

CHAPTER III

RESEARCH METHODOLOGY

A. Research Design

In this study, the writer used quantitative research. The writer decided to use an experimental design that in the form of quasi experimental design. Quasi experimental design contains of pre- and post – test. The design of quasi experimental can be described as the following,

Table of quasi experimental design with Non-equivalent Control Group Design

O1	X	O2
O3		O4

O1 is pre – test for the experimental group

O2 is post – test for the experimental group

O3 is pre – test for the controlled group

O4 is post – test for the controlled group

X is treatment for experimental group2 (using Indonesia Pintar Game)

In this researche, the writer does two observation, before experiment and after experiment. The observation before experiment is called Pre-test (O1), and the observation after experiment is called Post-test (O2), in the middle of Pre-test and Post-test, the writer give treatment to the class that is used Indoneesia Pintar Game activity in the class. Then at of the end treatment the writer administrated

the result of Pre-test and Post-test score to find out whether the Indonesia Pintar game activity effective or not in improving vocabulary.

B. Research Setting

This research took place at MA Al-Istiqamah Pekapuran Raya Banjarmasin of Pekapuran Raya Banjarmasin, South Kalimantan.

C. Population and Sample

1. Population

According to Sugiyono population is the generalization of the object, a subject that has certain qualities and characteristics set by the researchers to learn and then draw the conclusion (Sugiyono, 2012, p.117). The population in this research is the entire grade tenth in MA Al-Istiqamah Pekapuran Raya Banjarmasin year 2016/2017 are 48 students, and they are divided into two classes (XA and XB). For selecting samples, the writer gets recommendation class from the English teacher at this school.

Tabel 3.1. Data population of MA Al-Istiqamah Pekapuran Raya Banjarmasin.

Class	Total		Total
X A Boys	23	-	23
X B Girls	-	25	25

Total	23	25	48
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From the table above, the number of students who became known to the population in this study consists of 2 classes with the total number of students of 48 people, consisting 23 of students are boys , and 25 students girls.

2. Sample

The technique sampling of this study is *purposive sampling*. A sample taken in accordance with the needs researchers and discuss with teacher there. The sample of the research was the students all of grades tenth of MA Al-Istiqamah Pekapuran Raya Banjarmasin. The writer intentionally took grades which the writer teaches. The writer took students in grade tenth A and B, the total number of the sample is 48.

According Sugiyono (2001, p.61) states that purposive sampling is a technique of determining the sample with certain considerations. Meaning in other words, the unit of the sample is adjusted according to certain criteria defined by the research objective. The samples taken may representative of the population. The sample in this research is grade X A as class experiments using Indonesia Pintar game in improving students vocabulary, and grade X B control class without using game in improving students Vocabulary.

Class	Total		Total
X A Boys	23	-	23
X B Girls	-	25	25
Total	23	25	48

Table 3.2 Sample Data of X MA Al-Istiqamah Pekapuran Raya Banjarmasin.

D. Data Collection

Collecting data is the most important step in conducting the research. The types of test that the writer uses are multiple choice item. The questions of the test are about things around students' life, and those questions are tested to another group, which is not including as sample of the research, to see the reliability and validity of instrument. The writer analyzes the result of it by using Anates. Then, the writer collects 30 questions for pre-test, and the writer randomizes those questions for post-test. The writer gives the valid questions to experimental and controlled class for the pre-test and post-test. By this activity, the writer gets the scores about students' vocabulary mastery that will be analyzed.

1. Test (pre-test and post-test)

The writer used a written test to know the effectiveness of using Indonesia Pintar game developing students' vocabulary. A test is a short

examination of knowledge that consists of questions that must be answered. The writer gave the written test to measure the students' vocabulary. Brown (2004, p.30) gave his statement that a test, in simple terms, is a method of measuring a person's ability, knowledge, or performance in a given domain. The tests in this research would be divided into two sections. They were:

a. Pre-test

Pre-test would be done in the beginning of the research before giving treatments as the first step in collecting data. The purpose of this test was to know how far students mastered vocabulary before applying Indonesia Pintar Game in improving students vocabulary.

b. Post-test

Post-test would be given at the end of the research. It was conducted to measure the students ability after treatments .The result of the test would be analyzed to measure the improvement of students ability in vocabulary.

E. Technique Of Data Collection

The steps collecting data there are several stages, namely:

1. Make the instrument test research, the test is performed to determine learning outcomes. Forms tests be about text.
2. Perform the validation and reliability of instruments
3. Conduct teaching and learning by doing in class experiments using Indonesia Pintar Game in improving students vocabulary , and teaching Vocabulary in control class without using Indonesia Pintar Game .

4. draw up post test
5. do a test on a sample of students who are
6. analyzing data and conclusion

The techniques for data collecting that used in this study are observation and Test.

F. Instrument

The Instrument that the writer used for collecting data was test. The test divided into two test, pre-test and post-test. The pre-test would give to the student before the treatment and the post-test after the treatment.

There were 30 items of multiple choice in each of the test. The score per item was 3,3 correct answer. Student would get 100 point if they could answer correctly to all of the questions. Both of the classes, experiment group and control group would give the same test.

G. Technique of Analyzing Data

The two variables investigated in this research were Indonesia Pintar game and students score. To know whether there is any significant difference scores in the students score before and after being taught by using Indonesia Pintar game, the writer analyzed the collected data quantitatively.

In this research, the writer used a quantitative data analysis technique. The quantitative data of this research was analyzed by using statistical method. This technique was used to find the significant

difference on the students' scores after taught by using Indonesia Pintar game.

This test is to find out the validity, reliability, and difficulty level.

1) Validity test

Validity is a measure that shows the levels validity or the validity of an instrument. A test is said to be valid when Able to measure what is about to be measured Product Moment = 5%

$$r_{xy} = \frac{N(\sum XY) - (\sum X)(\sum Y)}{\sqrt{\{N \sum X^2 - (\sum X)^2\} - \{N \sum Y^2 - (\sum Y)^2\}}}$$

Explanations:

r_{xy} = Correlation coefficient between X variable with Y variable

N = Total of test participant

X = Score for each item

Y = Total Score

According to Arikunto (2008: p.75) "correlation coefficient always between 1,00 until +1,00." As follow is correlation coefficient interpretation:

Criteria r_{xy}

Table II

Value	Category
0, 80 - 1, 00	Very Valid
0, 60 - 0, 79	Valid

0,40 - 0,50	Valid Enough
0,20 - 0,39	Less Valid
0,00 - 0,19	Not Valid

A test said valid when it measures what is intended to measure.

Calculation result of r_{xy} is compared with r table of product moment by 5% degree of significance. If r_{xy} is higher than r table, the item of question is valid.

2). Reliability test

Reliability pointed a sense that an instrument pretty trustworthy. A test is said is said to have high confidence levels if the tests can provide the results anyway. Then the sense of reliability test, connect with the issue of the provision of test

results. Analysis of reliability tests on. The formula using Croanbach's Alpha as follow:

$$r_{11} = \left[\frac{k}{(k-1)} \right] \left[1 - \frac{\sum \sigma_b^2}{\sigma_t^2} \right]$$

Criteria

$0,00 < r_{xy} \leq 0,20$ very low

$0,20 < r_{xy} \leq 0,40$ low

$0,40 < r_{xy} \leq 0,60$ enough

$0,60 < r_{xy} \leq 0,80$ high

$0,80 < r_{xy} \leq 1,00$ very high

3. Normality test

It will test the normally data that will be tested in sthis study. This test used SPSS 22 program. Kolmogrov Smirnov Test of normality in the study carried out using the program SPSS 22. With the provisions if the significance is greater than 0.05 then it can be inferred.

Kolmogorov Smirnov and Shapiro Wilk.

The criterion of SPSS:

- a) If respondent ≥ 50 , the normality test uses Kolmograv Smirnov.
- b) If respondent ≤ 50 , the normality uses Shapiro Wilk.

4. Homogeny test

Homogeneity test sample to determine a homogeneous whether or not the variance of samples taken from the same population (Sugioyono, 2012, p.275). Homogeneity test was conducted to obtain the assumption that sample departs from the same condition.

$$F = \frac{v^2b}{v^2k}$$

V^2b = bigger variant

$V^2_k =$ smaller variant

H. Testing the Hypotesis

After the research data obtained, then conducted data analysis to find out the results of student learning from the research conducted. The analysis used is static nonparametric. Static nonparametric is used for data that has a normal distribution and homogeneous.

In this research, there are two times of analysis. First, to test the difference between the initial experiment ability and control. The test using (t-test). The expected result and there was no difference among the two significantly.

Second analysis .to test the hypothesis that in proposing. Engineering analysis of (t-test was used for two related sample) In the test is the difference between O2 and O1 after being treatment. If O2 is greater than O1 then use the real object is effective in learning descriptive text. If O2 is smaller than O4 than the media is not effective for learning process.

Significant of Hypothesis test

Determine the significant standard $\alpha = 0,05$. Then, looking for t table with a pattern $db = n-1$.

Test Criteria as follow:

If $t_h \leq t_0$, H_0 significant.

If $t_0 > t_h$, H_0 not significant.