

CHAPTE R III

RESEARCH METHOD

In this chapter the researcher describe the research methodology applied in the present. It consisting of research design, setting and subject of the study, population, sampling and sample, instrument and instrumentation of the research, validity and reliability testing, normality and homogeneity testing technique data collection, technique of data analysis and hypotesis testing.

A. Research Design

Research is study something to find out new facts about it (Oxford, 2008: 375). It means that a research is done carefully and accurately on investigation of an even, problem, and phenomenon about scientific to find out new information. So that's why in conducting this research, the researcher must follow some research procedures because the design of this research should be suitable for the research condition.

Research method refers to the general strategy followed in gathering and analyzing the data necessary for the answering the questions. In conducting this research use experiment approach as the research study because it was intended in to investigate the effectiveness of Guessing Game using Mobile Assisted Language Learning (MALL) on students vocabulary mastery of the tenth grade students' of SMK Islam 1 Durenan in academic year 2016/2017.

The researcher conducted in pre-experimental that consist of pre-test and post-test design. In this research , the researcher used pre-experimental because it does not have random assignment of subject to group or other strategy to control extraneous variable (Ary, 2010:203-204). So that is why in this study the researcher just take one group or class and uses pre-test and post – test to see the result of the treatment in the class that is uses Guessing Game activity to find out wether the game activity effective or not on students vocabulary mastery.

There are three steps of this design, are:

1. Administering a pretest measuring vocabulary mastery of the tenth grade students at SMK Islam 1 Durenan before given treatment.
2. Applying treatment X to the experimental group of vocabulary mastery by using Guessing Game Application (GGA) technique of the tenth grade students at SMK Islam 1 Durenan.
3. Administering a posttest with a purpose of measuring vocabulary mastery of the tenth grade students at SMK Islam 1 Durenan.

The one Group Pretest-Posttest Design as follows:

Table 3.1. The One Group Pretest- Posttest Design

Pretest	Independent	Posttest
Y1	X	Y2

Where:

Y1 : Pre-test

Y2 : Post-test

X : Treatment on the experimental group

This research intended to investigate the effectiveness of using Guessing Game at SMK Islam 1 Durenan. The use of the treatment is purposed to proving whether the increase score possibly got by the researcher. Thus, the effectiveness of that treatment is known the significant score when the students taught using Guessing Game.

B. Population, Sampling and Sample.

1. Population

Population is all of individu that will be target of research. Population is district of the generalize where existing from object or subject, that have quality and character that have fixed by researcher to study and after that get the conclusion. Generalize is the way to make an conclusion to large group based on data from small group as sample on a research and it is called sample. Based on the statement above, the population of this study was the whole students of the tenth grade students of SMK Islam 1 Durenan in the academic year 2016/2017 that consist of tenth classees. The total population of the tenth grade at SMK Islam 1 Durenan in the academic year 2016/2017 consist of 356 students. After determining the population, the writer takes the sample to be representative of the population.

2. Sampling

Sampling is a process of selecting a number of students that will be represent of the large group (Ary, 2010:155). In this research, the writer used purposive sampling technique. Winarsunu (2007) told that purposive sampling is an sample where the character or criteria has been knowing before based on the population. Purposive sampling is a type of non-probability sampling where the reseracher consciously selects subject for addition in a study so as to make sure that elemnts will have certain characteristics pertinent to the study. Purposive sampling is sample which is taken because the researcher need a class when the students in this class have android phone, because in this research use android phone as the tool in teaching learning process. Based on this the sampling will be take in X-AK class of SMK Islam 1 Durenan can give sufficient information.

3. Sample

Selecting sample is very important step in conducting research study. According (Fraenkel and Wallen, 2009:90) sample is a group or participant is choosen from the population to be representative of it. It means that a good sample must be representative of the entire possible, so that the generalization of the sample as the true as the population. Based on this explanation the sample of this study is the tenth AK class to be sample that consist of 43 students of SMK Islam 1 Durenan in academic 2016- 2017.

C. Instrumen and Instrumentation of the Research

Instrument of research are the tools to measure something that we observe in order to obtain the data and answer the research problems (Sugiyono: 2011). The instrument used in this research is a test which it is given before and after taught by using small group discussion technique. The instrumentation will be developed through the following steps (see diagram 3.1)

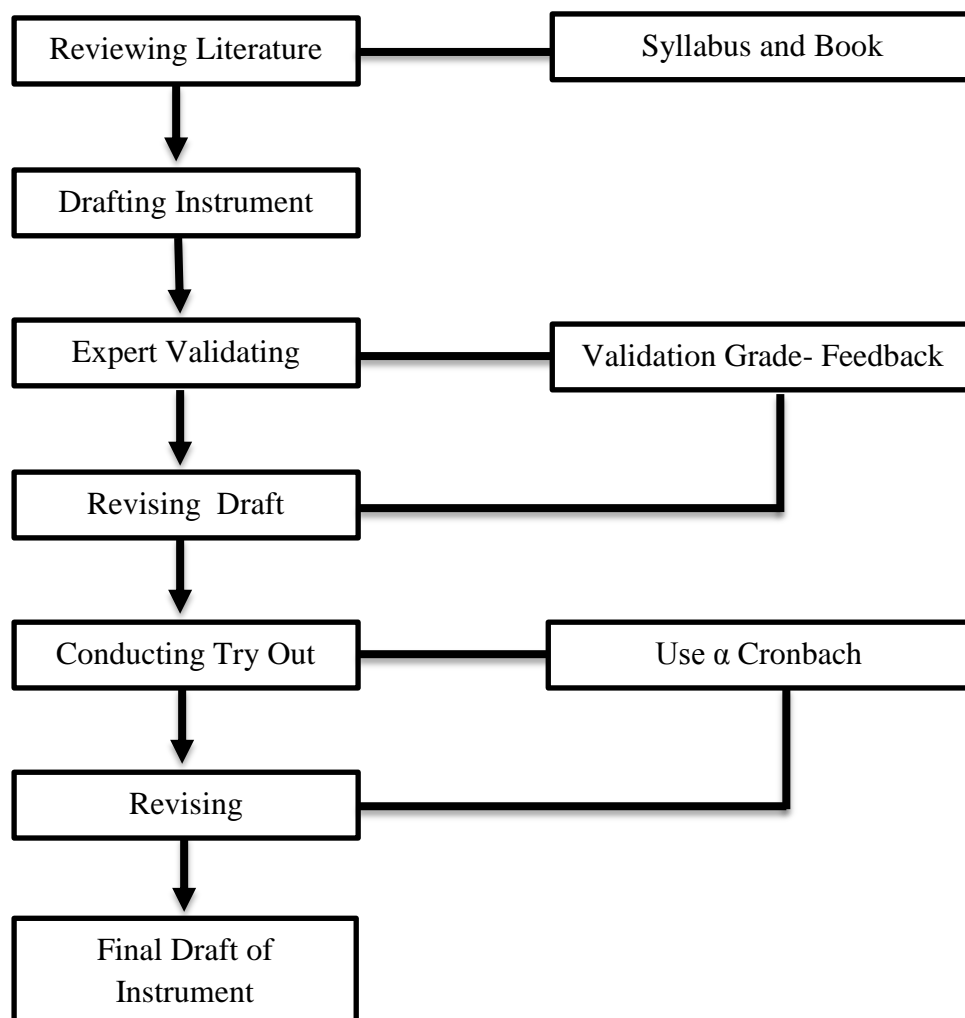


Diagram 3.1 Instrumentation

The steps of instrumentation, are:

1. Review Literature

The first steps to get valid and reliable test is reviewing literature concerning with the vocabulary mastery especially that in SMK. Therefore, the researcher reviewed some literatures from syllabus and book used in SMK to get some important information related with the topic will be used to teach as sources to drafting instrument that related with materials of Vocational High School.

2. Drafting Instrument

After get information of reviewing literature, the researcher started to draft instrument that agree with the material of Vocational High School. The type of instrument is multiple choice, consist of 20 number of questions. The instruction of the instrument is asking the students to choose correct answer of the question. (see. Appendix 1)

3. Expert Validing

After finishing the drafting instrument, the instrument should be validated by the expert such English teacher or lecturer where master in components English especially vocabulary. The purpose of the expert validating is to know how much valid instrument is either related with it s construc validity, face validity, or content validity. Thus, in this steps the researcher will be get feedback and validation guide. When in the first validation the researcher must to change the content because does not related with the topic. In the second validation the researcher must change the

content again because it still does not related with vocabulary test. In the last validation is to correct grammar and the question should be organized.

4. Revising Draft

In revising draft of the instrument, the researcher uses feedback collected from the expert validation. The feedback that the researcher got the first is to change the picture in vocabulary test because it is not suitable to taught in Vocational High School and from content validity it does not appropriate. The second is to correct the grammar and the question should be in organized.

5. Conducting Try- Out

After revising the draft of instrument, the researcher conduct try the instrument out to the tenth grade students of SMK Islam 1 Durenan who share common characteristics with the subject of this research. The result of try out which is analyzed using Alpha Cronbach is used to revise the draft to be valid instrument because the reliability and validity of the instrument can be objectively computed by using the formula of Alpha Cronbach. There is in table 3.3 and 3.4 in this chapter.

6. Revising

In revising, it part to revising the instrument again based on the feedback to get the final draft instrument. So, the researcher will revising the instrument to make the question ideal or not easy or too easy, difficult or too difficult.

7. Final Draft Instrument

The last step is final instrument means that the instrument has good or best quality where the instrument is appropriate.

In this study, the researcher applied pre-test and post-test. Pre-test was given before teaching by guessing game application, in this pre-test students were given task during 45 minutes on April 10, 2017 and for the 45 minutes again for giving treatment to the students. The next treatment given the second meeting during 45 minutes on April 15 until 22, 2017. Post-test which was given after teaching by guessing game application, in this post-test the students given multiple choice test during 45 minutes after the last meeting for giving treatment on April 24, 2017.

To get the data, which is X-AK class that becomes an experimental group the researcher as a teacher teaches the students during three meetings. First meeting, in the teaching learning process the teacher gives pre-test vocabulary test. Second meeting, the teacher teaches vocabulary in small group discussion by using Guessing Game Application. In the end, the teacher gives post-test in vocabulary test to the students.

D. Validity and Reliability Testing

1. Validity

The validity of test as extent to which a test measures what it is supposed to measure Gay in Tanzeh (2009:57) . A common misconception is that a test is valid or is not valid. The researchers get validity from English teacher. According Isnawati (2014) 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, face validity and construct validity in this research to know validity of the test.

a. Content Validity

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 reseracher made this test based on the course objective in the syllabus of second years SMK Islam 1 Durenan. Therefore, this is valid in term of content validity.

b. Face Validity

Face validity if it looks as it measure what it is supposed measure. For example, a test which pretended to measure pronunciation ability but, which did not require the test-takers to speak might be through to lack face validity. This is true even if the test is constructing and criterion related validity can be demonstrated. Face validity is hardly a scientific concept, yet it is very important. A test which does not have face validity may not be

acceptable by test-takers, teacher, education authorities, and employers. The researcher used face validity by consulting with the advisor and teacher.

c. Construct Validity

The construct validity test which is capable of measuring certain specific characteristic in accordance with a theory of language behavior and learning. Based on the theory above, in the test the researcher asked the students to answer the multiple choice of vocabulary to measure the student's comprehension in reading and this fulfill the construct of reading test therefore, valid in term construct validity. The researcher ask to the lecturer and English teacher of SMK Islam 1 Durenan about their opinion of the instrument. After got it the researcher conducting try out to the students (is not the sample).

The validity and reliability of the test can be measured by SPSS Alpha Cronbach. If the result shows $\alpha > 0,05$ means that the reliability is sufficient, while if the $\alpha < 0,05$ means that the reliability is not sufficient or not reliable. Besides, the researcher tried to check the empirical validity by using SPSS 16.0 after trying out the instrument (pre-test and post-test). In this research, the researcher used SPSS 16.0 for windows to know the validity of test instruments. It can use corrected item-total correlation formulation.

The criteria of validity of the instrument can be divided into 5 classes as follows (Ridwan, 2004: 110) :

1. If the *item-total correlation* score 0.00 – 0.020 : less valid
2. If the *item total correlation* score 0.21 – 0.40 : rather valid
3. If the *item total correlation* score 0.41 – 0.60 : enough valid
4. If the *item total correlation* score 0.61 – 0.80 : valid
5. If the *item total correlation* score 0.81 – 1.00 : very valid

In this test the researcher, gives the multiple-choice test to measure students' mastery in vocabulary. The researcher made this test based on the course objectives in the syllabus of first grade of SMK Islam 1 Durenan. Therefore, this test is valid in term of content validity. The content validity in this research can be showed as below:

Table 3.2 Result of Content Validity

No.	Competency Indicator	Test Item	Percentage
1.	The students are able to answer the questions of multiple-choice in vocabulary test	20	5%

Table 3.3 Item Total Statistic

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
Soal_1	15.90	5.878	.739	.547
Soal_2	15.80	7.956	-.274	.669
Soal_3	15.80	7.511	-.026	.646
Soal_4	15.80	7.956	-.274	.669
Soal_5	15.90	6.544	.391	.599
Soal_6	15.90	5.878	.739	.547
Soal_7	15.90	5.878	.739	.547
Soal_8	15.80	7.289	.104	.634
Soal_9	15.90	7.433	-.019	.653
Soal_10	15.90	5.878	.739	.547
Soal_11	15.80	7.511	-.026	.646
Soal_12	15.80	7.289	.104	.634
Soal_13	15.90	7.656	-.114	.665
Soal_14	15.90	7.656	-.114	.665
Soal_15	15.90	7.656	-.114	.665
Soal_16	15.90	6.989	.179	.628
Soal_17	15.90	5.878	.739	.547
Soal_18	15.80	6.400	.667	.575
Soal_19	15.90	6.989	.179	.628
Soal_20	15.90	6.989	.179	.628

2. Reliability

According to Singarimbun (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. Reliability is concerned with the effect of such random errors of measurement on the consistency of scores (Ary, 2002:250).

Actually, the ideal test should be both reliable and valid. In this research, the researcher also used SPSS 16.0 for window to know the reliability of test instruments. The criteria of reliability instrument can be divided into 5 classes as follows (Ridwan, 2004:118), those are:

1. If the *alpha cronbach* score 0.00 – 0.020 : less reliable
2. If the *alpha cronbach* score 0.21 – 0.40 : rather reliable
3. If the *alpha cronbach* score 0.41 – 0.60 : enough reliable
4. If the *alpha cronbach* score 0.61 – 0.80 : reliable
5. If the *alpha cronbach* score 0.81 – 1.00 : very reliable

The result of reliability testing by using SPSS 16.0 can be seen from the table:

Table 3.4 Result of reliability

Reliability Statistics	
Cronbach's Alpha	N of Items
.634	20

To know the items is reliable or not it can be seen from Alpha Cronbach's column. The Alpha Cronbach's score = 0.634 means that it is reliable.

E. Normality, Homogeneity, Linearity Testing

1. Normality Testing

Normality testing is conducted to determine whether the gotten data is normal distribution or not. The computation of normality testing in this research using SPSS. 16. *One – Sample – Kolmogorov – Smirnov – test* by the value of significance (α) = 0.050 rules as follow:

- a. H_0 : If the value significance > 0.05 , means data is normal distribution
- b. H_a : If the value of significance < 0.05 , means the distribution data is not normal distribution

2. Homogeneity Testing

Homogeneity testing is conducted to know whether the gotten data has a homogeneous variance or not. The computation of homogeneity testing using SPSS Statistics 16 is *Test of Homogeneity of Variances* by the value significance (α) = 0.05. Before doing homogeneity testing, the researcher decides hypothesis in this homogeneity as follow:

- a. H_0 : If value significance > 0.05 , means data is homogeny
- b. H_a : If the value of significance > 0.05 , means data is not homogeny

3. Linearity Testing

Linearity testing is conducted to know whether the gotten data has linear or not. The computation of homogeneity testing using SPSS Statistics 16 is *Test of Linearity* by the value significance (α) = 0.05. Before doing linearity testing, the researcher decides hypothesis in this linearity as follows:

- a. H_0 : if value significance < 0.05 means the data is linear
- b. H_a : if value significance > 0.05 , means the data is not linear

F. 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. The data of this research were collected by administering vocabulary test. This test used to measure students' achievement in vocabulary before and after they taught using Guessing Game. It was done twice: pre-test and pos-test. Test is generally prepared, administered, and scored by one teacher (Harris: 1969). To know more details of the test accomplished, the test is done through two steps are:

1. Pre-Test

Pre-test provides a measure on someone assesses for participant in an experiment before they get a treatment (Wiersama, 1911:106). Pre-test was given before doing an experimental research or before teaching by

using Guessing Game or before the treatment. Pre-test was used to know the basic competence of the student. Pre-test was given to the students at the first meeting. The respondent were asked to do vocabulary test. The researcher gives the test that contains of 20 items of multiple choices questions. The score per items was 5.0 for correct answer. Students would get 100 point if they could answer correctly to all of the question. The numbers of students who took the post-test there were 43 students. Time allocation of test is 45 minutes. This result of the test became the evaluation before using Guessing Game as technique in teaching vocabulary is applied in the class. .

2. Post-Test

Post-test provides a measure on some attribute or characteristic that someone assesses for participant after treatment (Wiersama, 1911: 106). It means, the test items in the post-test are exactly 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. As like pre-test, post-test also contained of 20 items of multiple choices questions. The score per items was 5.0 for correct answer. The numbers of students who took the post-test there were 43 students. Time allocation of test is 45 minutes. The purpose of this test is to measure students' vocabulary after being taught using Guessing Game. The result of the scoring then is compared with pre-test. In this case, the researcher knows

how far is the effectiveness of using Guessing Game as technique in vocabulary mastery.

G. Technique of Data Analysis

In the last step, the researcher used T-test using statistical program to ensure the effectiveness and to get stronger conclusion. 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 2009:69). The data obtained from research result of students test that were analyzed quantitatively. 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 Guessing Game.

The data result (post-test) of vocabulary was data of average score of vocabulary test taught by using Guessing Game. The first data (pre-test) is data of students score before taught by using Guessing Game. If the post test on the students' vocabulary achievement test is higher than pre-test, it means that teaching vocabulary by using Guessing Game is effective.

To know the significant difference on the students' vocabulary achievement before and after taught by using Guessing Game, the researcher in this research uses Wilcoxon Signed Rank Test in SPSS 16.0 because this research is experimental that used pre test and post test .