

## **CHAPTER III**

### **RESEARCH METHOD**

This chapter consists of six topics dealing with the research method. Those are research design, population and sample, research variable, research instrument, validity and reliability testing, normality testing, data collection method, and data analysis.

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

In this research, the researcher uses pre experimental research design with quantitative approach. Quantitative approach deals with questions of relationship, cause and effect, or current status that researchers can answer by gathering and statistically analyzing numeric data (Ary, et al, 2010: 39). Therefore, experimental design is the research design intended to see the effectiveness of a certain treatment. This research is intended to investigate the effectiveness of using scavenger hunt game towards students' vocabulary mastery of the fifth grade.

Instead, this research uses pre experimental research design that involves only one group of individuals. The researcher only takes one class to do pre-test, treatment, and post-test. Before, conduct the pre-test, the researcher gives try out to different students and class. Pre-test is conducted before giving a treatment, while after giving treatment is called post-test. Those test are given

to take the score of the students' achievement before and after being taught by using Scavenger Hunt Game.

The design of this study uses pre-experimental research design that take only one group pre-test and post-test. The research consists of pre-test, treatment, and post-test. The pre-test and post-test are given to take the students' score before and after being taught by using Scavenger Hunt Game. The both of the score are analyzed by using paired sample test to find out the significant difference scores of students' vocabulary mastery before and after taught by using Scavenger Hunt Game.

**Table 3.1 One Group Pre-test and Post-test Design**

Pre-test	Independent variable	Post-test
Y1	X	Y2

X : Treatment (teaching vocabulary by using Scavenger Hunt Game)

Y1 : Students' achievement on vocabulary mastery before treatment

Y2 : Students' achievement on vocabulary mastery after treatment

The procedures of experimental research that use one group pre-test and post-test design are :

1. Administering a pre-test with a purpose of measuring vocabulary achievement of fifth grade students at SDN 1 Sukodono.

2. Applying the treatment teaching vocabulary by using Scavenger Hunt Game to the fifth grade students at SDN 1 Sukodono. The treatment conducted by online. There are some steps to conduct the treatment. Those are:
  - a. The first, teacher explains about the scavenger hunt game and how to play the game.
  - b. The teacher brings two up to three students in a virtual meeting and distributes a list of items. Before start to play the game, the students need to write the list.
  - c. Then, the students look for the items around their house with amount of time.
  - d. After the students have completed the list, they need to take a picture of the items and submit to the teacher.
3. Administering a post-test with a purpose of measuring vocabulary achievement of fifth grade students at SDN 1 Sukodono.

## **B. Population and Sample**

### **1. Population**

Population is the larger group which is a researcher wishes to generalize, it includes all the members of a defined class of people, events, or object (Ary, et al, 2010). On the other hand, population is a group of individuals who have the same characteristic (Cresswell, 2012:142). It means, the population of this research is SDN 1 Sukodono.

## 2. Sample

Selecting sample is important step in conducting a research. Sample is a subgroup of the target population that the researcher plans to study for generalizing about the target population (Creswell, 2012:142). It means that sample must represent the population. Based on the statement above, the researcher takes one class from fifth grade which consists of sixteen students at SDN 1 Sukodono in academic year 2020/2021.

## 3. Sampling

Sampling is process in selecting a sample for a study used to represent a population. In this study, the researcher uses non probability sampling with purposive sampling technique to obtain the sample. Purposive sampling technique is sampling technique which is the researcher does not consider strata, or random when choosing a subject. However, the researcher considers the certain purpose. Therefore, the fifth grade students of SDN 1 Sukodono were chosen because among other classes the fifth grade students have average proficiency.

### **C. Research Variable**

In this study, the researcher studies the relationship among variables. Variable is a construct or a characteristic that can take on different values or scores (Ary et al, 2010: 37). The variables that examined in this study are classified into two types of variables, they are:

### 1. Independent variable

Independent variable is antecedent to dependent variable and is hypothesized to influence the dependent variable (Ary et al, 2010: 37). In experimental studies, the treatment is the independent variable. So, the independent variable in this research is teaching vocabulary by using Scavenger Hunt Game.

### 2. Dependent Variable

Dependent variable is a variable that affected the independent variable. The dependent variable is also the outcome of the research. In this study, the dependent variable is students' achievement on vocabulary.

## **D. Research Instrument**

Instrument is a tool to get the data of the research. The research instrument of this study is test. A test is a method to gain the data by giving some questions to the respondent (Arikunto 2006: 127). According to Ary et al. (2010: 201) 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.

In this study, the researcher uses achievement test. Achievement test is used in educational research to measure students' mastery and proficiency (Ary et al, 2010: 201). This test is used to measure the students' achievement on vocabulary after taught by using Scavenger Hunt Game. In addition, the researcher has two kinds of test. They are pre-test and post-test. Pre-test is

given to the students before doing the treatment, while the post-test is given after doing the treatment.

The test consists of twenty multiple choice questions about vocabulary that related to the shopping topic. Each items of test includes four options, namely a, b, c, d. It is composed based on the lesson plan and the textbook for fifth grade students of Elementary School.

Before giving the test to the students, the researcher tries out the test to the fifth grade students from different school with have the same characteristics. Try out is conducted to the fifth grade students of SDN 1 Punjul. The researcher chooses this subject based on the characteristic of the students' ability which is almost same with the sample. By trying out the test, the researcher can find out the validity and reliability of the instrument, so it can be known the quality of the test item.

#### **E. Validity and Reliability Testing**

The set of vocabulary test is used to collect the data related to the students' vocabulary achievement before and after giving the treatment. The test being given to the students must be valid and reliable.

##### **1. Validity**

Validity is important to evaluating and measuring the research instrument. Validity is defined as the extent to which an instrument measured what it claimed to measure (Ary et al., 2010: 225). To measure

whether the test has good validity or not, the researcher analyzes the test from content validity, construct validity, and face validity.

a. Content Validity

Content validity assess whether the test is representative all relevant parts of the subject that aims to measure. A test is said have content validity if its contents constitutes a representative sample of the language skills, structures, etc. To know that the instrument has good content validity, the researcher needs understanding the course objectives. Therefore, the test is made based on course objectives on the lesson plan and textbook of fifth grade at SDN 1 Sukodono. The content validity in this research can be seen as follow:

**Table 3.2 Content Validity of Test Item**

Basic Competence	Indicator	Test Item	
		Pre-test	Post-test
1. Responding by taking action according to verbal and acceptable instructions in the shopping context.	- Presented a simple sentence, students can complete the sentence with the correct things related to the context.	9, 12, 14, 15	3, 5, 7, 12, 16, 19, 20
	- Presented a simple sentence, students can complete with the correct section of the supermarket.	1, 6, 8, 10, 16, 17	1, 14, 17

	- Presented a picture, students can answer the question according to the picture correctly.	2, 3, 4, 5, 7, 11, 13, 20	2, 4, 6, 8, 11, 13, 15, 18
	- Presented a price list, students can complete the dialogue according to the price list.	18, 19	9, 10

#### b. Construct Validity

A construct is any theory, hypothesis, or model that attempts to explain, observed phenomena in our universe of perceptions (Brown, 2004: 25). The word construct refers to any underlying ability which is hypothesized in a theory of language ability. The researcher needs ensuring that the method of measurement matches the construct wants to be measured. Related to this study, the researcher conducted a research about vocabulary. According to John Read (2000: 150), types of vocabulary assessment are multiple choice, matching formats, sentence completion, and translation. Thus, based on the construct validity, the test is valid because it contains twenty multiple choice questions.

### 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). Face validity is almost always perceived in terms of content. If the content of the measuring instrument appears in accordance with what researcher wants to measure. The test of this research is designed to measure students' vocabulary achievement. Thus, the face validity is done through validator by the expert. The purpose of the face validity is to check some aspects that are considered in the test. They are to check that the instruction is clear and understandable for the students, to check that time allocation is given clearly, and to check that the test is suitable with students' level.

## 2. Reliability

Reliability is the consistency of measurement. According to Ary et al (2010: 259) reliability refers to the extent to which the test is consistent in measuring whatever it does measure. Specifically, reliability refers to the extent to which an individual score nearly the same in repeated measurements, as indicated by a high reliability coefficient.

To know the reliability of the test item, the researcher gives try out to the fifth grade students in other school. The try out was done on August 3, 2020 at SD Negeri 1 Punjul. The try out is used to know the reliability of pre-test and post-test. Then, to analyze the result score of the students

in try out, the researcher uses reliability test based on Cronbach's Alpha through IBM SPSS Statistics 22. The result of reliability test is:

**Table 3.3 The Result of Pre-test Reliability**

Reliability Statistics	
Cronbach's Alpha	N of Items
.610	20

**Table 3.4 The Result of Post-test Reliability**

Reliability Statistics	
Cronbach's Alpha	N of Items
.692	20

According to Triton (2006: 248) the criteria of reliability coefficient is divided into five classes:

- a. If the alpha Cronbach score 0.00-0.20 : less reliable
- b. If the alpha Cronbach score > 0.20-0.40 : rather reliable
- c. If the alpha Cronbach score > 0.40-0.60 : quite reliable
- d. If the alpha Cronbach score > 0.60-0.80 : reliable
- e. If the alpha Cronbach score 0.80-1.00 : very reliable

From the analysis by using alpha Cronbach in IBM SPSS Statistics in the table above, the reliability value of pre-test is 0.610 and post-test is 0.692. Based on the criteria of reliability coefficient according to Triton, if

the alpha Cronbach score is above 0.60, it can be said that the instrument is reliable. So, it can be concluded that the test instrument of this research is reliable.

#### **F. Normality Testing**

Normality test is used to determine whether the distribution of test is in normal distribution or not. This test is related to the use of parametric statistics and nonparametric statistics. Misbahuddin and Hasan (2013: 278) states that parametric statistics can be used when the data is normally distributed. In contrast, nonparametric statistics are used if the data does not pass the normality test, it means the data is not normally distributed.

In this research, to measure the normality testing, the researcher uses One Sample Kolmogorov-Smirnov test through IBM SPSS Statistics 22. The value of significance ( $\alpha$ ) = 0.05. The rules of normality testing as follow:

- a. If the significance value  $> 0.05$ , then the data has normal distribution
- b. If the significance value  $< 0.05$ , the data does not have normal distribution.

#### **G. Data Collecting Method**

Data collecting method is a way used by the researcher to obtain the data. The technique of collecting the data in this research is administering test. There are two kinds of test that is given to the students, they are pre-test and post-test. The result of the test will be compared between pre-test and post-test score. The procedure of administering test is clarified as follow:

1. Pre-test

Pre-test is the test which is given before giving the treatment. It aims to know the students' vocabulary mastery earlier before taught by using scavenger hunt game. This test consists of 20 items and has done in 60 minutes. The form of pre-test is multiple choice. The questions are made by the researcher related to the topic. For the scoring, the researcher gives 5 points in each number, so the maximal score is 100. The pre-test is administered on August 6, 2020.

2. Post-test

Post-test is given to the students after conducting the treatment. It aims to measure the students' vocabulary mastery after getting treatment. The test is different with the pre-test, but both of them have same indicators and level of difficulties. The form of post-test is also multiple choice which consists of 20 items and has done in 60 minutes. The post-test is administered on August 15, 2020.

**Table 3.6 The Schedule of Test and Treatment**

No	Activity	Date
1.	Pre-test	August 6, 2020
2.	Treatment	August 6, 2020 August 8, 2020 August 13, 2020
3.	Post-test	August 15, 2020

## H. Data Analysis

Data analysis is an attempt by the researcher to summarize the data that have been collected. According to Ary et al. (2010: 530), data analysis is reviewing the data while they are being collected and attempting to synthesis and make sense out of what is observed.

In analyzing the data, the researcher uses statistical calculation of paired sample test. This technique is used to investigate the significant difference of the students' score by using Scavenger Hunt Game. This research uses experimental class with one group pre-test and post-test. It means the subject is same but they get different treatment. Then, the researcher uses Paired Sample Test through IBM SPSS Statistics 22 to analyze the data. The data is gained from the result of students' pre-test and post-test. Then, the mean of each test will be compared to see whether there is significant difference score after given the treatment or not. If the result of significant value is higher than

the level of significance ( $\text{sig.} > 0.05$ ), the null hypothesis cannot be rejected, it indicates that there is no significant difference score of the students' vocabulary mastery before and after being taught by using Scavenger Hunt Game. By contrast, if the significant value is lower than the level significance ( $\text{sig.} < 0.05$ ), the null hypothesis can be rejected, it indicates that there is significant difference score of the students' vocabulary mastery before and after being taught by using Scavenger Hunt Game.