

## **CHAPTER III**

### **RESEARCH METHOD**

This chapter presents about the research design, population and sample, research instrument, validity and reliability testing, data collecting method, and data analysis.

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

Research is study something carefully to find out new facts about it (Oxford, 2008: 375). It means that a research is done carefully and accurately on investigation of an event, problem or phenomenon about scientific to find out new information. According to Balnaves and Caputi (2001:27) good design assists not only the investigation but the administration of quantitative research. It is very easy to underestimate the practical administrative, side of organizing, collecting and analyzing evidence.

This research was conducted in an experimental design. Ary et al (2006:325) states “Experimental research design is to enable researcher to estimate the effect of an experimental treatment”. Experimental research can be done in the laboratory, in the class and in the field. In this study, the experimental research was done in the class with taking students as population. Researcher

chose the design to determine the validity of this study. Conclusion can be drawn from the study.

Research method referred to the general strategy followed in gathering analysis the data necessary for answering the question at hand. In this research, the research design was pre experimental with quantitative approach. This research was intended to investigate the effectiveness of using Born to the Shop Game to improve student's vocabulary at seventh grade of SMPN 2 Sumbergempol.

In this research, the researcher used pre experimental with one group pretest-posttest design. In pretest and posttest group the observation do two times, before giving treatment called pretest and after giving treatment called posttest. Experimenter used the same subject as control group and experimental group by giving different treatment under investigation; while the control group is not. Pre experimental design does not have random assignment of subjects to groups or other strategies to control extraneous variables. Therefore, in the one group pretest-posttest design, a single group is measured or observed before and after being exposed to a treatment of same sort.

The researcher took A class as research sample. The class before taught using born to shop game was indicated as a control group (y). This group with 26 students was given test, which functioned as pretest. This pretest used to observe and measure the student's vocabulary. Then, done pretest the students were given a treatment by using Born to the Shop Game to improve student's vocabulary. For

treatment, the researcher gave drill about vocabularies of procedure text through game where the game was Born to the Shop Game to improve student's vocabulary. This topic based on the syllabus. Thus, this class after being taught using Born to the Shop Game was indicated as an experimental group (x). Both an experimental group and a control group in this research were taken from the same students where it was A class. Eventually, at the end of the treatment, this group is gives test that functioned as the posttest. This posttest used to observe and measure any changes of the student's vocabulary.

Ary et al (2006:327) the one group pretest-posttest usually involves three steps:

1. Administrating a pretest measuring the dependent variable
2. Applying the experimental treatment to the subject
3. Administrating a posttest, again measuring the dependent variable

This is based on the diagram below:

**Table 3.1 Diagram of one group pretest and posttest design**

Pretest	Independent Variable	Posttest
y1	x	y2

At the end of the research, the researcher concluded the effectiveness of using Born to the Shop Game to improve student's vocabulary by using pre experimental design by comparing the pretest and posttest result of A class. The effectiveness can be known through significant difference score of the students by using born to shop game before and after using it.

## **B. Population and Sample**

Population is the overall of research subject. According to Arikunto (2010:173) if someone wants to examine all elements within the study area so, the research is research population. On other hand, population is the group of interest to the researcher, the group to which she or he would like the result of the study to be generalizable (Gay, 1992:124). So that ways, population of this research were first grade in SMPN 2 Sumbergempol, which consists of eight classes from A class until H class.

Meanwhile, according to Arikunto (2010:175) sample is a partially or representative of the population that be studied. This sampling has function to get information about population. So that sampling is the technique to take a sample. In this research, random sampling was chosen as a technique of choosing sample, because the random sampling is the best single way to obtain a representative sample.

According to Gay (1992:126) sample is the individual selected comprise. It means that selecting of sample is very important step in conducting a research study. It can be concluded that a sample is a part of the population which have a certain characteristic from the population. The researcher has chosen first grade class as one experimental.

Sample is also as a way the researcher selected number of individuals as a sample which represents the population. In this research, the researcher had taken the populations that are the entire of first grade students. Then the researcher had taken the seventh grade as a sample. The sample in this research is the students' of VII-A in SMPN 2 Sumbergempol. This sample finished by using purposive sampling technique. It consists of 15 male and 11 female students'.

### **C. Research Instrument**

Instrument was used to collect data in research and it was one of the significant steps in conducting the research. The researcher used test to elicit and collect information on students' vocabulary before and after giving treatment. There are two tests in this research, pre-test and post-test. Pretest was done before treatment process. This was subjective test that was given to know the basic competence for all students and to know their earlier knowledge before they get treatment. The numbers of the test given were 25 words for each student in the form random words.

The second was posttest. The numbers of the test given were 25 words for each student. The posttest was done after treatment posttest. It was done to know the final score and to know the students' comprehension achievement, the test were considered quite representative to topic in the class. The researcher use one test, that is fill in the blank.

Scoring test is done by the total correct answer was multiplying by four as result. The following was figure of the formula.

**Table 3.2 The formula of score result.**

$$\text{Score} = \sum \text{correct answer} \times 4$$

#### **D. Validity and Reliability Testing**

In this research, vocabulary test used to measure the students' achievement in mastering vocabulary after they have been taught by using Born to the Shop Game. Validity and reliability testing of this test was very important to know score derived from instruments used in a research.

Validity is degree to which a test measure what it is supposed to measure. A common misconception is that a test is, or, is not valid. The researcher gets validity from English teacher. According to Gronlund in Brown (2004:22) validity

is the most complex criterion of an effective test and the most important principle of language testing. It is the extent to which inferences made from assessment result are appropriate, meaningful, and useful in terms of the purpose of the assessment. A test should test what the writer want to test.

There are four types of validity; 1) content validity, 2) criterion-related validity, 3) construct validity, 4) face validity. In this research, the researcher checked content and construct validities.

Content validity is a test in accordance with what the tested. According to Isnawati (2014:27) a test is said to have content validity if its contents constitutes a representative sample of language skills, structures, etc. being tested. It is obvious that grammar test, for instance, must be made up of items testing knowledge of grammar. However, it doesn't enough to ensure content validity. The test will have content validity if it includes a proper sample of the structure or content which is relevant with the purpose of the test. Test must be appropriate with the student's skill. The tryout of this study had content validity because the items were taken from sources for the first grade students (B class) in SMPN 2 Sumbergempol.

According to Isnawati (2014:29) a test is said to have construct validity if it can be demonstrated that it measures just the ability which is supposed to measure. Brown (2004:25) mentioned that a construct is any theory, hypothesis, or model that attempts to explain observed phenomena in our universe of perception. Based on the theory above, in the test the researcher asked the

students to answer the questions in fill in the blank where the questions based on all items presented to the students in vocabulary teaching. It was to measure the students' vocabulary achievement and this fulfill the construct of vocabulary test and therefore valid in term of construct validity.

Isnawati (2014:18) stated a reliable test is consistent and dependable. If the students are given the same test on two different occasions, the test should yield similar results. According to Arikunto (2010:221) stated if the instrument has been reliable automatically the data is reliable.

Since the main data of this study were students' score, the researcher conducted try out of the best. The purpose of tryout itself was to know the clear instruction of the test and to achieve the reliable scores. Tryout sample was the students in different class namely seventh B class. They were chosen because they have almost same level as experimental group.

In tryout, the researcher asks the students to answer the questions in the posttest. And the result as follow:



**Table 3.3 The preparatory to complete the standard deviation**

No.	Student	$X_t$	$X_t^2$
1.	ACG	23	529
2.	CSP	20	400
3.	DAF	18	324
4.	D	22	484
5.	ENR	17	289
6.	ERL	21	441
7.	FCS	21	441
8.	FPA	24	576
9.	IWA	17	289
10.	LBS	17	289
11.	LTD	20	400
12.	ML	20	400
13.	MRF	22	484
14.	MFR	23	529
15.	MNS	22	484
16.	NCR	21	441
17.	NIS	15	225
18.	PB	18	324
19.	RDS	20	400
20.	RIB	19	361
21.	SSA	17	289
22.	SA	16	256
23.	WRD	16	256
24.	YTS	18	324
25.	YAR	20	400
26.	YP	15	225
		$\sum X_t = 502$	$\sum X_t^2 = 9.860$

$$St^2 = \frac{\sum t^2}{N}$$

To know  $\sum Xt^2$  the formula result as the follows:

$$\begin{aligned} \sum Xt^2 &= \sum Xt^2 - \left(\frac{\sum Xt}{N}\right)^2 \\ &= 9.860 - \left(\frac{502}{26}\right)^2 \\ &= 9.860 - 372,78 \\ &= 9.487,22 \end{aligned}$$

Therefore, the standard deviation is

$$\sqrt{St^2} = \sqrt{\frac{9.487,22}{26}} = 19, 10$$

After finding the result of standard deviation, the reliability can be computed by using Kuder Richardson formula (KR-20).

**Table 3.4 Table to complete the reliability by using Kuder Richardson formula (KR-20)**

Item	Np	P <sub>1</sub>	N <sub>q</sub>	Q <sub>1</sub>	P <sub>1</sub> Q <sub>1</sub>
1	25	0.96154	1	0.03846	0.03698083
2	25	0.96154	1	0.03846	0.03698083
3	26	1	0	0	0
4	21	0.80770	5	0.19230	0.15532071
5	25	0.96154	1	0.03846	0.03698083
6	16	0.61538	10	0.38461	0.23668130
7	23	0.88462	3	0.11538	0.10206745
8	19	0.61538	7	0.26923	0.16567876
9	16	0.61538	10	0.38461	0.23668130
10	22	0.84615	4	0.15384	0.13017171
11	19	0.61538	7	0.26923	0.16567876
12	15	0.57692	11	0.42307	0.24407754
13	14	0.53846	12	0.46153	0.24851544
14	22	0.84615	4	0.15384	0.13017171
15	23	0.88462	3	0.11538	0.10206745
16	17	0.65384	9	0.34615	0.22632671
17	19	0.61538	7	0.26923	0.16567876
18	23	0.88462	3	0.11538	0.10206745
19	23	0.88462	3	0.11538	0.10206745
20	26	1	0	0	0
21	20	0.76923	6	0.23076	0.17750751
22	18	0.69230	8	0.30769	0.21301378
23	23	0.88462	3	0.11538	0.10206745
24	22	0.84615	4	0.15384	0.13017171
25	22	0.84615	4	0.15384	0.13017171
					∑P <sub>1</sub> Q <sub>1</sub> = 3.377127

Therefore, the reliability is:

$$\begin{aligned}
 r_{11} &= \left[ \frac{n}{n-1} \right] \left[ \frac{st^2 - \sum P1Q1}{st^2} \right] \\
 &= \left[ \frac{25}{25-1} \right] \left[ \frac{19.10 - 3,377127}{19.10} \right] \\
 &= \left[ \frac{25}{24} \right] \left[ \frac{15,722873}{19.10} \right] \\
 &= [1, 04166667] [0, 82318706] \\
 &= 0, 85748653
 \end{aligned}$$

The result above shows that the test was reliable with reliability coefficient of 0.85 or 85%, it means that the reliability of test is high.

### **E. Data Collecting Method**

Data collecting method is the way that is used to get the data. The aim of the data collecting is conducting a scientific research was to get the material needed. The materials must relate to each other and to solve the problem. There was method of data collection used in this research. It was administering test.

Administering test is the data collecting method of test. This test consisted of vocabulary items with 25 words. Before testing it, the researcher would do the pretest to know ability's student before giving treatment. After giving pretest, the researcher gave treatment to drill ability's students about vocabulary related with

the topic. After giving treatment, the researcher gave posttest. Posttest was used to know ability's students after getting treatment. Then, the result of test would be compared between pretest and posttest score whether differences or not. If there any differences score, it showed that treatment was successful and if there no differences score, it showed that treatment was unsuccessful. In the teaching procedure of Born to the Shop Game, there were steps. The following section was described each stage.

#### **F. Data Analysis**

The analysis used in this study is in the form of quantitative data. The quantitative data of this research will be collected from the tests conducting. The researcher conducted test to the students before and after they were taught by using Born to Shop Game.

All gained data were treated and analyzed. Data that was the students' scores obtained from the pretest and posttest would be analyzed statistically using the paired t-Test. The samples were referred to as paired samples or dependent samples, because they were drawn dependently form population within one group. In this research, the first grade at SMPN 2 Sumbergempol, especially A class was taken as samples, which were 26 students. The test results were compared.