

Chapter III

Research Methodology

In this chapter, the writer presents nine topics dealing with research method. It focused in the method that is used in conducting the research. Those are research design, population, sample and sampling, variable, research instrument, data collecting method, treatments, method of data analysis, normality and homogeneity testing, validity and reliability testing, hypothesis testing.

A. Research Design

Research design from this study is quasai experimental design. The researcher use quasai experimental design to determine the validity of conclusion can be drawn the study. Ary Et Al, (2002:302) state that there are three kinds of experimental research, it can be classified as pre experimental design, true experimental design and quasai experimental design.

The researcher used quasai experimental to thest theory. This research was conducted to know the effectiveness of using sugoroku english toward students vocabulary mastery.

The researcher was chosen quantitative approach. Lodico (2006) quantitative studies, such as experimental studies, generally want to know if the results obtained on the sample would also be true if the entire population was included in the study. This research design involves a study of the effect

of the systematic manipulation of one variable on another variable. This idea is in line with that of Ary Et Al (2010: 265) an experiment is a scientific investigation in which the researcher manipulates one or more independent variables, controls any other relevant variables, and observes the effect of the manipulations on the dependent variable(s). Creswell (2012:295) stated that experimental study is for the research which was helping the researcher to know the cause and effect between independent variables and dependent variable.

The type of experimental which used in this research was quasi-experimental research design. In quasi-experimental research design, there were two groups involved in it. The first group named experimental group and the second named control group. the experimental group is a group taught by using sugoroku english. On other hand, control group is a group taught using conventional method. According to the statement of National Center for Technology Innovation (2003), quasi-experimental study is typical true experimental which involved pre-test and post-test. in line with the statement above the researcher conducted pre-test and post-test for both groups to know the improvement of student before and after treatments.

In this research there were two group, those are control group and experimental group. The control group is a group which taught by using conventional method while experimental group was taught by using sugoroku english. This research was conducted pre-test which was given to both of control group and experimental group. It is conducted to know the students' vocabulary mastery in each group

before they get the treatment. After conducted the pre-test, the researcher implement sugoroku english to the experimental group. Then the researcher conduct the post-test. To know is there any improvement or not in students' vocabulary mastery got the treatment in experimental group, the research design was represent as follows:

Table 3.1 The Illustration of Quosai Experimental Research Design

Group	Pre-Test	Treatment	Post-Test
A	Y1	X	Y2
B	Y2	-	Y2

Explanation:

A = Experimental group (XI IPS 1)

B = Control group (XI IPS 2)

Y1 = Pre-test (Students' achievement on vocabulary mastery before treatment)

X = Treatment using sugoroku english game strategy

Y2 = Post-test (Students' achievement on vocabulary mastery after treatment)

Thus, in this research the researcher used quasi experimental design (an experimental group and control group). Based on the table, the procedures of using two group pre-test post-test design were:

1.Administering a pre-test (Y1) to measure students vocabulary mastery in sugoroku at eleventh grade in MA Darul Hikmah Mojokerto

2. Applying experimental treatments in the experimental group which is teaching vocabulary mastery using Sugoroku English in experiment group and conventional method in the control group.

3. Administering post-test (Y2) to both of groups (Experimental and control) to measure students' vocabulary mastery in Sugoroku Game at eleventh grade MA Darul Hikmah Mojokerto.

B. Population, Sample, and Sampling

1. Population

Population in educational set of people, events, or objects to which educational researchers wish to generalize the results of the research (Borg, W.R., Gall, M.D., 1989:216). According to Sugiyono (2010:117) population is generalization area consist of subjects that have certain criteria and characteristics decided by the researcher to be researched and be taken conclusion then.

The population of this research was students from eleventh grade of MA Darul Hikmah Mojokerto which has around 95 students'. There were three eleventh grade classes at MA Darul Hikmah Mojokerto. They were IX IPA, XI IPS 1, XI IPS 2 in academic years of 2020/2021 and each class was consist with different number of students'.

2. Sample

Cresswell (2012 : 142) state that “ A sample is a subgroup of the target population”. Fraenkel and Wallen (2006 : 92) also give explanation that sa,ple is

the group on which information is obtained. Nurul Chojimah (2020). Sample is drawn randomly from the accessible population, the sample is representative of the accessible population and so the knowledge gained from the sample can be safely generalized into the accessible population Adnan Latif (2019). Based on those statement the researcher defined that sample was a part of population taken by researcher with the certain way decided by researcher and this research was taken two class as sample of research.

This research was quasi-experimental, it means the researcher needs two classes as a sample. The sample which decide a certain criterion in order that classes chosen are normal and average. Based on the criterion the sample of this research was students of XI IPS 1 as an Experimental group and XI IPS 2 as a Control group in which total of XI IPS 1 class was 30 students and XI IPS 2 class was 30 students' so the total sample was 60 students. The sample of this research illustrated in table 3.2 below:

Table 3.2 The Research Sample By Class

No	Class	The Number of Students
1	XI IPS 1	30
2	XI IPS 2	30

Those sample was divided into two groups. The first groups was class XI IPS 1 as the control group and the second group was class XI IPS 2 as the experimental group. The experimental group was given the Sugoroku English in their vocabulary

mastery. The control group was given with conventional method based on lesson plan but without using Sugoroku English in their vocabulary mastery.

Table 3.3 The Distribution of The Treatment

Group	Class	Treatment
Experimental	XI IPS 2 (30 students)	Sugoroku English Game
Control	XI IPS 1 (30 students)	Conventional Method

3. Sampling

Sampling is a method of selecting samples. Ary et al (2010) classifies sampling into probability and non-probability. In this study the researcher was used purposive sampling to take sample from population and it represent the entire population. Purposive sampling tehniqe is a type of nonprobability sampling where the researcher consiously selects subjects for addition in a study so as to make sure that the elements was certain characteristics pertinent to the study.

In purposive sampling, which also referred to as judgment sampling, sample elements judge to a typical or representative are chosen from the population Ary Et Al (2010:156). Purposive sampling used based on certain consideration and the main consideration was the chosen classes had homogeneous and those classes had average proficiency in vocabulary mastery.

C. Variables

Variable is one of key terms in any research. Chojimah (2020:5) stated Variable can be defined as characteristics of subjects of a research which tend to be different from one individual to another or from time to time. According to Donald Ary (1985:39) a variable is a construct or characteristics that can take on different values or scores. In this study the researcher will use two variables, those are:

1.Independent Variable

Independent variable is the one affecting another variable. In line with statement of Ary Et Al. (2010:266) state that the independent variable is manipulated (changed) by the experimenter. Suppose that the researcher would like to conduct a study concerning the effectiveness of using Sugoroku English toward student's vocabulary mastery. In this case, sugoroku english was the independent variable since the students vocabulary mastery.

2.Dependent Variable

According to Ary et al (2010:266), the variable on which the effects of the changes are observed is called the dependent variable, which is observed but not manipulated by the experimenter. So, the dependent variable is an outcome from the effect of the independent variable.

The dependent variable in this research was students' vocabulary mastery. Dependent variable is the one affected by another variable. The dependent variable in this research was students vocabulary mastery which was affected by Sugoroku English as the independent variable.

D. Research Instrument

Research instrument is a tool which used by the researcher to collect data. It means any research needs instrument to gathering data. Based on Sugiyono (2015:148) stated that instrument is a tool used to measured natural phenomena or social will be observed. Test is suitable instrument to this research because the purpose of the research is to find out the result of sugoroku english in students vocabulary mastery.

In this research, the instrument used was in the form of test to collecting data in the form of test, tally sheet, observational checklist, log or assessment instrument. In this research the instrument used was in the form of writing test which the results will be calculated using SPSS 22.0 to know the reliability of the test. According to Arikunto (2006:127) test is a series, question, trial, or other means which used to measure knowledge, skill, ability, intelligent that have by individual or group.

In this research, the test was in the form writing test to see the different result of students' vocabulary mastery taught by using and without using Sugoroku English. The test was developed by researcher from K13 curriculum and syllabus used by MA Darul Hikmah Mojokerto and refers to standard comptence. The researcher also developed some indicators that should be achieved by students, by using those indicators the researcher developed the test which used to conduct the pre-test and post-test.

In this research the test was developed consist of theme, time allotment, and several instructions to do the test. The vocabularies of the test was different both in pre-test or post-test, it was done to test how much students understand the

vocabulary that they have not found, The time allotment given to make students discipline in conducting the test, and the several instructions of the test to help students in answer the stuff in the crossword puzzle.

For the first instruction, the students were asked to write down their name and class on the answer sheet in order to give the students identity and following instruction. Second instruction, the students were asked to find new vocabulary in the crossword puzzle according to the existing instructions on their assignment sheet.

In the pre-test there are vocabulary about their daily life and also those around them, then they are asked to answer sheet and also translate it. In the post-test students are asked to find new vocabulary that are different from the pre-test question according to the instructionn on their question sheets and also translate them.

Then, to asses students' vocabulary mastery, the researcher set up analytical scoring rubric as created by Weigle (2002:116) which included the criteria such as (1) content, (2) organization, (3) vocabulary, (4) language use, and (5) mechanics. Before the test is given to the students, the researcher asked the expert to give the validation to the test. after got the valid data the researcher conducted the try-out of the test to the students of eleventh grade of MA Darul Hikmah. The scores from those try-outs calculated to know the reliability of the test using SPSS 22.0. Then, the researcher conducted the pre-test and post-test to both experimental and control

group after knowing the validity of the test the result of the test assessed by the researcher using scoring rubric guideline.

E. Data Collecting Method

Method of collecting data was to obtain the data in the research. Meanwhile, the data of this research collected by administering test. The researcher used pre-test and post-test to collect the data. It helps researcher to get data about the process of improving students' ability in this research. The technique of collecting data explained below:

1. Pre-test

Pre-test is the test which will be conducted to both of experimental and control group before they get the treatment. This test was functioning to know how far the students' vocabulary mastery especially to get the score before conducting the treatment.

In this research the researcher chose crossword because students can find new vocabularies and their meanings according to the instruction on the question. It had already done on Monday, 24 May 2021 for control group and it had already done on Monday, 24 May 2021 for experimental group. The time allocation was 30 minutes for the test.

2. Post-test

Post-test is the test which will be conducted to both experimental and control group after they get the treatment. This test was functioning to know how far

students' ability and competence of the students vocabulary mastery especially after they get the treatment. Post-test is given in last meeting of teaching learning process. The procedures of giving pre-test and post-test were equal.

The time allocation is 30 minutes to test. After the researcher knew the score of the test the researcher compared the pre-test and post-test score. It had already on Thursday, 3 June 2021 for control group and experimental group.

F. Treatments

This study waonducted in MA Darul Hikmah Mojokerto, the researcher conducted this research because reseracher want to know the sugoroku english effetive to increase students vocabulary mastery. This research was conducted after decline of the leter of researh. In this research the researcher gave twice for treatments. Treatment here means the instructional to looking for new vocabulary which is done by the researcher using sugoroku english.

Treatment was conducted on Thursday 27 may 2021 and 2 June 2021. Treatment was mad the students to get the motivation when students found new vocabulary. The procedure of giving treatment can be seen in the table 3.4

Table 3.4 The Schedule of Control Class Treatment

Control class on , 27 May and 02 June 2021

No	Aspect	Teacher Activity	Students Activity
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1	Pre-Activity	<ul style="list-style-type: none"> • The teacher gave greeting to the students 	<ul style="list-style-type: none"> • The students responded the teacher's greeting
		<ul style="list-style-type: none"> • The teacher checked the students attendance list 	<ul style="list-style-type: none"> • The students responded to the teacher's
		<ul style="list-style-type: none"> • The teacher gave stimulus to the students by delivering questions 	<ul style="list-style-type: none"> • The students answered the teacher's question
		<ul style="list-style-type: none"> • The teacher asked the students to makes group 	<ul style="list-style-type: none"> • The students followed he teacher's instruction
2	Main Activity	<ul style="list-style-type: none"> • The teacher asked the students to observe and understand the materials about the definition explanation text, steps to arrange explanation text • The teacher asked the students to make an example of explanation text 	<ul style="list-style-type: none"> • The students followed the teacher's instructions
3	Close Activity	<ul style="list-style-type: none"> • The teacher gave feedback and giving evaluation 	<ul style="list-style-type: none"> • The students paid attention to the teachers

		<p>about the activities that have been done.</p> <ul style="list-style-type: none"> • The teacher gave the motivation to the students and closed the learning process. 	<p>explanation.</p> <ul style="list-style-type: none"> • The students responded to the teacher.
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Table 3.5 The Schedule of Experiment Class Treatment

Experiment class on, 27 May 2021 and 02 June 2021

No	Aspect	Teacher Activity	Students Activity
1	Pre-Activity	<ul style="list-style-type: none"> • The teacher gave greeting to the students 	<ul style="list-style-type: none"> • The students responded the teachers greeting
		<ul style="list-style-type: none"> • The teacher checked the students attendance list 	<ul style="list-style-type: none"> • The students responded to the teacher
		<ul style="list-style-type: none"> • The teacher gave stimulus to the students by delivering questions 	<ul style="list-style-type: none"> • The students answered the teacher's questions

		<ul style="list-style-type: none"> • The teacher asked the students to makes group 	<ul style="list-style-type: none"> • The students followed the teaher's instructions
2	Main Activity	<ul style="list-style-type: none"> • The teacher explains the definition and purpose of sugoroku English media • The teacher explains the steps of the use of sugoroku media • The teacher divide groups of students • The teacher assigns tasks in accordance with the rules of the game on sugoroku english media 	<ul style="list-style-type: none"> • The students followed the teacher's instructions
3	Close Activity	<ul style="list-style-type: none"> • The teacher gave feedback and giving evaluation about the ativities that have been done. 	<ul style="list-style-type: none"> • The students paid attention to the teachers explanation. • The students responded to the taecher.

		<ul style="list-style-type: none"> • The teacher gave the motivation to the students and closed the learning process. 	
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G. Validity and Reliability Testing

In the research Instrument above the researcher have explained that the test is a process of measuring students' vocabulary mastery. So that the researcher should make a good test, to know whether the test is a good test the researcher prove it by using validity and reliability test. The researcher will conduct a try out test to find out the validity and reliability of the test. So that the researcher can decided whether the test will be accepted or rejected.

1. Validity

Validity is the extent to which inferences made from assessment results are appropriate, meaningful, and useful in terms of the purpose of the assessment (Brown, 2003). It means that the test could be valid when it measures what is supposed to measure. To ensure whether the test has a good validity, the researcher will use two kinds of validity these are content validity and construct validity.

a.Content Validity

According to Brown (2003) he stated if a test actually samples the subject matter about which conclusions are to be drawn, and if it requires the test-taker to perform the behaviour that is being measured, it can claim content-related evidence of validity or content validity.

b. Construct Validity

Brown (2003) stated construct validity is any theory, hypothesis, or model that attempts to explain observed phenomena in our universe of perceptions. Ary et al (2010) explained that construct validity is the validity of the inferences about psychological constructs involved in the subject, settings, treatments, and observations used in the experiment. In this research, the researcher will use writing test to measure students' vocabulary mastery. So, in this test the researcher will ask the students to find the vocabulary in the crossword puzzle to measure the students' vocabulary mastery and this fulfill the construct validity of writing test and therefore valid in term of construct validity.

1. Reliability

According to Creswell (2012), reliability means that the scores from an instrument are stable and consistence. If the researcher gave the same test to the students or matched students in two occasions, the test should yield similar result. In this study, the researcher will use subjective test (Writing test) as an instrument to measure the students writing ability in descriptive test. The researcher wants to know the reliability of the test before the researcher applied the instrument to both

of experimental group and control group. So, the researcher will conduct the try out to test reliability of the instrument.

**Reliability Cronbach's Alpha
Interpretation Based on Triton**

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

After getting the score of try out from both of raters, the researcher calculated the score of try out using spss 22.0 application to know reliability coefficient. The result of reliability testing can be seen from the following table 3.7

Table 3.7 Reliability of Post-Test

Reliability Statistics	
Cronbach's Alpha	N of Items
.633	10

From the computation in spss 22.0, the reliability value of post-test was 0.633. based on the Cronbach's Alpha scale in the table 3.5 was reliable because the value

of reliability testing was between 0.61-0.80. So it can be said that the instruments of post-test was reliable.

H. Normality and Homogeneity Testing

1. Normality Testing

Normality testing is needed to find out whether the data is in normal distribution or not. Normality testing can be done through Shapiro-Wilk and Kolmogorov-Smirnov tests. The appropriate test can be utilized according to the number of samples used in the research.

According to Dahlan (2010) stated that if the samples size larger than 50, the normality test uses Kolmogorov-Smirnov and if the samples size less than 50 the normality test uses Shapiro-Wilk.

According to Chojimah (2020) the hypotheses of normality testing are:

- a. H_0 : the data are normality distributed
- b. H_a : the data are not normally distributed

The hypotheses for normality explained that the data was normally distributed if H_0 was accepted and the data was not normally distributed if H_a was accepted.

2. Homogeneity Testing

Homogeneity testing used to know the homogeneous or not the variance of the two samples from same population. The researcher used homogeneity of variances

test by using SPSS 22.0 to know the homogeneity of variance score of the samples. The value of significance (α) = 0,05. According to Stanislaus (2009) the basic decisions making in homogeneity testing were explained below:

- a) If the significance value $> 0,05$ then the data distribution is homogeneous
- b) If the significance value $< 0,05$ then the data distribution is not homogeneous.

I. Hypothesis Testing

The hypothesis of the study can be formulated:

1.Null Hypothesis (H_0): there is no significant difference between students vocabulary scores taught by using sugoroku english and without by using sugoroku english for the eleventh grade students of MA Darul Hikmah Mojokerto

2.Alternative Hypothesis (H_a): there is a significant difference between students vocabulary scores taught by using sugoroku english and without by using sugoroku english for the eleventh grade students of MA Darul Hikmah. Mojokerto.

J. Data Analysis

The data collected in research must be analyzed. In quantitative research design the data usually in the form of numbers that the researcher analyzes those data using various statistical procedures. The analysis of numerical data in quantitative research provides evidence that support or fails to support the hypothesis of the research. In this research, the researcher uses a quantitative data analysis technique by using statistical method.

This method used to find out the significant difference score in vocabulary mastery between students who taught with and without using Sugoroku English. To know the effectiveness of Sugoroku English in vocabulary mastery the researcher used statistical instrument (SPSS) to analyze the data, in this case the statistical used named Parametric test which kind of Independent Sample T-test at SPSS 22.0. it is functioning to know the effectiveness of Sugoroku English Game in teaching vocabulary mastery, the data was collected from students score in pre-test and post-test.