

CHAPTER III

RESEARCH METHOD

This chapter presents research design, population, sampling and sample, research variable, research instrument, validity and reliability testing, normality and homogeneity testing, data collecting method and data analysis.

A. Research Design

The design used in this research was experimental research design. Experimental research is a powerful research method to establish cause-and-effect relationship (Borg and Gall, 1989: 639). Experimental research is classified into three designs; they are pre-experimental design, quasi-experimental design, and true experimental design. This research used pre-experimental research design with one group pretest-posttest design. According to Ary *et al.* (2010: 303) pre-experimental research provide little or no control of extraneous variable. Hence, it just needed a class which was given treatment.

In one group pretest-posttest design, a single group was measured both before and after being taught by using treatment. The procedures of one group pretest-posttest design were:

1. Administering a pre-test before applying the treatment with the purpose of measuring the vocabulary mastery of the second grade student at MTs Darul Falah Bendiljati.

2. Applying the experimental treatment teaching vocabulary by using bingo game to the subject, that is the second grade student of MTs Darul Falah Bendiljati.
3. Administering a post-test after applying the treatment with the purpose of measuring the vocabulary mastery of the second grade student at MTs Darul Falah Bediljati.

The design of the research can be seen at the table below.

Table 3.1 One Group Pretest-Posttest Design

Pre-test	Independent	Post-test
Y ₁	X	Y ₂

Note:

X : Bingo Game treatment

Y₁ : students' achievement on vocabulary before taught by using Bingo Game

Y₂ : students' achievement on vocabulary after taught by using Bingo Game

B. Population, Sampling and Sample

1. Population

Population is all subjects being studied in the research. According to Ary, *et al* (2010: 148) population is all members of any well-defined class of people, events, or object. The population in this research was all of the second grade students of MTs Darul Falah Bendiljati in Academic year 2017/2018 which consist of four classes (A, B, C, and D).

Table 3.2 List of Population

Class	Female	Male	Total
VII A	15	17	32
VII B	11	24	35
VII C	16	18	34
VII D	15	22	37
Total			138

2. Sampling Technique and Sample

Sampling technique is a technique to determine the sample. The technique used in this research was purposive sampling. Purposive sampling or judgment sampling is a sampling technique that choose a sample typically or representative (Ary *et al.*, 2010: 156). The researcher chose the VIII-B class as the sample based on the suggestion from the English teacher because among the other classes the students of VIII-B class the students have homogeneity in their English ability and less active in the learning.

From the population, the researcher then selects the sample to conduct the research. Sample is a part of population that is being studied. Ary *et al* (2010: 148) defines sample as a small portion of population. In this research, the researcher took the B class as the sample of the research. This class consisted of 35 students.

C. Research Variables

Variable is the focus of a research. Charles (1995: 29) defines variable as characteristics that tend to differ from individual to individual, though any two or more individuals may have the same variable trait or measure. There were two types of variable in this research, those are:

1. Independent Variable

Ary *et al.* (2010: 37) state independent variable is a variable that is antecedent to the dependent variable. In other words, independent variable is the variable which influences dependent variable. Independent variable in this research was the use of Bingo Game.

2. Dependent Variable

Dependent variable is the consequence of another variable (Ary *et al.*, 2010: 39). It shows that dependent variable is a variable which is influenced by independent variable. Dependent variable in this research was the students' vocabulary mastery.

D. Research Instrument

Instrument had an important function in the research. Instrument was a tool to collect data in the research. Research instrument is used to measure the value of the variables being studied. In this research, the researcher used test as the instrument. A 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 (Ary *et al.*, 2010: 201). The researcher administered two kinds of test, pre-test and post-test. Pre-test was given to measure their ability before

the treatment; meanwhile post-test was given after the treatment. The numbers of the test given were 25 questions containing: 20 questions for multiple choices, and 5 questions of matching words. The result of those tests was compared to know whether there was significant difference before and after the students given the treatment.

E. Validity and Reliability

1. Validity

Validity is the extent to which the interpretations of the results of a test are warranted, which depends on the particular use the test is intended to serve (Kimberlyn and Winterstein, 2008). Furthermore, validity is defined as the extent to which instrument measured what it claimed to measure (Ary, *et al.*, 2010: 225). To know the validity of the instrument used to gather the data, in this research the researcher used content validity, construct validity and face validity.

a. Content Validity

Content validity is concerned with the extent to which the assessment instrument adequately samples the content domain (Moskal and Leydens, 2000). Content validity involves the test's content and its relationship to the construct it is needed (Ary *et al.*, 2010: 226). In other words, the content of the instrument that is applied should be appropriate with the curriculum which is used. The instrument used in this research was test which consists of multiple choices and matching test. The content of each type of test was related

to the curriculum which obtained in Indonesia that was K-13. The materials of the test were adapted by the researcher from the core competence and standard competence in syllabus which was applied for eighth grade students' level. The core and standard competence could be seen in appendix 1.

b. Construct Validity

Construct validity is any theory, hypothesis, or model that attempts to explain, observed phenomena in our universe of perception (Brown, 2004:45). It is used to examine whether the test has a consistent representation with the theory. In other word, the form of the test must suitable with the theory of vocabulary mastery. The blueprint of the test could be seen in appendix 2.

c. Face Validity

Face validity refers to the extent to which examinees believe the instrument is measuring what it is supposed to measure (Ary, *et al.*, 2010: 228). Therefore, the instrument used in this research should appropriate to students' level. To know the face validity of the instrument, the researcher consulted with the advisor, English lecture and English teacher. Then, the items which were prepared were matched to junior high school students' competence.

3. Reliability

According to Moskal and Leydens (2000) reliability refers to the consistency of assessment scores. To measure the reliability of test item,

the researcher had done a try-out test to know whether the instrument reliable or not. The test was administered to 27 students with the same grade as the sample of this research. The researcher used SPSS 16.0 version to know the reliability coefficient of the test.

Below was the result of the analysis of reliability of the test:

Table 3.3 Result of Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
.827	25

After that, the researcher interpreted the result by using coefficient criteria by Guilford (1956). The coefficient correlation here is denoted with r .

- a. If $0.90 \leq r \leq 1.00$: very reliable
- b. If $0.70 \leq r < 0.90$: reliable
- c. If $0.40 \leq r < 0.70$: moderate
- d. If $0.20 \leq r < 0.40$: rather reliable
- e. If $r < 0.20$: less reliable/ poor

The result of calculation showed that reliability coefficient of the instrument was 0.827. Based on the criteria of reliability the test was reliable.

F. Normality and Homogeneity

1. Normality

Normality test used to test whether data in the research is in normal distribution or not. In this research, the researcher used One-Sample Kolmogorov-Smirnov Test with the provision that if Sig > 0.05, the data were normally distributed. In this research, the researcher calculated normality used SPSS 16.00 version. The normality testing was done towards both pre-test and post-test score. The hypotheses for testing normality were:

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

2. Homogeneity

Homogeneity testing was conducted to know whether the gotten data has a homogeneous variance or not. The computation of homogeneity testing using Test of Homogeneity of Variances in SPSS 16.00 version by the value of significance (α) = 0.05. Before doing homogeneity testing, the researcher decided hypothesis in this homogeneity as follow:

- a. H_0 : If the value of significance > 0.050, means data is homogeny
- b. H_1 : If the value of significance < 0.050, means data is not homogeny

G. Data Collecting Method

Data collecting method is a method to collect data in a research. The data collecting method in this research was done in two steps:

1. Pre-Test

Pre-test was a test given to students before using treatment. The pre-test was administered to the students on 18th April 2018. This test was used to know the students' basic competence in vocabulary before they get treatment. The researcher gave the test that contained 20 items of multiple choice and 5 items of matching test. The score per item was 4.0 for correct answer. The result of the test became the evaluation before using Bingo Game as technique in teaching vocabulary in the class.

2. Post-Test

Post-test was a test given to students after the treatment. The post-test was administered to the students on 3th May 2018. The post-test was used to know the different of the students' score before and after they got treatment. As like pre-test, post-test also contained of 20 items of multiple choice and 5 items of matching test. The score per item was 4.0 for correct answer. The result of the test then compared with the score on the pre-test.

H. Data Analysis

Data analysis refers to a variety of specific procedures, method and involves goals; relationships; decision making; and ideas, in addition to working with the actual data itself (Richmond, 2006: 13). The data obtained from the result of the students' test and analyzed quantitatively. Quantitative data analysis is also called statistical analysis. It meant that the result of the data expressed in numerical form. The quantitative data of this research was

analyzed by using Paired Samples T-test on SPSS 16.00 version. The technique was used to know whether there was significant different score of the students before and after the students being taught by using Bingo Game.