CHAPTER III
RESEARCH METHODOLOGY

A. Research design

In this research, the research used experimental design. According to Setiyadi, experimental design intended to find the relation of variables in valid which can be used to search the conclusion in general.[1] Then, experimental has three types they are; 1) pre experimental design, this section presents two designs that have been as pre experimental because they provide little or no control of extraneous variable. Unfortunately one finds that design are still used in educational research. 2) True experimental. Setiyadi states that true experimental method has three basic characteristic: a) a control group (or group) is present, b) both of the subjects are chosen by random, c) initial test is given to see the capabilities of the groups.[2] 3) Quasi experimental design includes assignment, but not assignment of participant to group. This is because the experimenter cannot artificially create groups for the experiment.[3]

From the statement above, the researcher used quasi experimental research design to know the influence of two stay two stray technique towards students vocabulary mastery. Creswell states that, quasi experiments include assignment but not a random

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[1]Ag Bambang Setiyadi, *Metode Penelitian Untuk Pengajaran Bahasa Asing Pendekatan Kuantitatif dan Kualitatif*, (Yogyakarta: GrahaIlmu, 2006), p.125
[2] I*bid*. p. 41
[3] John W Creswell, *Educational Research* (4thEd) , (London: University of Nebaska, 2008), p. 309

assignment of the participant to the group. The variety of quasi experimental design can be divided into two main categories, they are post-test only design and pre-test-post-test design.[4]In this research the researcher used two classes, one as an experimental class that was given treatment by using two stay two stray technique and the other one as a control class that was taught by using the technique that has been applied by the English teacher there. The research designs can be presented as follows:

Table 2
Pretest-Posttest Design

Select control group	Pre test	No treatment	Post test
Select experimental group	Pre test	Experimental treatment	Post test

B.   Variable of the Research

According to Sugiono, variable is something that can be an object of research to get the information of everything about it and can be concluded.[5] There are two variable in this research namely: independent variable and dependent variable. Independent variable is the major variable which investigated. It is the variable that is selected, manipulated, and measured in the research. While dependent is the effect of the

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[4] John W. Creswell, *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research* (4th Ed), (Boston: Pearson Education, 2012), p.303
[5]Sugiono, *Metode Penelitian Kuantitatif, Kualitatif, dan R & D*, (Bandung: AlfaBeta, 2014), p. 38

independent variable.[6] In this research the researcher used two stay two stray technique as independent variable (X), and vocabulary mastery as dependent variable (Y).

C. Operational Definition of Variable

The operational definition of variable in this research is:

1. Two Stay Two Stray Technique

   Two stay two stray is a kind of cooperative learning technique for teaching vocabulary by allowing the students to work in groups to have learning experiences in sharing and gathering information about the learning materials with other groups.

2. Vocabulary Mastery

   Vocabularymastery means as the ability of students to use the words that they have learn in such aspects as word meaning and word grammar including nouns, verbs, and adjectives in daily activities.

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D. The Population, Sample, and Sample Technique

1. Population of Research

Frenkle and Wallen state that a population in a research study is the group on which information is obtained. The larger group to which one hopes to apply the result is

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[6]John W. Creswell, *Op. Cit.*, pp. 115-116

called the population.[7] The populations of this research are all the eighth grade of

SMP N 3 Kotabumi at the first semester in 2017/2018 academic year. The total

number of all students are 99 students that are divided into 4 classes. Based on the

statement, all the students are the population in this research. The total number of the

students at the eighth grade of SMPN 3 Kotabumi at the first semester in 2017/2018

academic year could be seen from the table below:

Table 3
The Total Number of the Students at the Eighth Grade of SMPN 3 Kotabumi in
2017/2018 Academic Year

No	Class	Gender		Number of Students
		Male	Female	
1	VIII A	7	17	24
2	VIII B	7	19	26
3	VIII C	6	18	24
4	VIII D	9	16	25
Total		29	70	99

2. Sample of Research

Frenkle and Wallen state that most people, we think, based their conclusion about a

group of people (students, Republicans, football players, actors, and so on) on the

experiences they have with a fairly small number, or sample, of individual members.

It means that sample is a part of individual members which was chosen to represent

of the whole population. Based on the population above, the researcher took two

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[7] Jack R. Freankle and Norman E. Wallen, *How to Design and Evaluate Researchin Education* (7th Ed), (New York: McGraw-Hill, 7th ed., 2009), p.90

classes as the sample of the research. The first class was experimental class and the second class was control class.

3. Sampling Technique

In this research, the researcher used cluster random sampling. Frankle and Wallen state that the selection of groups, or clusters, of subject rather than individuals is known as cluster random sampling.[8] The researcher used this sampling because the population is in groups and the researcher took the sample from a group or a class where one class as control class and one class as experimental class. There are procedures to take the classes as sample:

a. First, the researcher wrote all of the classes of the eighth grade on some small pieces of paper. Then, the small pieces of paper is rolled and put into a bottle.

b. The second, the bottle is shaken by the researcher and the researcher took one small pieces of rolled paper. It was be a control class and all small pieces of rolled paper puts into bottle again.

c. Next, the researcher shook the bottle again and took one small pieces of rolled paper. It was be an experimental class.

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[8] *Ibid*. p. 90

E. Data Collecting Technique

In collecting the data, the writer used test as the instruments in collecting the data. The test consists of pretest and posttest. The test is used to know the students' ability in their vocabulary mastery. In this research the researcher used the data:

1. Try-out test

The try-out test administers to know the quality of the test in order to take the data. The try-out test was conducted at the first meeting in the try-out class. The researcher used the result of try-out test to measure the level of difficulties and discrimination power, to find out the validity and reliability. The test was multiple choice test that consist of 50 items for pre-test and 50 items for post-test.

2. Pre-test

A pre-test provides a measure on some attributes or characteristics that you asses for participants in an experiment before they receive a treatment. Pre-test will be conducted before treatment.[9] It means that pre-test is done to know the students ability before treatment. The pre-test was done in control class and experimental class, the test was written form by giving students multiple choices test.

3. Post-test

A post-test is a measure on some attributes or characteristic those are assessed for participants in an experiment after a treatment. It means that post-test will be

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[9] John W. Creswell, *Op. Cit.*, p. 297

conducted after treatment. The researcher used post-test to know the effect of the treatments toward the students' vocabulary mastery after given to the both control class and experimental class after receiving the treatment.

F. Instrument of the Research

In this research, the researcher used a test to get the data about vocabulary mastery with; verb, noun and adjective. The specification of test for pre-test and post-test are as follows;

Table 4
The Spesification of Test for Pre-test and Post-test before Validity Test

No	Aspect	Subject		Odd	Even	Total	Distribution	
							Odd	Even
1	Word meaning	Noun	Common Noun	2	1	3	1,37	28
			Proper Noun	1	3	4	39	42,44,46
			Countable Noun	2	2	4	9,49	10,48
			Uncountable Noun	2	2	4	5,15	2,22
		Verb	Transitive Verb	1	2	3	7	18,32
			Intransitive Verb	2	2	4	17,33	16,26
		Adjective	Describing Quality	1	1	2	45	4
2	Word Grammar	Noun	Common Noun	2	3	5	13,23	30,34,38
			Proper Noun	2	1	3	41,43	24
			Countable	2	2	4	25,31	6,8
			Uncountable	2	2	4	3,27	50,40
		Verb	Transitive Verb	2	2	4	19,29	12,20
			Intransitive	2	0	2	21,47	
		Adjective	Describing Quality	2	2	4	11,35	14,36
Total						50		

Based on the table 4 above, the word meaning of nouns consists of fifteen numbers. They were number 1, 5, 9, 15, 37, 39, 49, for odd numbers and 2, 10, 22, 28, 42, 44, 46, 48, for even numbers. The word meaning of verbs consists of seven numbers. They were number 7, 17, 33 for odd numbers and 16, 18, 26, 32 for odd numbers. And the word meaning of adjectives consists of two numbers. They were 45 for odd number and 45 for even number.

In word grammar of nouns consists of sixteen numbers. They were 3, 13, 23, 25, 27, 31, 41, 43 for odd numbers and 6, 8, 24, 30, 34, 38, 40, 50 for even numbers. In word grammar of verb consists of six numbers. They were 19, 21, 29, 47 for odd numbers and 12, 20 for odd numbers. Hence, they were 50 numbers in pre-test and posttest before validity test.

Table 5
The Spesification of Test for Pre-test and Post-test after Validity Test

No	Aspect	Subject		Odd	Even	Total	Distribution	
							Odd	Even
1	Word meaning	Noun	Common Noun	1	0	1	21	-
			Proper Noun	1	1	2	23	22
			Countable Noun	0	1	1	-	2
			Uncountable Noun	1	0	1	1	-
		Verb	Transitive Verb	2	1	3	3,9	16
			Intransitive Verb	1	1	2	13	8
		Adjective	Describing Quality	0	1	1	-	24
2	Word Grammar	Noun	Common Noun	0	2	2	-	6,14,
			Proper Noun	0	1	1	-	18
			Countable	1	1	2	15	12
			Uncountable	1	0	1	25	-
		Verb	Transitive Verb	2	1	3	5,11	10

		Intransitive	1	0	1	17	-
	Adjective	Describing Quality	2	2	4	7,19	4,20
Total					50		

Based on the table 5 above, the word meaning of nouns consists of five numbers. They were number 1, 21, 23, for odd numbers and 2, 22 for even numbers. The word meaning of verbs consists of five numbers. They were number 3, 9, 13 for odd numbers and 16, 8 for odd numbers. And the word meaning of adjectives consists of one numbers. They was no for odd number and 24 for even number.

In word grammar of nouns consists of six numbers. They were 15, 25 for odd numbers and 6, 12, 14, 18 for even numbers. In word grammar of verb consists of four numbers. They were 5, 11, 17 for odd numbers and 10 for odd numbers. And the word grammar of adjectives consists of four numbers. They are 7, 19 for odd numbers, and 4, 20 for even numbers. Hence, they were 25 numbers in pre-test and posttest after validity test.

G. Research Procedure

There were steps in conducting this research. They were:

1. Planning

Before the researcher applies the research procedure, the researcher made some plans to run the application well. There were some steps that should be done by the researcher. The procedures can be seen as follows:

a. Determining the subject of the research

The subjects of the research were the students at the first semester of the eighth grade of SMPN 3Kotabumi in the academic year of 2017/2018.

b. Preparing Try-out

The researcher prepared a kind of test (called try-out test) that was given to the students. The researcher prepared the try-out for the pre-test and post-test. The total number of this test is 50 questions. Then, the researcher evaluated the test items to get the best items that were given in pre-test and post-test.

c. Preparing the pre-test

The researcher prepared a kind of test (called pre-test) that was given to the students. The researcher used the test instrument that was used in try-out. The researcher prepared something that was used in pre-test such as instrument and others.

d. Determining the material to be taught

The researcher determined the material to be taught to the students. The material related to familiar vocabulary for students. Theme for material was about daily activity. This material was based on syllabus at the first semester of eighth grade.

e. Preparing post-test

The researcher prepared a kind of test (called post-test) that was given to the students. The post-test was given to know the students' vocabulary mastery after being given the treatment. The researcher prepared something that would be used in post-test such as instrument, class and others so the post-test was held easily.

2. **Application**

After making the planning, the researcher tried to apply the research procedure. There were some steps in doing in this research:

a. In the first meeting, the researcher gave try-out.

   This test was multiple choices consist of 50 questions that have answer options (A), (B), (C), and (D). Try-out test was given in try-out class to evaluate the test items before used for pre-test and post-test items.

b. In the second meeting, the researcher gave the pre-test.

   In this case, the researcher gave items after being determined by validity and reliability analysis of try-out. It means that only valid and reliable test items that used in the pre-test.

c. After giving the pre-test, the researcher conducted the treatment in the control class by using translation technique and in experimental technique by using two stay two stray technique. Both control class and experimental class was given three treatments.

d. In the last meeting, the researcher gave post-test.

   After the researcher doing treatment in control and experimental class, the researcher gave post test as a technique to measure whether the technique can give big influence or not to the students' vocabulary mastery. This test was given in control and experimental class that was chosen based on sampling technique that has been told before.

3. Reporting

The last point in the research procedure was reporting. There were three steps which should be done in reporting. The steps were as follows:

a.   Analyzing the data that are already received from try-out test.

b.   Analyzing the data that are already received from pre-test and post-test.

c.   Making a report on the findings.

H. Scoring System

Before getting the score, the researcher determined the procedure to be used in scoring the students' work. In order to do that, the researcher used Arikunto's formula[10]

$$S = \frac{r}{n}(100)$$

Notes:

S   : the score of the test

r   : the total of the right answer

n   : the total items

I. Validity and Reliability

To know whether the test is good or not, some criteria should be considered. The criteria of a good test were validity (content validity and construct validity) and reliability.

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[10]SuharsimiArikunto, *Dasar-DasarEvaluasiPendidikan*, (Jakarta:BinaAkasar, 1989), p. 271

1. **Validity**

Validity is a matter of relevance. A good test is test that has validity. The test can be said valid if the instrument item can be used to measure should be measured.[11] In addition Ary says that validity was defined as the extent to which an instrument measured what it claimed to measure.[12] It means that a test is valid if the test can really test what needs to be tested correctly. The researcher analyzed the test from content, construct validity and internal validity to measure whether the test was valid or not.

a. **Content Validity**

Content validity could be done by comparing the contents between instruments with the subject matter that has been taught.[13] Content validity can be found by relating material of the test to the curriculum and syllabus at the first semester of the eight grade of junior high school. It means that the researcher should make the test based on the curriculum and syllabus that still uses in the school especially for the eighth grade of SMP N 3 kotabumi.

b. **Construct Validity**

Construct validity focuses on the kind of the test that is used to measure the ability. It means that the test can measure what needs to be measured. The test items should really measure the students' vocabulary mastery. If the instruments measure of

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[11] Sugiono, *Op.Cit.*, p. 121
[12] Donal Ary, *Introduction to research in Education*, (Wadsworth: Cengage Learning, 2006), p. 225
[13] Sugiono, *Op.cit.*, p. 129

vocabulary, construct validity can be measured by evaluating all items. To know whether the instruments in fulfilled the criteria of construct validity, the researcher consulted the instrument test with Ms. Eni as English teacher at SMP N 3 Kotabumi to check and measure the validity of the instrument and he said that the instrument has construct validity.

2. Reliability of Test

Reliability refers to whether the test is consideration in its scoring and gives us an indication of how accurate the test score. Reliability means that a test is reliable if the test was able to give consistence sore even though the test was given repeatedly to the same individual or sample. In this case, the researcher used SPSS 16 to calculate the reliability of the test.

The criteria of reliability test were:

0.0 – 0.19   = Very Low

0.20 – 0.39   = Low

0.40 – 0.59   = Medium

0.60 – 0.79   = High

0.80 – 1.00   = Very High

Based on the criteria of reliability above, it can be drawn a conclusion that the result obtained in SPSS 16 of reliability for pre-test and post-test items has high reliability because it amounts 0.78 it means that the level of reliability of the test items in this research were reliable.

F. Data Analysis

After collecting the data, the researcher analyzed the data by using parametric statistics. There were two assumptions that should be fulfilled, they were normality and homogeneity test.

1. Fulfillment of the Assumptions as follows:

a. Normality Test

The normality test used to measure whether the data in the experimental class is normally distributed or not. In this research, the researcher used statistical computation by using SPSS 16 (Statistical Package for Social Science) version 16 for normality of test. The criteria of normality test as follows:

The hypotheses formulas were:

H_0 = The data have normal distribution

H_a = The data do not have normal distribution

The test criteria are:

H_0 is accepted if Sig. (Pvalue) > = 0.05

H_a is accepted if Sig. (Pvalue) < = 0.05

b. Homogeneity Test

After researcher got the conclusion of the normality test, the researcher used this homogeneity test to know whether the data was homogeneous or not. In this research, the homogeneity calculated by using statistical computation SPSS 16 (Statistical

Package for Social Science) version 16 for homogeneity of test. The test of homogenity employing Levene's test.

The hypotheses were:

H_0 : The variance of the data are homogeneous

H_a : The variance of the data are not homogeneous

The criteria of the test were as follows:

H_0 is accepted if Sig. (Pvalue) >   = 0.05

H_a is accepted if Sig. (Pvalue) <   = 0.05

2. Hypothetical Test

After the researcher was knew that the data were normal and homogeneous, the data were analyzed by using T-test in order to know the significance of the treatment effect. In this case, the researcher used statistical computation by using SPSS 16 (Statistical Package for Social Science) version 16 for hypothetical of test. The purpose of using SPSS in this case is to practicality and efficiency in the study.

The hypotheses were:

Ha   :   There is a significant influence of using Two stay two stray technique towards students' vocabulary mastery in the first semester of the eighth grade at SMPN 3 Kotabumi in the academic year of 2017/2018.

Ho : There is no significant influence of using Two stay two stray technique towards students' vocabulary mastery in the first semester of the eighth grade at SMPN 3 Kotabumi in the academic year of 2017/2018.

While the criteria of acceptance or rejection of hypothesis are:

Ha is accepted if Sig. < = 0.05

Ho is accepted if Sig. > = 0.05