CHAPTER III

RESEARCH METHOD

This chapter present research design, population, sample and sampling, variable and data sources, research instrument, Try Outing Project of the Instrument, Validity and Reliability, Normality and Homogeneity, Data Collecting Method, and Data Analysis.

A. Research Design

Research is careful study on investigation, especially in order to discover new fact or information such as scientific historical research, Homby (1955:996). It means that a study is done carefully and accurately on investigation of an event, problem, and phenomenon about scientific to find of new information. In conducting this research, of course the researcher must follow some research procedures. It means that a research needs to plan some step that going to take. Consequently, the design of the research should be suitable for the research condition. For these reason, a researcher has to follow the research design, if the researcher wants their research will be successful.

In this research, the design used was an experimental design write quantitative approach. Quantitative is research that is used stastical technique to understand and

explain phenomena. Ary et al (2002:24) states that experimental research involves a study of the effect of the systematic manipulation of one variable on another variable. The manipulated variable is called the experimental treatment or the independent variable. The observed and measured variable is called the dependent variable.

Moreover, Ary (2002:276) states that an experimental is a scientific investigation in which the researcher manipulated one or more independent variable, controls any other relevant variables, and observes the effect of the manipulations on the dependent variables. An experimental design serves two functions:

1. It establishes the condition for the comparisons required to test the hypothesis of the experiment.
2. It enables the experiment through statistical analysis of the data to make a meaningful interpretation of the result of the study.

According to Latief (2011:93), experimental research measures the effect of one manipulated and controlled (independent) variable to another (dependent) variable, like the effect of different methods of teaching to the students' achievement, the effect of an English training method to participants' English skills.

There are many kinds of the experimental research design, such as pre-experimental design, true experimental, factorial design and quasi experimental (Ary, 2002:303). This study used pre-experimental design by using One Group Pretest-Posttest. This design was classified as pre-experimental design because it was little or no control of extraneous variables. That is way, in this study the researcher just put one group and used pre-test and post-test to see the result of the treatment.

In one group Pretest-Posttest design, a single group is measured or observed not only after being exposed to a treatment of same sort, but also before. The one group pretest-posttest design usually involves three steps:

1. Administering a pretest measuring the dependent variable

2. Applying the experimental treatment X to the subjects

3. Administering a posttest again measuring the dependent variable.

Table 3.1 A diagram One Group Pretest-Posttest Design

Pre-test	Treatment	Post-test
Y_1	X	Y_2

Applying one group pretest-posttest, the researcher wanted to find out wheter there is any significant different of students' vocabulary achievement before and after taught using Secret Message Game at SMP Negeri 3 Kedungwaru, Tulungagung in academic year 2013/2014.

B. Population, Sampling and Sample

1. Population

Before the sample was collected, the researcher had to determine the population. Arikunto (2006: 108) says that a population is a set or collection of all elements processing one or more attributes of interest.

The population that the researcher selected was the seventh grade of SMP Negeri 3 Kedungwaru, Tulungagung in academic year 2013/2014. The total populations were of eleven classes. Each class consisted 23-25 students.

2. Sampling and Sample

Sampling is the process of selecting a number of individuals for a study in such a way that the individuals represent the large group from which they were selected, LR Gay (p:123). In selecting the sample, it must be representative to a population. According to Arikunto (2006:109), a sample must be representative to a population. Based on Ary (2002:163) a sample is a person of a population. It means that good sample must be representative of the entire as possible, so that the generalization of the sample of this research.

Selection of the sample is very important step in conducting a research study. Sample is a part of population which will to be analyzed. Sample must be representative as one is to be able to generalize with confidence from the sample to population. The researcher decided to choose seventh B class that consists of 23 students (13 male and 10 female) at SMP Negeri 3 Kedungwaru, Tulungagung in academic year 2013/2014. The researcher decided to choose seventh B class because many students face some problems in teaching and learning vocabulary. The students feel

difficult to memorize many of vocabularies and it becomes a burden for them. They were still less to practices in learning vocabulary.

C. Variable and Data Sources

Variable is research object or something that becomes view point of research. Based on the title of the thesis, the study had two variables; they were independent variable and dependent variable.

1. Independent Variable

   Independent variable is the variable which influence dependent variable, in the other words independent variable is causes variable. According to Donald Ary et all (1979: 96), independent variable is an antecedent to the dependent variable. Independent variable is variable selected by the researcher to their effect on or influence with dependent variable. Independent variable in this research was Secret Message Game.

2. Dependent Variable

   Dependent variable is the variable which is influenced by independent variable. In the other word dependent variable is effect variable. According to Donald Ary, et all (1979: 30) dependent variable is the consequence of or dependent variable upon antecedent variable.

Dependent variable in this research was the students' achievement in vocabulary.

D. Research Instrument

Instrument had important function in this research. Instrument is a tool to collect a data needed in a research. The instrument of this research was test. According to Riyanto in Tanzeh (2009:65) test as a method of data collection is a series or exercise used to measure the skill, knowledge, attitude, intelligence, ability, or talent of individuals or groups.

To obtain the required score of the students' achievement in vocabulary ability in this research, the research used two kinds of test as the instrument. They are pre-test and post-test. The pre-test was given before the students taught by using Secret Message Game. The researcher gave the test that contains 20 items and consists of 4 kinds. The first kind is multiple-choice that contains five items. Second is filling the blank that contains of five items. Third is rearranging the word that contains of five items. And the last is rearranging words and rearrange the letters randomized containing five items. This was subjective test given to know the basic competence for all students and to know their earlier knowledge before they got treatment.

The second was post-test. Post-test was given after the students were taught by secret Message Game. The test items in the post-test are exactly the same as those

in the pre-test. The researcher gave the test that contains twenty items and consists of four kinds. The first kind is multiple-choice that contains five items. Second is filling the blank that contains of five items. Third is rearranging the word that contains of five items. And the last is rearranging words and rearrange the letters randomized containing five items. It was done to know the final score and to know the students' difference competence before and after they getting treatment. Thus, in measuring the students' comprehension achievement, the test were considered quite representative to topic in the class.

E. Try Outing Project of the Instrument

Before the test was administered to the students, the researcher firstly conducted a Try-Out of the test on May 26th 2014 to the seventh grade students at SMP Negeri 3 Kedungwaru, Tulungagung. The purpose of conducting try-out of the instrument is to achieve the Validity and Reliability of the instrument. For the main data in their study vocabulary, these scores must be gotten by good instrument. The try-out test was done before conducting the post test. The test consisted of 20 items and consists of 4 kinds. The first kind is multiple-choice that contains five items. Second is filling the blank that contains of five items. Third is rearranging the word that contains of five items. And the last is rearranging words and rearrange the letters randomized containing five items.

The scoring rubrics for random letter were presented as follow:

Table 3.2 Scoring Rubric

Aspect	Score
Correct in writing of vocabulary, the sentence is correct in organized	7
Correct in writing of vocabulary, the sentence is a little mistake in constructing the vocabulary into a sentence	5
Correct in writing of vocabulary, the sentence is much mistake in constructing the vocabulary into a sentence	4
Incorrect in writing of vocabulary, the sentence is correct in organized	3
Incorrect in writing of vocabulary, the sentence is a little mistake in constructing the vocabulary into a sentence	2
Incorrect in writing of vocabulary, the sentence is much mistake in constructing the vocabulary into a sentence	1
Incorrect in write of vocabulary and organized of sentence	0

In the process of scoring, the researcher applied inter-rater. We were two scores in scoring the result of try-out. The results of scores taken from the two scores were present as follow:

Table 3.3 The Students' Score in Try Out

No	Students	Scorer 1	Scorer 2
1	A.D.A.	85	85
2	A.R.	78	79
3	A.K.S.	76	79
4	B.F.S.	78	75
5	D.A.H.	83	83
6	D.A.P.	82	81
7	D.A.	80	80
8	E.D.N.	70	70
9	E.R.	77	78
10	F.R.N.I.	83	85
11	F.O.	74	71
12	H.C.	69	70
13	I.D.	67	64
14	I.K.	65	69
15	I.S.	75	78
16	K.A.S.	85	85
17	M.C.N.	78	75
18	M.A.K.	73	71
19	M.A.N.	63	60
20	N.L.P.H.	69	71
21	P.A.K.	76	78
22	P.K.A.	75	73
23	R.N.	73	71

In this study, the students' score were gotten by inter-rater reliability. It means was the researcher and the researcher's friend got two sets of students' score.

F. Validity and Reliability

The quantitative research is always depends on measurement. These measurements are validity and reliability through instrument of research. The instrument of this research was test.

In this research, vocabulary test used to measure the students' achievement in mastering vocabulary after they have been taught by using Secret Message Game. Validity and reliability testing of this test was very important to know scores derived from instruments used in the research.

1. **Validity**

The validity of an assessment or tool indicates the extent to which it is an adequate measure of the curriculum and objectives it represent. According to Gay in Tanzeh (2009:57) definition of validity is that is degree to which a test measures what it is supposed to measure. A common misconception is that a test is, or, is not valid. The researchers get validity from English teacher. There are four types of validity, they are content validity, criterion-related validity, construct validity and face validity. The researcher emphasizes on the content validity in this research to know validity of test.

Content validity is a kind of validity which depends on careful analysis of the language being tested and of the particular test. A test is said to have content validity if its contents constitutes a representative sample of the language skill, structures, etc. being tested. 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. The researcher made this test based on the course objectives in the syllabus of seventh grade in SMP Negeri 3 Kedungwaru.

3.4 Scoring Rubric

No.	Competency Indicators	Test Items	Weightily
1.	The students are able to answer the questions of multiple-choice that contain five items.	1-5	15
2.	The students are able to answer the questions of filling the blank that contains of five items.	6-10	20
3.	The students are able to answer the questions of rearranging the word that contains of five items.	11-15	30
4.	The students are able to answer the questions of rearranging words and rearrange the letters randomized containing five items.	16-20	35
	Total		100

The construct validity of test is test which is capable of measuring certain specific characteristic in accordance with a theory of language behavior and learning.

2. Reliability

According to Singarimbun in Tanzeh (2009:55) reliability is an index that indicates the extent to which a measuring device used to measure two times the same phenomenon and the result of measurements obtained relatively consistent, then they called reliable. In other words, reliability shows a measure of consistency in measuring the same phenomenon.

In this test, the researcher used test retest where the researcher examines the test twice with the same respondent in the different time. After that, the researcher analyzed the correlation of two scores by using Pearson correlation which is called product moment Pearson. For analyzing the correlation the researcher uses SPSS 16.0 for windows.

2.5. Correlations

		PRETEST	POSTTEST
PRETEST	Pearson Correlation	1	.738[**]
	Sig. (2-tailed)		.000
	N	23	23
POSTTEST	Pearson Correlation	.738[**]	1
	Sig. (2-tailed)	.000	
	N	23	23

**. Correlation is significant at the 0.01 level (2-tailed).

From the correlation analyzing, the researcher got the correlation of two score. The value of correlation is 0.738 it means that correlation of score 1 and score 2 very strong and from the explanation above, it was found that this test is reliable.

G. Normality and Homogeneity

1. Normality

According Sujianto (2009:77) normality distribution test is a test to measure whether our data has a normal distribution. To know the normality, the researcher used One-Sample Kolmogorov-Smirnov test with SPSS 16.00. The hypotheses for testing normality are:

a. H_0 : Data is in normal distribution

b. H_a: Data is not in normal distribution.

Critic area is in which H_0 is rejected when the significance value is lower than 0.05 ($\alpha = 5\%$). The analysis is as follows:

3.6 One-Sample Kolmogorov-Smirnov Test

		PRETEST	POSTTEST
N		23	23
Normal Parameters[a]	Mean	63.8696	76.3043
	Std. Deviation	11.29080	9.74882
Most Extreme Differences	Absolute	.096	.141
	Positive	.096	.141
	Negative	-.076	-.096
Kolmogorov-Smirnov Z		.460	.677
Asymp. Sig. (2-tailed)		.984	.750
a. Test distribution is Normal.			

Based on the output from SPSS 16.00 is known that the significance value from pretest 0.984 and from the posttest is 0.750. Both value from pretest and posttest are bigger than 0.05. The sig/p value on pretest is 0.984 and it is bigger than 0.05 (0.984 > 0.05). It means that H_0 is accepted and H_a is rejected and the data is in normal distribution. Then, for posttest score the value of sig/p is 0.750 and that is bigger than 0.05 (0.750 > 0.05). It also means that H_o is accepted and H_a is rejected and the data is in normal distribution. So, it can be interpreted that both of data (pre-test and post-test score) are normal distribution.

2. Homogeneity

Homogeneity testing is intended to make sure that the collected manipulation data in analysis is truly taken from a population which is too

different each other. Especially in a correlative study which is predictive, the model which is used must be appropriate with the composition and its distribution (Sujianto:112). To know the normality, the researcher used One Way Anova with SPSS. The result can be seen in table below.

3.7 ANOVA

PRETEST					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2569.692	13	197.669	7.573	.002
Within Groups	234.917	9	26.102		
Total	2804.609	22			

3.8 ANOVA

POSTTEST					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1678.203	18	93.233	.904	.616
Within Groups	412.667	4	103.167		
Total	2090.870	22			

H. Data Collecting Method

The data collecting method is the method to obtain the data in the research. The aim of the data collecting in conducting scientific research was to get material that needed by the research.

In this research, the researcher used achievement test. Tanzeh (2009:66) states that achievement test is a test that is used to measure the process that students making after learn something. This test used to measure students' achievement in vocabulary before and after they taught using Secret Message Game.

The technique of collecting data was clarified as follow.

1. Pre-Test

Pretest was given before doing an experimental research or before teaching by using Secret Message Game or before the treatment. Pretest was used to know the basic competence of the student. Pre-test was given to the students at the first meeting on May 19th 2014. The researcher gave the test that contains twenty items and consists of four kinds. The first kind is multiple-choice that contains five items. Second is filling the blank that contains of five items. Third is rearranging the word that contains of five items. And the last is rearranging words and rearrange the letters randomized containing five items. The numbers of students who took the post-test there were 23 students. Then, the result of the test is students' score. The score obtained were analyzed to determine between pre-test and post-test.

2. Treatment

The treatment was conducted after the administration of the pre-test on May 19th, 23^{th,} 26^{th,} 30th 2014. The treatment here means to give a new vocabulary in their English study and to help each of the students to more

understand of rearrange words and random letters. The experimental class was taught by using Secret Message Game.

3. Post Test

After the treatment, post-test was given to the students on May 30th 2014. The test items in the post-test are exactly the same as those in the pre-test. The post test is done to see final score and to know the different of the students' score before get the treatment and after they get the treatment. The goal of this test is to measure students' vocabulary after being taught using secret message game. The researcher gave the test that contains twenty items and consists of four kinds. The first kind is multiple-choice that contains five items. Second is filling the blank that contains of five items. Third is rearranging the word that contains of five items. And the last is rearranging words and rearrange the letters randomized containing five items. The numbers of students who took the post-test there were 23 students.

I. Data Analysis

Data analysis is a review of a series of activities, grouping, systematization, interpretation and verification of data so that a phenomenon has social value, academic, and scientific (Suprayoga in Tanzeh 2009:69). The data obtained from research result of students test that were analyzed quantitatively. Quantitative analysis was done using statistic which is called statistical analysis or inferential statistic. The

quantitative data of this research in analyzed using stastical computation. The data collected (data result) was processed by comparing with the pre-test and post-test to see whether there will be significant difference after given by treatment. This technique was used to find the significant difference on students' vocabulary achievement after being taught using Secret Message Game. In this research, the researcher uses by SPSS 16.0.

The data result (post-test) of vocabulary was data of average score of vocabulary test taught by using Secret Message Game. The first data (pretest) is data of students score before taught by using Secret Message Game. If the post test on the students' vocabulary achievement test is higher than pre-test, it means that teaching vocabulary by using Secret Message Game is effective. To get the achievement of vocabulary test, the researcher gave the student a test after got treatment teaching vocabulary by using secret message game. The test was comprised twenty items and consists of four kinds. The first kind is multiple-choice that contains five items. Second is filling the blank that contains of five items. Third is rearranging the word that contains of five items. And the last is rearranging words and rearrange the letters randomized containing five items. To know the significant difference on the students' vocabulary achievement before and after taught by using secret message game, the researcher in this research uses paired sample T test at SPSS 16.0 for windows.