

## **CHAPTER III**

### **RESEARCH METHODOLOGY**

In this chapter, the researcher describes the research method. It consists of research method, research design, population and sample, variable, research instrument, validity and reliability, data collection method, and data analysis.

#### **A. Research Design**

This study was conducted in pre-experimental design, with one group pre-test – post-test design. This study used pre-experimental because to know the effectiveness of teaching using WhatsApp on students in vocabulary at fourth of SDN 1 Bandung. The researcher just took one group or class and used pre-test and post-test to see the result of the treatment.

Pre-experimental design is a research procedure that has no control group. Analyzing the result of pre-test and post-test can see the influence of treatment. Arikunto (2002:78 ) stated that in experiment, the observation is done twice; before and after treatment. The observation that is done before the experiment is called pre-test and observation after the experiment is called post-test. The form of pre-experimental study that the researcher applies can be seen bellow:

**Table 3.1. One group Pretest-Posttest Design**

<b>Pretest</b>	<b>Independent</b>	<b>Posttest</b>
<b>Y1</b>	<b>X</b>	<b>Y2</b>

Y1 was pretest and it was given before the teaching or treatment was applied. The purpose of the pre-test was to measure the students' vocabulary achievement before they got treatment X. X was considered as the treatment, namely the teaching by using media of WhatsApp. Y2 was known as Post-test. Which the researcher conducted after the treatment to know the achievement of the students or the subjects.

By using this form of research, the influence of experimental treatment could be seen by analyzing or comparing the scores of the pre-test and post-test.

In this study, the researcher measures the effectiveness of using WhatsApp in teaching vocabulary by experimental research. The impact was assessed by providing a specific treatment. The effectiveness would be identified after knowing the significant difference between the students who were taught before using WhatsApp and after using WhatsApp.

## **B. Population, Sample, and Sampling**

### **1. Population**

Population is the whole objects of the research which may consist of human beings, things, phenomenon, animals, and plants, test scores, or even whose characteristic are the data source in the research.

In according to the topic of the research, The population on this research is the fourth grader of elementary school in the academic year 2019-2020. That consist 46 students of 2 class in fourth class comprised 4A & 4B

### **2. Sample**

Sample is a portion of the population selected for the data source. Sukardi (2003:54). Sampling is a way the reseacher select the number of individuals as a sample which represents the population. A sample is a portion of a population. It means that a good sample must represent the entire populations as good as possible, so that the generalization of the sample as true as population.

The sample in this study is 23 of the students of IV at SDN 1 Bandung, the reason because that class is suitable as subject of research about this class is taught by vocabulary.

### **3. Sampling Tecnique**

Sampling is the process of selecting a number of individual for a study in such as a way that the individuals represent the large group

from which they were selected. In this research, the researcher used purposive sampling technique to obtain the samples of the study . purposive sampling technique is satisfactory to specific need. In this research, the researcher chooses B class because of the researcher's need that will be suitable for the research.

### **C. Research Variable**

According to Ary Donald (2010:37) variables are constructs or characteristics that can take on different values or scores. They are classified as independent variables or dependent variables.

#### **1. Independent Variable (X)**

Independent variable is variable which is manipulated by researcher deliberately. In this research independent variable was teaching vocabulary by using WhatsApp.

#### **2. Dependent Variable (Y)**

Dependent variable is a variable that is influenced by the independent variable. In this research, dependent variable was students' scores in WhatsApp.

### **D. Description of Treatment**

Using whatsapp in teaching vocabulary was conducted in several stages which are mainly discussed as follow : in first stage, the resaecher asks the studentd to join the WhatsApp grup. In the WhatsApp group the researcher give 10 vocabularies and ask the students are ready to learn it. The second stage the researcher reviewed what the have learn with providing picture and then the researcher give question related the picture.

The questions are divided into three part, which part one is matching picture with vocabulary , find out translation and the last is arranging the word. And the last stage the students will discuss in the group chat to solve the three parts of question by chatting. After that, they make a review about what they have learn.

**Table 3.2 The Dates of Experiment**

Date	Activities in conducting Study
March 17 <sup>th</sup> 2020	Administering Pre-test,
May 11 <sup>st</sup> 2020	Administering 1 <sup>st</sup> treatment
May 12 <sup>th</sup> 2020	Administering 2 <sup>nd</sup> treatment
May 13 <sup>th</sup> 2020	Aministering 3 <sup>th</sup> treatment
May 14 <sup>th</sup> 2020	Administering post- test

#### **E. Research Instrument**

Research instrument refers to any equipment used to collect the data (Arikunto, 2010:262). As an experimental research, the instrument used in this research was tests, especially vocabulary test. According to Ary et al (2006:201) test is a set of stimuli presented to individual in order to elicit responses on the basis of which a numerical score can be assigned.

There were two kinds of tests in this study, those were pre-test and post-test. Pre-test was intended to measure students' vocabulary achievement before the treatment given. While, post-test was to measure students' vocabulary achievement after the treatment given. The tests

were in the form of subjective test on vocabulary to measure students' vocabulary achievement.

## **F. Validity and Reliability**

### **1. Validity**

Fraenkel and Wallen (2005:113) states that a valid instrument is measures what it is supposed to measure. Validity is the most important idea to consider when preparing or selecting an instrument for use.

These are four types of validity; 1) Content validity, 2) Criterion related validity, 3). Construct validity, 4). Face validity. In this research, to measure whether the test has a good validity, the researcher analyzed the test from content validity.

#### **1) Content Validity**

Content validity is a degree to which a test measures an intended content area. Content validity is prime importance for achievement test. The researcher convinced that the test items are valid in term of content validity, because the test items was made base on the curriculum is sylabus and topic that is discussed. Moreover, the researcher used students' module as reference in choosing words which was suitable with their level. Then, the tests had been repaired base on advice from expert that validated it. So the content is relevant with the purposes of the test. It can be seen as follow :

**Table 3.3 The Indicators of the Instrument**

Kompetensi Dasar	Indicator	Pre-test and Post-test
Mengenal bagian-bagian tubuh.	Presented questions about part of body, students can answer the function questions of with correct speech and pronunciation	Pretest : 1,3,4,5,8,12, 15, 19, 20
Menanyakan dan menjawab pertanyaan tentang makanan dan minuman.	Presented questions, students can answer questions about drinks and food	Pre-test : 2
Menanyakan dan menjawab pertanyaan tentang buah dan sayur	Presented questions, students can answer the names of fruits and vegetables	Pre-test : 9, 10,11, 13, 14,
Mengenal nama-nama hewan	Presented questions, students can answer questions about animal names	Pre-tets : 6, 7, 16 ,17,18
Menanyakan dan memberitahukan lokasi	Presented questions, students can answer	Post-test : 2,3,4,9,11,12

benda	questions about animal names	
	Presented question, students can demonstrate the usefulness of these objects	Post-test : 1,5,6,7,10,13,18,19, 20
	Presented questions, students can answer the name of the object in Indonesian and English	Post-test :14,15, 16,17

## 2.) Face Validity

Face validity Face validity refers to the degree to which a test looks right, and appears to measure the knowledge or abilities it claims to measure, based on subjective judgment or the examinees who take it, the administrative personnel who decide on its use, and other psychometrically unsophisticated observers (Brown, 2004). The test in this research was designed to measure students' writing skill, thus, to achieve face validity, the researcher provided the instructions to ask students to write. In this study, the face validity was done through validated by the expert. Face validity, the specialist gave the guidelines to ask under studies to write. In this examination, the face legitimacy was done through approved by the master.



## 2. Reliability

Reliability is a measure of accuracy, consistency, dependability or fairness of scores resulting from administration or particular examination. According to Heaton (1989:162) reliability is necessary characteristic of any good test: for it to be valid at all, a test must first be reliable as a measuring instrument. When the student or individual answers closely related questions one way, the individual should consistently answer closely related question in same way.

In this research, the researcher conducted test as try out test before conducting pre-test to students who have different class with the sample as volunteers. The try out test consist of 20 item for pre-test. Try out was administered to know whether the test reliable or not.

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

1. If the alpha cronbach score 0.00-0.20: 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 0.61-0.8: reliable
5. If the alpha cronbach score 0.81-1.00: very reliable

**Table 3.4 Result of reliability**

Reliability Statistics	
Cronbach's Alpha	N of Items
.727	20

To know the items is reliable or not can be seen from cronbach's Alpha columns. The cronbach's Alpha score = 0.727 means that it is reliable. The list of student try-out scores is presented in the appendix.

## **G. Normality Testing**

### **1. Normality testing**

Normality test are used to determine whether a data set is well-modeled by a normal distribution or not to compute how likely and underlying random variable is normally distributed population.

According sujianto (2009:77) normality distribution. In this study, the research used Kolmogorov-smirove test with SPSS 16.0. the hypotheses for testing normality are :

- a)  $H_a$  : Data is normal distribution
- b)  $H_0$  : Data is not normal distribution

## **H. Data Collection Method**

Data of this study is collected by administering test. Test is simple terms, a method of measuring a persons' ability knowledge, performance in a given domain. (Ary, Jacobs, & Sorensen, 2010, 2006) the researcher uses two kinds of test those are pretest and Posttest.

### **1. Pre-test**

In this research, the researcher gave the pre-test to students at fourth graders of SDN 1 Bandung in academic 2019/2020. Pre-test conducted by the researcher to measure how well the vocabulary of the students before being taught using WhatsApps.

### **2. Post-test**

The post-test was held after all treatments were given to the students. The procedures of post-test were similar to the pre-test. It was done to know the student's ability in learning vocabulary after getting treatments.

## **I. Data Analysis**

The technique of the data analysis used in the research is quantitative data analysis. This is a technique used to analyze and count the data, to know the students' vocabulary achievement by using WhatsApp as media. The analysis of data and hypothesis testing in this research used paired sample T test stated by SPSS v.16.0. The researcher's assumptions in hypothesis testing bu significance level are as follow :

1. If the Null Hypothesis ( $H_0$ ) is rejected and alternative hypothesis ( $H_a$ ) is accepted. It means there is a significant difference of students' vocabulary achievement before and after being taught by using WhatsApp.
2. If the Null hypothesis ( $H_0$ ) is accepted and alternative hypothesis ( $H_a$ ) is rejected. It means there is no a significant difference of students' vocabulary achievement before and after being taught by using WhatsApp.

The formula above has a function to find out the significant difference of students' vocabulary achievement before and after being taught by using WhatsApps. The technique of data analysis which used by the researcher belonged to quantitative data analysis and the data were analyzed statistically by using T-test. The test criterion is :  $H_a$  is accepted if calculated  $t_{count} > t_{table}$ , by degrees of freedom of  $df = (N - 1)$  and by the chance of 0.05 level of significance.