

CHAPTER III

RESEARCH METHOD

A. Research Design

Before conducting the research, the important part is to understand the purpose of research design. According to Creswell (2012: 20), research designs are "...the specific procedure involved in the research process: data collection, data analysis, and report writing". In other words, research design is the researchers' way to arrange the conditions for collecting the data, analysing the data, and reporting the result of the research in written form. In this research, the research decided to use experimental design to verify the effectiveness of Memrise to improve students vocabulary mastery. According to Cresswell (2012: 294), "an experimental design is the traditional approach to conducting quantitative research". In other words, to accomplish a quantitative research, it is needed to use an experimental design.

In this research used quasi-experimental method. Quasi-experiments are research design that the researcher give the treatments to one group than compare the result with other group without getting treatments (Cresswell, 2012: 308). The use of quasi-experimental in this research because the quasi-experimental is has stronger result than pre-experimental. In this research design, the researcher made two group. The first group is experimental group which gave treatments by using Memrise application, while the second group is control group which not gave

treatments, or just using conventional study. The table of quasi-experimental design illustrated as follows:

Table 3.1 The Diagram of Two Froup Quasi-experimental Design

Group	Treatment	Test
Experimetal group	Treatment by using memrise application	Post-test
Control group	Treatment by using conventional learning	Post-test

Based on the illustration table 3.1 above, the researcher gave test to measure students' vocabulary mastery. The tests are needed to measure the students' vocabulary mastery improvement caused by treatments (Creswell, 2012: 310). The both of post-test each group had same difficulty. The test that used in experimental group and control group are same. It given at the same time in both of group.

B. Population, Sampling, Sample

The population is the large group about the generalization. Population is the group of interest in research (Gay, 1992: 124). In other words, the population is defined as all members of any well-defined class of people, events, or objects (Ary, et. al, 2010: 148). Thus in this research population is all of seventh grade students in SMPN 2 Wonotirto, which consist of eleven classes from A until H class, and every class contains thirty students.

From population that have lot of peoples or participants it hard to take data from all of them. Sampling is the method of take sample from

population to represent the larger group of population that selected (Gay, 1992: 123). Gay (1992: 126) also stated 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.

In this research, purposive sampling chosen as a technique of choosing a sample. The reason of using purposive sampling is the best single way to obtain a representative sample easily by choose the sample to obtain the research purpose. Beside that, the researcher also admits that all subjects had been same average score English score that mentioned in their study report.

Selection sample is a very important step in conducting a research study because the sample is the small group that is observed (Ary, et, al, 2010: 148). Besides, the sample is one that is representative of the population from which is selected (Gay, 1992: 126). It means that a good sample must be representative of the entire as possible so that the generalization of the sample as true as the population.

According to the analysis above, the researcher chose the eight grade students at SMPN 2 Wonotirto as population and B and C class students who consisted of 20 students each class as a sample. The B class was experimental group while the C class was control 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

understand some of English vocabulary especially in first semester learning.

C. Variable

Variable is a value from the object of research. Variable have variant that determined by the researcher to learn and draw conclusion (Creswell: 2012, 64). In this research used two variable that independent and dependent variable. Independent variable or X is variable that affect the dependent variable, while the dependent variable or Y is variable that affected by independent variable. The independent (X) was the treatment using Memrise, while the dependent (Y) was students' vocabulary mastery.

D. Data Collecting Method

The data collecting methods is the method to collecting data by using instruments to obtain the data that needed. The method of collecting data used in this research is administering test. In this research, the researcher used post test.

The test gave after conducting treatment of Memrise application in experimental class, and conventional in control class. After the post-test was given, the scores from two groups compared to determine their differ significantly scores by using SPSS.

E. Research Instrument

The instrument is a tool to get data in research. The good instrument can be used to get data that required in research. The main instrument of this research was test. The test is focused on vocabulary testing. Test is one of research instruments that use to measure the knowledge, skill, feeling, intelligence, or aptitude of individual or group (Gay, 1992: 154). Furthermore, Ary, et. al. (2010: 201) stated 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. Therefore the test produces numerical scores that can be used to evaluate test takers and it would be representative sample of the individual behaviour. In order test is one of research instruments that can measure students vocabulary mastery.

The vocabulary test was multiple choice and fillin-the blank. Total of questions was twenty questions with detail ten multiple choice, and ten fillin-the blank. According to eight grade covid curriculum, basic competence 3.1 with the material “the expression of asking for and showing attention”, basic competence 3.2 with the material “showing hobby and proffession”, and basic competence 3.3 with the material “showing place and date or time”. the test related with that material.

The draft of question was:

Table 3.2 The Test Design

Basic Competence	Material	Level Cognitive	Indicator	Question Indicator	Question Form	Question Number
KD 3.1 Mengidentifikasi fungsi sosial, struktur teks, dan unsur kebahasaan teks interaksi interpersonal lisan dan tulis yang melibatkan tindakan menyapa, berpamitan, mengucapkan terimakasih, dan meminta maaf, serta menanggapi nya, sesuai dengan konteks penggunaannya	Ucapan terimakasih		Mengidentifikasi kalimat terkait ucapan terimakasih	Disajikan kalimat rumpang terkait ucapan terimakasih, siswa dapat mengidentifikasi kata yang cocok untuk melengkapi kalimat tersebut	MC	1
	Greeting		Mengidentifikasi kalimat terkait greeting	Disajikan beberapa pilihan kalimat, siswa dapat memilih kalimat yang sesuai dengan pernyataan greeting	MC	2
	Leave-Taking		Mengidentifikasi kalimat terkait leave-taking	Disajikan situasi terkait leave-taking, siswa dapat mengidentifikasi kata yang tepat terkait situasi tersebut	MC	3
	Meminta maaf		Mengidentifikasi kalimat	Disajikan dialog	MC	4

			terkait ucapan meminta maaf	rumpang, siswa dapat mengidentifikasi kata yang cocok untuk melengkapi dialog tersebut.		
<p>KD 3.2</p> <p>Mengidentifikasi fungsi sosial, struktur teks, dan unsur kebahasaan teks interaksi transaksional lisan dan tulis yang melibatkan tindakan memberi dan meminta informasi terkait jati diri, pendek dan sederhana, sesuai dengan konteks penggunaannya.</p>	Berkelompok		Mengidentifikasi kalimat terkait ucapan mengenalkan diri (berkenalan)	Disajikan situasi terkait perkenalan diri, siswa dapat mengidentifikasi kata yang tepat terkait situasi tersebut	MC	5
			Mengidentifikasi kalimat terkait respon terhadap perkenalan	Disajikan dialog rumpang, siswa dapat mengidentifikasi kata yang cocok untuk melengkapi dialog tersebut.	MC	6
			Mengidentifikasi kalimat terkait respon terhadap perkenalan	Disajikan dialog, siswa dapat mengidentifikasi kalimat yang cocok untuk membalas atau merespon dialog tersebut	MC	7
			Mengidentifikasi kalimat terkait meminta informasi	Disajikan beberapa pilihan kalimat, siswa dapat mengidentifikasi	MC	8

			(ingin berkenalan) terhadap orang lain	i kalimat yang cocok untuk meminta berkenalan dengan orang lain		
	Hobi		Mengidentifikasi hobi yang sesuai dengan keadaan	Disajikan kata yang menggambarkan sebuah hobi, siswa dapat mengidentifikasi hobi yang cocok terkait kata tersebut	MC	9
				Disajikan informasi atau situasi, siswa dapat mengidentifikasi hobi yang sesuai terkait situasi	MC	10
KD 3.4 Mengidentifikasi fungsi sosial, struktur teks, dan unsur kebahasaan teks interaksi transaksional lisan dan tulis yang melibatkan tindakan memberi dan meminta informasi	Hewan		Mengidentifikasi hewan yang sesuai dengan petunjuk	Disajikan kalimat rumpang dan beberapa petunjuk, siswa dapat mengisi dengan kata yang sesuai dengan petunjuk	FB	1
					FB	2
	Objek atau benda		Mengidentifikasi objek yang sesuai dengan petunjuk	Disajikan kalimat rumpang dan beberapa petunjuk, siswa	FB	3
					FB	4
					FB	5

<p>terkait nama dan jumlah binatang, benda, dan bangunan publik yang dekat dengan kehidupan siswa sehari-hari, sesuai dengan konteks penggunaannya</p>				dapat mengisi dengan kata yang sesuai dengan petunjuk		
	Tempat		Mengidentifikasi nama tempat yang sesuai dengan petunjuk	Disajikan kalimat rumpang dan beberapa petunjuk, siswa dapat mengisi dengan kata yang sesuai dengan petunjuk	FB	6
						FB
<p>KD 3.3 Mengidentifikasi fungsi sosial, struktur teks, dan unsur kebahasaan teks interaksi transaksional lisan dan tulis yang melibatkan tindakan memberi dan meminta informasi terkait nama hari, bulan, nama waktu dalam hari, waktu dalam bentuk angka, tanggal, dan tahun, sesuai</p>	Tanggal		Mengidentifikasi penulisan tanggal yang sesuai dengan petunjuk	Disajikan kalimat rumpang dan beberapa petunjuk, siswa dapat mengisi dengan tanggal yang sesuai dengan petunjuk	FB	8
			Mengidentifikasi cara menulis angka tanggal kedalam bentuk huruf	Disajikan tanggal dalam bentuk angka, siswa dapat menuliskan penyebutan angka tanggal tersebut	FB	9
			Mengidentifikasi penulisan preposisi yang sesuai terkait tanggal dan	Disajikan kalimat rumpang, siswa dapat mengidentifikasi	FB	10

dengan konteks penggunaannya			tempat	i preposisi yang sesuai dengan kalimat tersebut		
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F. Treatment

Treatment is the experimental treatment or method that given to the subjects (Cresswell, 2012: 296). The treatment in education research especially in experimental research design is method of teaching or media for learning activity. In this research, the treatment formulated as dependent variable X. Based on variable that described above, the treatment is Memrise application.

Based on Indonesian covid curriculum, the research gave the treatment online using whatsapp application for instruction. The using Memrise application was full online, the researcher just gave instruction and monitor the result of students activity.

Meeting	Date	Control Group	Experimental Group
I	August 20, 2021	Treatment I using conventional	Treatment I Using Memrise
II	August 23, 2021	Treatment II using conventional	Treatment II Using Memrise
III	August 26, 2021	Treatment III using	Treatment III Using Memrise

		conventional	
IV	September 1, 2021	Post-test	Post-test

G. Validity and Reliability Testing

The quantitative research always depends on measurement and verify. These measurements are validity and reliability through the instrument of research. Based on explanation before the instrument of this research is test. The validity and reliability test is needed to verify the valid and reliable of scores that obtain from test.

1. Validity

Validity is the most important consideration in developing end evaluating measuring instruments. It means that validity is concerned with what a test measures and for whom it is appropriate, because a test that the validity in one situation may not valid in other situation. Validity test presupposes that the researcher can be explicit about what is to be tested and takes steps to ensure that the test reflects realistic use of particular ability to be measured (Weir, 1993: 19). Based on this research, the researcher used content and construct validity to know the validity of the test.

a. Content Validity

Content validity is the degree to which a test measures an intended content area (Gay, 1992: 156).

So, it is a kind of validity which depends on careful

analysis of the language being tested and of the particular test subjective. This validity should require item validity where it represented measurement in the intended content area and sampling validity which was used to know how well the test samples the total content area or relevant with the purpose of the test.

A test is said to have content validity when its contents constitute a representative sample of being tasted. So, content validity is prime importance for achievement test, because the test score cannot accurately reflect a student's achievement if it does not measure what the student was supposed to learn. In this research the content validity is the topic of questions related with Basic Competence as follows:

Table 3.3 Content Validity each Items

	Basics Competence	No Item
3.1	Mengidentifikasi fungsi sosial, struktur teks, dan unsur kebahasaan teks interaksi interpersonal lisan dan tulis yang melibatkan tindakan menyapa, berpamitan, mengucapkan terimakasih, dan meminta maaf, serta menanggapi, sesuai dengan konteks penggunaannya	MC 1-4
3.2	Mengidentifikasi fungsi sosial, struktur teks, dan unsur kebahasaan teks interaksi transaksional lisan dan tulis yang melibatkan tindakan memberi dan meminta informasi	MC 5-10

	terkait jati diri, pendek dan sederhana, sesuai dengan konteks penggunaannya.	
3.3	Mengidentifikasi fungsi sosial, struktur teks, dan unsur kebahasaan teks interaksi transaksional lisan dan tulis yang melibatkan tindakan memberi dan meminta informasi terkait nama hari, bulan, nama waktu dalam hari, waktu dalam bentuk angka, tanggal, dan tahun, sesuai dengan konteks penggunaannya	FB 8-10
3.4	Mengidentifikasi fungsi sosial, struktur teks, dan unsur kebahasaan teks interaksi transaksional lisan dan tulis yang melibatkan tindakan memberi dan meminta informasi terkait nama dan jumlah binatang, benda, dan bangunan publik yang dekat dengan kehidupan siswa sehari-hari, sesuai dengan konteks penggunaannya	FB 1-7

b. Construct Validity

According to Bachman and Palmer (1996:21) construct validity refers to the meaningfulness and appropriateness of the interpretations that we make on the basis of test score. While Heaton (1975:159) state that the construct validity was test which capable for measuring certain characteristic in accordance with a theory of language behavior and learning. Construct validity is used to determine how well a test measures what it is supposed to measure. It refers to whether a

test measures the construct adequately (every aspects in curriculum such as core competence, basic competence and indicator)

Construct validity is to measure the instrument (Gay, 1992: 156). It means the instrument is said to have construct validity if it can measure what to be measured. John (2000: 77). state that to measure vocabulary mastery using the objective test items such as multiple-choice, picture labeling, blank-filling and word translation. In this research, the researcher tested the students' vocabulary mastery by giving multiple choice and fill-in-the-blank test as stated in John vocabulary testing theory.

c. Face Validity

Face validity refers to the extent to which the test instrument is measuring what it is supposed to measure. Its means the test should look clear or the instruction must be understandable for the students. To achieve face validity, the researcher analysed the students' level by consulting the instrument to the expert. The expert here were the advisor, English lecturer of IAIN Tulungagung and English Teacher of the seventh grade at SMPN 2 Wonotirto. In this test,

there are some aspects that are consideration from this test to make a good test based on the validity, they are:

- 1) To check that the instructions must be clear and understandable for the students.
- 2) The test is suitable with syllabus and their level.
- 3) Time allocation must be given clearly

d. Result of Validity Test

Validity testing is conducted to determine wheter the gained data was valid. The valid data can be used to measure the variable. The researcher used SPSS 26.0 with the correlate pearson product moment test by the value of signficance = 0.05. The result can be seen in table below:

Table 3.4 Validity of experimental class post-test

	Significance (0,5%)	Pearson Correlation		r-table
x1	0.020	.515*	>	0.444
x2	0.019	.521*	>	0.444
x3	0.043	.458*	>	0.444
x4	0.008	.574**	>	0.444
x5	0.019	.519*	>	0.444
x6	0.028	.490*	>	0.444
x7	0.044	.455*	>	0.444
x8	0.013	.545*	>	0.444
x9	0.041	.458*	>	0.444
x10	0.008	.574**	>	0.444
x11	0.020	.515*	>	0.444
x12	0.028	.490*	>	0.444
x13	0.043	.453*	>	0.444
x14	0.019	.519*	>	0.444

x15	0.041	.459*	>	0.444
x16	0.039	.465*	>	0.444
x17	0.008	.574**	>	0.444
x18	0.019	.521*	>	0.444
x19	0.043	.458*	>	0.444
x20	0.013	.545*	>	0.444

Based on the Validity Test result on table above, It can be seen that the value of Pearson Correlation or calculated r-value for each variable has value is higher than r-table 0.444. The all of significance each respondent score are lower than 0.05 that means all of them are valid. It could be conclude that the data it is valid and worthy to be tested.

Table 3.5 Validity of control class post-test

	Significance (0,5%)	Pearson Correlation		r-table
y1	0.000	.781**	>	0.444
y2	0.042	.459*	>	0.444
y3	0.001	.679**	>	0.444
y4	0.004	.615**	>	0.444
y5	0.012	.551*	>	0.444
y6	0.008	.577**	>	0.444
y7	0.006	.590**	>	0.444
y8	0.000	.739**	>	0.444
y9	0.004	.617**	>	0.444
y10	0.002	.660**	>	0.444
y11	0.001	.679**	>	0.444
y12	0.012	.551*	>	0.444
y13	0.004	.615**	>	0.444
y14	0.006	.590**	>	0.444
y15	0.004	.617**	>	0.444
y16	0.002	.660**	>	0.444
y17	0.008	.577**	>	0.444
y18	0.000	.781**	>	0.444
y19	0.042	.459*	>	0.444

y20	0.000	.781**	>	0.444
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Based on the Validity Test result on table above, It can be seen that the value of Pearson Correlation or calculated r-value for each variable has value is higher than r-table 0.444. The all of significance each respondent score are lower than 0.05 that means all of them are valid. It could be conclude that the data it is valid and worthy to be tested

2. Reliability

Reliability is necessary characteristic of any good test for it to be valid at all. Reliability means the stability of test scores, a test cannot measure anything well unless it measures consistently (Harris, 1969:14). In addition, reliability measures accuracy, consistency, and dependability of fairness of scores resulting from administration of particular examination. The result of a language skill assessment has high reliability if the result precisely represents the true level of the skill being assessed (Brown, 2003: 20).

To know the reliability of the research instrument, the researcher tried out the instruments before conducting them into the post-test. In this research, to know about the reliability of

data was use the SPSS analysis with the *reliability statics* to describe the score of reliability in students score.

Reability testing is conducted to determine wheter the gained data was realible or not. The researcher used SPSS 26.0 with scale test of reability test. The result stated in table below:

Table 4.5 Reability test result

	Experimental class	Control class
Cronbach's Alpha	0.842	0.920
N of Items	20	20

From the result of table 4.5 above, it could be find that the cronbach's alpha of experimental class was 0.842 while the control class was 0.92. Both of them are bigger than 0.7 that mean the both of data are realibility. It can be conclude that the experimental and control class post-test score score from each indicators are reliable and can be used in next test

The criteria of reliability testing is Cronbach's Alpha as follows:

Table 3.4 Reliability Test Result Guide

Cronbach's 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

H. Normality and Homogeneity Testing

1. Normality Test

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.

2. Homogeneity Test

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

I. Data Analysis

Data analysis is reviewing the data while they are being collected and attempting to synthesize and make sense out of what is observed (Ary et al, 2010:530). In analysing data, the researcher used a statistical calculation of T-test. T-test used to find out the difference in the score of student vocabulary mastery using Memrise application. In order this research administered in quasi-experimental method with two group of students who given pre-test and post-test, the researcher analysed the data using independent sample T-test. Since the samples was small and the groups was independent, the T-test for independent sample carried out to determine whether there is any difference between experiment and control group.

The researcher used independent sample t-test application by using SPSS 25 to compute statistics of vocabulary test score. The data obtained from the result of student pre-test and post-test. Assumption for the independent T-test are: 1) The group should independent (they do not influence each other), 2) Data should have normal distribution, 3) Data should have homogeneity of variance. In order to follow the assumption of independent T-test, before analyse the data, the researcher should test the data to make sure the data are have normal distribution and homogeneity of variance.

J. Hypothesis Testing

The hypothesis testing is the test of research hypothesis by the result of data analysis. The hypothesis in this research are:

H₀: there is no significant difference in students' vocabulary mastery with and without being taught by using Memrise

H_a: there is significant difference in students' vocabulary mastery with and without being taught by using Memrise

To know who the higher score after being taught by using Memrise application and conventional teaching, the researcher computed *independent-sample test* by using SPSS 25 version. For interpretation of decision based on the result of test. It was:

1. If the probability value (sig.) > 0.05 then the null hypothesis 2 (H₀) was not rejected,
2. If the probability value (sig.) ≤ 0.05 then the null hypothesis 2 (H₀) was rejected.