

CHAPTER III

RESEARCH METHOD

In this chapter, the researcher presents the design and data that need to complete this research. This chapter consists of research design, population, sampling, sample, variables, data source, research instruments, validity and reliability testing, data analysis, and hypothesis testing.

A. Research Design

Quantitative strategies have involved complex experiments with many variables and treatments (e.g., factorial designs and repeated measure designs). They have also included elaborate structural equation models that incorporate causal paths and the identification of the collective strength of multiple variables. Rather than discuss all of these quantitative approaches, I will focus on two designs: surveys and experiments (Creswell, 2014). This research conducted a quasi-experimental research design to find out the effectiveness of using Memrise application toward students' phrasal verbs mastery. According to Shadish, Cook, and Campbell (2002) stated that quasi-experiments share with all other experiments a similar purpose-to test descriptive causal hypotheses about manipulable causes-as well as many structural details, such as the frequent presence of control groups and pretest measures, to support a counterfactual inference about what would have happened in the absence of treatment. Experimental research involves a study

of the effect of the systematic manipulation of one variable(s) on another variable (Donald Ary, 2010). In this experimental research design, the researcher used quantitative approach. The pre-test post-test was performed in this research. Then, the researcher compared the pre-test and post-test score both experimental group and control group. The researcher has a purpose to investigate whether or not there is an effect on phrasal verbs mastery after giving the treatment. The reason researcher used quasi experimental design because this study was intended to know the effectiveness of using Memrise application toward students' phrasal verbs mastery of first grade at SMAN 1 Gondang Tulungagung by comparing students' score both experimental group and control group before and after got treatment.

This research conducted at first grade of SMAN 1 Gondang Tulungagung Tulungagung, X MIA 1, X MIA 2, X MIA 3, X MIA 4, X MIA 5, X MIA 6, X IPS 1, X IPS 2, X IPS, 3, and X IPS 4. The experimental group was X MIPA 3, and the control group was X MIPA 1. The placement test, a pre-test and a post-test was conducted in experimental group and control group.

Table 3.1 The Diagram Two Group Pre-test Post-test Design

Group	Pre-Test	Treatment	Post-Test
C	T ₁	X	T ₂
E	T ₁	-	T ₂

Note:

E : Experimental group (X MIPA 3)

- C : Control group (X MIPA 1)
- T₁ : Pre-test
- T₂ : Post-test
- X : treatment by using Memrise application
- : the group without treatment or using conventional method

The procedures of using two groups pre-test and post-test design were:

a) Pre-Test

Administering a Pre-test both of experimental and control group (X MIPA 3 and X MIPA 1), to measure the score of student's mastery of phrasal verbs at first grade in SMAN 1 Gondang Tulungagung. The pre-test formulated as T₁. The researcher gave pre-test to each group to know the achievement of students' phrasal verbs mastery before being taught by using Memrise application for experimental group, and by using conventional method to the control group.

b) Treatment

Applying the treatment in the experimental group (X MIPA 3) thought phrasal verbs by using Memrise application, whereas control group (X MIPA 1) though phrasal verbs by using conventional method to the first grade students of SMAN 1 Gondang Tulungagung. The treatment formulated as X.

Treatment mean that the researcher used Memrise Application as the media to teaching Phrasal Verbs. There are the procedures during the research, the researcher needs four weeks to do the research.

Table 3.2 The Procedure of The Research

No.	Group	Meeting	Date	Activity	Time
1.	Control	I	March 2, 2020	Pre-test and treatment I using conventional	90 Minutes
2.	Experimental		March 3, 2020	Pre-test and treatment I using Memrise	90 Minutes
3.	Control	II	March 9, 2020	treatment II using conventional	90 Minutes
4.	Experimental		March 10, 2020	treatment II using Memrise	90 Minutes
5.	Control	III	May 5, 2020	treatment III using online class	60 Minutes
6.	Experimental		May 5, 2020	treatment III using Memrise	60 Minutes
7.	Control	IV	May 8, 2020	Post-test	45 Minutes
8.	Experimental		May 8, 2020	Post-test	45 Minutes

The pre-test and post-test consisted with Phrasal Verbs test. The test carried out at the first meeting and the last meeting. Whereas, the treatment was given after students got pre-test, and before the post-test. In this study,

the experimental group was given the treatment by using Memrise Application. While the control group given by conventional method.

Monday, March 2, 2020. First treatment, conducted after given the pre-test to control group. Whereas on Tuesday, March 3, 2020. The first treatment conducted after given the pre-test to experimental group. The researcher introduced how to used Memrise Application, especially to thought phrasal verbs. Then, the research asked students' to prepared their own smartphone to download the application and should login by their account. After the application ready to used, the researcher give the link of Phrasal Verbs course, it has several level of phrasal verbs material. Then, the researcher explained how operated the application to the students by using LCD projector. Researcher explain about some feature that presented on the application. The researcher asked the students to open material of Phrasal Verbs level 1 The researcher asked them to did the excercise in Memrise into group. One group consist of 4 – 5 students. The researcher asked to the students to wrote down the phrasal verbs and the meaning that they have been found on the application. The excercise contained the narrative text about Indonesian legends, the students have to find out some phrasal verbs in the text. .

Monday March 9, 2020. The experimental group conduct second treatment, whereas the control group on Tuesday March 10, 2020. The treatment same as the first meeting. The students still did the material of phrasal verbs next level. The researcher asked to the students to wrote down the phrasal verbs and the meaning that they have been found on the application. The researcher asked them to did the excercise in Memrise into

group. The exercise contained the narrative text about Indonesian legends, the students have to find out some phrasal verbs in the text. Then, one of the students delivered the result of exercise in front of class.

Tuesday, May 5, 2020. The control and experimental group conducted third treatment, using online learning on whatsapp. The researcher conducted the treatment that was same as before. The researcher asked the students to open next level (3 – 4) material of Phrasal Verbs. Then, the students do the exercise. The exercise contained of the different narrative text about Indonesian legends, the students have to find out some phrasal verbs in the text. The researcher asked to do the exercise, then the student have to submitted it on personal chatting.

c) Post-test

After got the treatment, administered a post-test both of experimental and control group (X MIPA 1 and X MIPA 3), to measure the score of student's mastery of phrasal verbs of first grade at SMAN 1 Gondang Tulungagung. The post-test formulated as T₂. Post-test conducted on Friday, May 8, 2020. The control and experimental group conducted post-test by using google form. The teacher share link of the test on the chatting group. The students have to open link, then did the the test as well as they can do. The researcher compared between the result of pre-test and post-test score to know Memrise application was effective increasing the students' phrasal verbs mastery.

B. Population, Sampling and Sample

1. Population

Identify the population in the study. Also state the size of this population, if size can be determined, and the means of identifying individuals in the population. Questions of access arise here, and the researcher might refer to availability of sampling frames-mail or published lists-of potential respondents in the population (Creswell, 2014). According to Ary (2010:148) population is defines as al numbers of any well-defined class of people, events, or subject.

The population of this study was all the first grade students' of SMAN 1 Gondang Tulungagung in academics years 2019/2020. Which has 10 class, there are:

Table 3.3 Table of Population

Class	The Number of Students
X MIPA 1	36
X MIPA 2	36
X MIPA 3	35
X MIPA 4	36
X MIPA 5	36
X MIPA 6	29
X IPS 1	33
X IPS 2	36
X IPS 3	36

X IPS 4	33
TOTAL	382

2. Sampling

The researcher must selecting sampling after identified the population. There are two types of sampling: non-probability and probability sampling (Mishra, 2011). While Palys T. (2008) explain that purposive sample is non-probability sample that is selected based in characteristics of a population and the objective of the study. Purposive sample also known as judgmental, selective, or subjective sampling. Therefore, the researcher chose first grade of SMAN 1 Gondang Tulungagung because based on the information and suggestion from English teacher. Another reason the researcher used the first grade because the researcher wanted applied Memrise application in SMAN 1 Gondang Tulungagung and Memrise application was appropriate with the characteristics of the students on first grade. The first grade students has the basic knowledge in learning English phrasal verb. However, students lack motivation in learning English phrasal verbs.

3. Sample

The researcher must decide the way of selecting a sample or choose a sample design for his study. In other words, a sample design is a exact sketch determined prior to any type of data collection for obtaining a sample from a given universe. While Ary (2010:148) explain that sample is a portion of a population. According to Creswell (2008:152) sample is a subgroup of the

target population that the researcher plants to research for generalizing about the target population.

In this study the researcher takes two classes from 10 classes. The sample of the research are X MIPA 1 as control group and X MIPA 3 as experimental group. The reason of the researcher decided those class as the sample: first they have same level of knowledge in learning English, then the students' has difficulties to determined the used and the meaning of phrasal verbs.

Table 3.4 The Research Sample by Class

No.	Class	The Number of Students
1.	X MIA 1	36
2.	X MIA 3	35

C. Research Variable

Variable is a construct or characteristic that can take on different values of scores (Ary, 2002:37). While Creswell (2012:112) explain a variable is a characteristic or attribute of an individual or an organization that writers can measure or observe and varies among individuals or organizations studied. Measurement means that the researcher records information from individuals by asking the answer questions, and when variables vary, it means that scores will assume different values depending on the type of variable being measured. There are two variables in this research, there are:

1. Independent Variable

Independent variables are those that (probably) cause, influence, or affect outcomes. They are also called treatment, manipulated, antecedent, or predictor variables (Creswell, 2014:84). Independent Variable in this study is using Memrise application because it affected the student's mastery of Phrasal Verbs.

2. Dependent Variable

Dependent variables are those that depend on the independent variables; they are the outcomes or results of the influence of the independent variables. Other names for dependent variables are criterion, outcome, effect, and response variables (Creswell, 2014:84). Dependent Variable is variable that depends on another variable, in this study is student's Phrasal Verbs mastery.

D. Research Instrument

The researcher uses instrument to measure achievement, assess individual ability, observe behavior, develop a psychology profile of an individual, or interview a person (Creswell, 2008:5). While, Ary (2010:210) explain that test is a set of stimuli presented to an individual in order to elicit responses on the basis of which a numerical score can be assigned. According to Brown (2003:3) stated a test is first a method. It is an instrument-a set of techniques, procedures, or items: It requires performance on the part of the test-taker. To qualify as a test, the method must be explicit and structured: multiple-choice questions with prescribed correct answers; a writing prompt

with a scoring rubric; an oral interview based on a question script and a checklist of expected responses to be filled in by the administrator.

In this study, the researcher used test as the research instrument. In compiling the test the researcher conducted several steps in order to obtain a good test. The researcher developed the specification of the test. First, determined the purpose of the test, the purpose of the test was to measure the students' phrasal verbs mastery. Then the researcher arranged the blueprint (Appendix 3 & 5). Selected the type of questions, the type of the test to measure students' phrasal verbs mastery used multiple-choice and fill in the blank. Then, determined the level of difficulty, determined the number of the test and time allocation. The numbers of the test given 30 questions for each student, there were 20 for multiple choice and 10 for fill in the blank. While the allocation time was 45 minutes. Pre-test and post-test was made by selecting phrasal verbs. Both of experimental group and control group had similar form of pre-test and post-test. The pre-test was administered before treatment, and the post-test was administered after treatment.

The form of questions from this phrasal verbs test was the same as phrasal verbs test on the TOEIC grammar test, however the level was adjusted to the first grade students by using of narrative text. Based on the researcher information and suggestion from the English teacher of SMAN 1 Gondang Tulungagung, that narrative text suitable became the material for tested students' phrasal verbs mastery. Therefore, it was suitable because many phrasal verbs was found in narrative text, because of phrasal verbs commonly found in written text and spoken. This phrasal verbs test distinguished from

the reading test was on the instructions and the test only focus on the phrasal verbs contained in narrative text. Phrasal verbs in the text was marked with bold marked and underline (Appendix 4 & 6).

The scoring procedure in multiple choice, if the answer was correct it would get 3 points. While in fill in the blank, 4 points if the answer was correct. After the test was completed, the next step was to conducted validity and reliability testing.

E. Validity and Reliability Testing

1. Validity Testing

Validity is the most important consideration in developing and evaluating measuring instruments. Historically, validity was defined as the extent to which an instrument measured what it claimed to measure. The focus of recent views of validity is not on the instrument itself but on the interpretation and meaning of the scores derived from the instrument (Donald Ary, 2010). Validity depends on the analysis in each test language, the

Validity of the validity of the items need to measure the reliability of a test and relevant to the purpose or have such tests performed. In this research, the researcher would test the instrument to students. The researcher would use content validity to know the validity test. Construct used to measure the validity of the instrument. It can measure things that will be measured. In this study, researchers tested the students' mastery of phrasal verbs by providing multiple choice and fill in the blank questions.

a. Content Validity

Content validity is the test that the content is relevant with the purpose of the test. According to Lodico (2006:93) explain that content validity is composed of two items of validity, sampling validity and item validity. Both sampling validity and items validity involve having experts examine items that make up the instruments.

A test is said to have content validity if its contents constitutes a representative sample of the language skill, structure, etc. This validity should require item validity which represented measurement in the intended content area and sampling validity. Content validity is importance for achivement test, because content validity is done to ensure whether the test is accordance with the objectives of the study or not. The test is conducted to determine the extent to which the test reflects and does not reflect to measure students in mastery phrasal verbs.

Table 3.5 Content Validity

Main competence	<p>K.I 3 Memahami pengetahuan (faktual, konseptual, dan prosedural) berdasarkan rasa ingin tahunya tentang ilmu pengetahuan, teknologi, seni, budaya, terkait fenomena dan kejadian tampak mata.</p> <p>K.I 4 Mencoba, mengolah, dan menyaji dalam ranah konkret menggunakan, mengurai, merangkai, memodifikasi, dan membuat) dan ranah abstrak (menulis, membaca, menghitung, menggambar, dan mengarang) sesuai dengan yang dipelajari di sekolah dan sumber lain yang sama dalam sudut pandang/ teori.</p>
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Basic Competence	<p>3.9. Menganalisis fungsi sosial, struktur teks, dan unsur kebahasaan pada teks naratif sederhana berbentuk legenda rakyat, sesuai dengan konteks penggunaannya.</p> <p>4.15 Menangkap makna teks naratif lisan dan tulis berbentuk legenda, sederhana</p>
Indicator	<ul style="list-style-type: none"> • Mengidentifikasi unsur kebahasaan dalam teks naratif berbentuk legenda sederhana • Merespon makna phrasal verbs yang terdapat dalam teks naratif berbentuk legenda sederhana • Mengidentifikasi phrasal verb dari teks naratif berbentuk legenda sederhana • Menulis phrasal verbs baru yang diperoleh melalui membaca teks naratif berbentuk legenda sederhana
Basic Material	<ul style="list-style-type: none"> • Teks naratif lisan dan tulis berbentuk legenda sederhana.

Table 3.6 Content Validity of Test

Indicators	Instrument Test Items	
	Pre-Test	Post-Test
<ul style="list-style-type: none"> • Mengidentifikasi unsur kebahasaan dalam teks naratif berbentuk legenda sederhana 	Phrasal Verbs Test (Multiple-choice and Fill in the Blank)	Phrasal Verbs Test (Multiple-choice and Fill the Blank)

<ul style="list-style-type: none"> • Merespon makna phrasal verbs yang terdapat dalam teks naratif berbentuk legenda sederhana • Mengidentifikasi phrasal verb dari teks naratif berbentuk legenda sederhana • Menulis phrasal verbs baru yang diperoleh melalui membaca teks naratif berbentuk legenda sederhana 		
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b. Construct Validity

In this research, the researcher used construct validity in administered phrasal verbs test is one kinds of test format: there are multiple-choice and fill in the blank. In the multiple-choice, students should answer the questions from the selective answer. Whereas in the fill in the blank students should answer the questions from the answer box. The researcher admisitered twenty question test for multiple choice and ten question for fill in the blank. In this study, the writer administered the technique of scoring the students' phrasal verbs mastery based on the aspect. The instrument was pre-test and post-test. Besides that, the researcher also consulted with the English teachers of SMAN 1 Gondang Tulungagung, there are Ernawati, S.Pd., and Sutopo, S.Pd. The expert would give the opinion about the instrument that researcher made. After got commentary and judgment from the expert, the instrument could be tried out to the students of first grade students at SMAN 1 Gondang

Tulungagung, which not included of experimental group and control group. The validator states the question was feasible to use. The results of the validity by the judges are as attached (Appendix 2)

c. Face Validity

Face validity refers to the extent to which examines believe the instrument is measuring what it is supposed to measure (Ary, 2010:225). Whereas Brown (2004:76) stated that face validity refers to the degree to which a test looks right, and appears to measure the knowledge or abilities who take it, the administrative personnel who decide on its use, other psychometrically unsophisticated observers. In this study, the test was designed to measure students' phrasal verbs mastery. Therefore, to achieved face validity, the researcher provides the instruction on the question sheet to choose correct answer of phrasal verbs. In this study, face validity was done through validator by the expert. The purpose of face validity is to check some aspect that considered in the test, there are:

- a) The allocation time must be appropriate and clearly.
- b) The instruction and instrument test must be understandable
- c) The layout appropriate

2. Reliability Testing

Reliability is a measuring instrument is the degree of consistency with which it measures whatever it is measuring (Ary, 2010:236). While Brown (2004) stated that a test considered reliable if the same test was given to the same subject or matched subjects in two different occasions,

the test should yield similar result. It means that if the instrument of test has a consistent result in the second chance, the test was reliable.

Before administered the pre-test and post-test, the researcher made try out test to be tested on the students to know how far reliability testing. The researcher used test-retest reliability to get the validity of the test, to find the reliability if the score obtained either from the pre-test or post-test. The researcher used *Pearson Product-Moment* in SPSS 16.0 to find the correlation. According to Triton, the value of cronbach's alpha can be interpreted as follow

Table 3.7 Interpretation of Cronbach Alpha

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

Table 3.8 The result of reability Pre-Test

Reliability Statistics

Cronbach's Alpha	N of Items
.630	30

Table 3.9 The result of reability Post-Test

Reliability Statistics	
Cronbach's Alpha	N of Items
.625	30

Based on the result of the table 3.8, it can be seen that the value was 0,630. Its mean that each question on pre-test was reliable. Beside that, the result on the table 3.9, showed that the value was 0,625. It mean that each question on post-test was reliable.

F. Normality and Homogeneity Testing

1. Normality Testing

Normality testing used to find out whether the data has a normal distribution or not. The data has been representative of the population and the data can be calculated using parametric statistic which usually using Independent Sample T-test. If the data has not normal distribution, the data can be calculated using nonparametric statistics which usually using Mann Whitney U test. The normality, the researcher used *kolmogorv smirnov* test with SPSS.16.0. *Kolmogorov-smirnov* is a test for normality for large samples.

- a) If the significant value > 0.050 , it means that data distribution is normal
- b) If the significant value < 0.50 , it means that the distribution data is not normal.
- c) If the data distribution is normal, next the researcher goes to homogeneity testing.

2. Homogeneity Testing

Homogeneity testing is conducted to measure whether the data has homogenous variance or not. To know the homogeneity, the researcher used T test of Homogeneity of Variances with SPSS.16.0 version the value of significance (α) = 0.050. Basic decisions making in homogeneity testing are as follow:

- a) If the significance value > 0.050 , then the data distribution is homogeneous
- b) If the significance value < 0.50 , the data distribution is not homogeneous.

G. Data Collection Technique

The data collection technique is important in the research, to collect the data researcher used test. According to Ary (2010) the test were valuable measuring instruments for educational research. The function of pre-test was to know students' phrasal verbs mastery before getting the different treatment. Whereas the function of post-test was to know the result of the experiment group after the treatment had been given.

1. Pre-test

Pre-test refers to a measure or test given to the subject prior to the experimental group treatment. This aims to know the basic competence and their earlier knowledge before they given treatment in Phrasal Verbs mastery at the first meeting, the researcher gave the pre-test to students. After finishing the test, the researcher used scoring procedure to calculate the score of pre-test. The result of the test became the evaluation before using Memrise

Application in teaching phrasal verbs in the class. The pre-test conducted on Monday, March 2, 2020 for control group and Tuesday, March 3, 2020 for experimental group.

3. Post-Test

The post-test was given to the students, after the students given the treatment. The post-test conducted on Friday, May 8, 2020. The test item was different with pre-test, but both of them had same indicators and the level of difficulties almost same. The post-test conducted to measure students' mastery of phrasal verbs after given treatment. After finishing the test, the researcher used scoring procedure to calculate the score of post-test. Then, the researcher comparing score both pre-test and post-test to know students' mastery phrasal verbs.

H. Data Analysis

The quantitative research design depends on the measurement data. The measurement data are normality and homogeneity test through the research instrument, in this study test used as research instrument. The phrasal verbs test used to measure the student's improved of mastery phrasal verbs after get treatment by using Memrise as the media to teach. The researcher analyzed the data by comparing the student's score of pre -test and post-test both of experimental group and control group, it would be analyzed statistically using *Independent-Sample T-Test* through SPSS 16.0 for windows. The researcher used t-test to know the significant value was higher or smaller than 0.05. Then, finding the Normality and the Homogeneity data

every Pre-test and Post-test from Experimental and Control classes presented it in table form and described it in detail, check the significant different using Independent sample t-test if the Normality and the Homogeneity data both the classes were qualified.