.5. Cronbach's Alpha Interpretation Based on Triton

Cronbach's Alpha	Interpretation
0,00 – 0,20	Less Reliable
0,21 – 0,40	Rather Reliable
0,41 – 0,60	Enough Reliable
0,61 – 0,80	Reliable
0,81 – 1,00	Very Reliable

The result of reliability testing by using SPSS 16.0 can be seen from the table:

Table 3.6 The result of reliability pre – test

Case Processing Summary

		N	%
Cases	Valid	35	100.0
	Excluded[a]	0	.0
	Total	35	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.672	20

Table 3.7 The result of reliability post – test

Case Processing Summary

		N	%
Cases	Valid	35	100.0
	Excluded[a]	0	.0
	Total	35	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.675	20

To know the items was reliable or not it can be seen from Alpha Cronbach's column. If the Alpha Cronbach's is under 0,06, it means that the test was not reliable. But, if the Alpha Cronbach's is upper 0,06, it means that the test was reliable. The Alpha Cronbach's score of pre – test was = 0,672 it means that the test was reliable. Meanwhile, the Alpha Cronbach's score of post – test was = 0,675 it means that the instrument was reliable.

B. Normality and Homogeneity Testing

Normality testing is used to examine whether a set of data belong to normal distribution or not. After doing the normality testing then the researcher could determine whether the statistical test used parametric test or non-parametric test. In this research the normality testing was done toward students score in pretest and posttest. Because the variable was the achievement or score, the variable was interval. So, parametric test was used. Then, to measure whether the data computations were normal distribution and homogenous, the researcher conducted normality testing and homogeneity testing.

1. Homogeneity testing

   The variances of data are tested to find out if they are equal or homogeneous. This testing can be done by getting the score of the students then we subtract the lowest value to the highest value, the higher the range the more heterogeneous the class is. Finding the standard deviation is also helped to know the variability of the class. To achieve this data, Levene statistic test is applied in this research with the similar rule of the normality that is $\alpha = 0.05$.

   a. If the homogeneity test resulted $< \alpha = 0.05$ the data are not homogeneous.
   b. If the homogeneity test resulted $> \alpha = 0.05$ the data are homogeneous or have equal variances.

2. Normality testing

   Normal distribution is the distribution on variables such as scores or a normal distribution in statistical research is one of the important assumptions

before T-test can be performed. It to know whether the samples collected are normally distributed or not. The analysis of normality test in this research used Kolomogorov-Smirnov with the rules $\alpha = 0.05$:

a. If the normality test resulted $< \alpha = 0.05$. the data are not normally distributed and H_0 is rejected
b. If the normality test resulted $> \alpha = 0.05$. The data are distributed normally and H_0 is accepted.

3. T-test

T-test is a type of statistical test that is used to compare the means of two groups. T-test is a type of parametric method; it can be used when the samples fulfill some criteria such as, the conditions of normality, equal variance, and independence. There are two types of t-tests they are, independent t-test, which can be used when the two groups under comparison are independent of each other, and the paired t test, which can be used when the two groups under comparison are dependent on each other. In this research, independent t test is used. It can be done in SPPS application.

C. Data Collecting Techniques

Data collecting method is the way the researcher to collect the data. Method of data would provide reality about some steps which were used in the process of collecting data. Researcher used two kinds of tests, they were:

1. Pre-Test

Pre-test was given to the experimental students before the researcher taught them using LINE Webtoon Application. This test was also administered to the control group. Pre-test was administered to know how far the students' vocabulary mastery before being given a treatment. The format of pre-test was multiple choices consisted of 20 items about part of speech. The time alocation was 40 minutes.

2. Post-Test

After the treatment, the post test was given to the students. The test item in the post-test was different with the pre-test, but both of them had same indicators and the text was almost same in level of difficulties. The format post-test was also 20 items multiple choice about part of speech. It was given to know the final score and the students' difference achievement before and after they get treatment. Time allocation to answer the test was 40 minutes. '

The schedule of collecting the data could be seen in the following table:

Table 3.8 The Schedule of Conducting the Research

No.	Date	Class	Meeting	Activities	Time
1.	Saturday, March 07th 2020	Experimental (X IPS 1)		Pre – Test and Treatment 1	5 – 6

			I	by LINE Webtoon	
2.	Saturday, March 07th 2020	Control (X IPS 2)		Pre – Test and treatment 1 by conventional	7 – 8
3.	Monday, March 09th 2020	Experimental (X IPS 1)	II	Treatment 2 by LINE Webtoon and Post-Test	3 – 4
4.	Saturday, March 14th 2020	Control (X IPS 2)		Treatment 2 by conventional and Post – Test	7 – 8

The vocabulary test was given by conducted pre-test and post-test. Those tests were done on first meeting and the last meeting. While, the treatment was given after pre – test and before the post – test. In this study, the group got the treatment by using LINE Webtoon was experimental group only. The procedures of treatment can be seen as follows:

1. First, treatment was given on Saturday, March 07th 2020.

   Before beginning applied the story from LINE Webtoon Application, the researcher introduced the application especially for teach vocabulary by reading story. Then, asked students' to prepare their own smartphone by download the application and should login by their own account. After the application ready to used, teacher asked students' to search the first story (A Budgie's Life – Day One and Day Two. Eps. 1 – Eps. 4 and Eps. 6 – 9) and read it. By read in a time, the researcher explained about part of speech in English, and students' continued to read in second times. Then, teacher was gave the exercise to the students' after three times of read. The students' had to listed the new vocabulary which got from the story and classified it by type of part of speech.

2. Second, treatment was conducted on Monday, March 09th 2020.

   In the second meeting, the treatment was same as the first meeting. The students' were still read the story (Meow Man Eps. 1 and 2) for twice and the researcher explained about part of speech. After got the new vocabularies, the researcher asked them into group and one of students delivered the result of exercise in front of the class. In the last treatment, the students' continued to read and group discussions. After the treatment was complete, at the end of meeting the researcher conducted a post – test to get the result of the treatment that has been done.

D. Data Analysis

This data obtained in this research were the result of students test and they were analyzed quantitatively. Quantitatively analysis was done using statistic which is called statistical analysis or inferential statistics. The quantitative data of this research was analyzed by using statistical computation. The technique was used to find the significant difference on the students' vocabulary mastery after being taught by using LINE Webtoon media. The researcher used T-test adopted from Ary (2010:177) with SPSS 16.0 version. After getting the data either from pre-test or post-test, the researcher analyzed the data by using formula of f-test to testing the equal variance of standard deviation and t-test by to know the significant difference of students' vocabulary mastery between students who are taught by using Line Webtoon and those taught by using a conventional method.

E. Hypothesis Testing

After testing t-test by using SPSS 16.0 for windows program and determining that the significance level (α) is 0,05 or 5% (it has been programmed on the application) the next step is rejecting or not rejecting the null hypothesis. The base of rejecting or not rejecting the null hypothesis is: If P-value (denoted by Sig) ≤ α (5 %), H_o is rejected and H_a is accepted. But, if P-value > α (5 %), H_o is not rejected (accepted) and H_a is rejected.