

## **CHAPTER III**

### **RESEARCH METHOD**

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

In this research the writer uses quantitative approach. Burns and Grove (2005, p.23) said the quantitative research is a formal, objective, systematic process in which numerical data are used to obtain information about the world.

This study is carried out in two classes are control class and experiment class with pre-test and post-test as research tools. In this experiment, class implementation by using advertisement at the eleventh grade and for control class not using advertisement. The pre-test and post-test to be same for experiment and control class. The goal is to solve the actual problem that faced recently and collecting data to design, explain, and analyze the effect of using advertisement on students' achievement in vocabulary at the eleventh grade of MA Irtiqaiyah academic year 2015/2016.

The research design aims to give the responsibility for setting the next steps to make the result more accurate and objective. And the subject of this research is the eleventh grade student of MA Irtiqaiyah which is consists of only two classes (IPS & IPA) and the writer will take both of them. The experiment research uses pre-test and post-test design. The objective of quantitative research was to develop and employ

mathematical models, theories, and hypothesis pertaining to natural phenomena. The process of measurement was central to quantitative research because it provided the fundamental connection between empirical observation and mathematics expression of quantitative relationships.

The experiment research is applied to the XI IPS and XI IPA grader of MA Irtiqaiyah Banjarmasin to improve students' achievement in vocabulary. After being taught using advertisement the writer conducts some experiment stage in several time meetings. In the first stage the writer gave the students pre-test and then continued by the implementation of teaching to the students using advertisement. Finally, for the last stage the student was given the post-test.

The writer used pre-test – post-test control group design was chosen as the design of this study. Sugiono (2010, p. 112). The scheme is a follows:

<i>E:</i>	$O_1$	$X$	$O_2$
<i>P:</i>	$O_1$	-	$O_2$

*E* : The symbol for experimental group

*P* : The symbol for the control group

$O_1$  :Pre-test

$O_2$  :Post-test

$X$  :Treatment

Two classes were treated as experimental and control group. Those groups were equated as nearly as possible. The students of XI IPA were chosen as the experimental group, while those of XI IPS were chosen as control group of this study. Pre-test is given to the both control and experimental group to measure the condition before treatment. Next, the treatment ( $X$ ) is given to the experimental group. There is no given the control group. After finishing the treatment, the test can answer the direction or alternative hypothesis ( $H_a$ )  $H_a$ : There is no significant difference in students' achievement in vocabulary by using advertisement in experimental class and control class. Null hypothesis ( $H_o$ )  $H_o$ : There is significant difference in students' achievement in mastering of vocabulary by using advertisement in experimental class and control class.

## **B. Research Setting**

The location of the research is JL. Bakti Rt.5 No. 4A Pemurus Dalam, Banjarmasin, South Kalimantan. The writer is interested in applying this research in this school because the school is one of schools which have limited facilities and the writer have ever been a student over there, so the writer more know about the teacher and school. So' I'm very interested to apply the research to know the students' achievement in mastering of vocabulary by using advertisement. The research spent 2 month, from August 10<sup>th</sup> 2015 till October 10<sup>th</sup> 2015.

## C. Subject and Object of Research

### 1. Subject of Research

The subjects of this research are 26 students of the eleventh grade which there are IPS as the control class & IPA as the experiment class of MA Irtiqaiyah Banjarmasin academic year 2015/2016. The total number of the eleventh IPS class is 13 students, and the total number of the eleventh IPA class is 13 students.

**Table 3.1 table of the number of eleventh grade of MA Irtiqaiyah**

No	Classes	Total
1.	IPS class	13
2.	IPA class	13
<b>Total</b>		<b>26 students</b>

### 2. Object of Research

The object of the research is the teaching and learning process of English vocabulary using advertisement at the eleventh grade of MA Irtiqaiyah academic year 2015/2016.

## D. Data and Source of Data

The data is taken from MA Irtiqaiyah in Academic year 2015/ 2016.

### 1. Data

The data would be collected in this research consist of primary and secondary data.

a. Primary Data

- 1) The data about learning English vocabulary using advertisement of students grade XI in MA Irtiqaiyah academic year 2015/2016.
- 2) The influence advertisement in teaching vocabulary of students grade XI in MA Irtiqaiyah academic year 2015/2016.

b. Secondary Data

The secondary data to complete the primary data in this research as follow:

- 1) Brief history of MA Irtiqaiyah Banjarmasin.
- 2) Description about English teacher's condition.
- 3) Description about the students of the eleventh grade of MA Irtiqaiyah Banjarmasin.
- 4) Description about school facilities.

2. Source of Data.

The data is collected through some sources as follow:

- a. Respondents: All the eleventh grade students (IPA & IPS) in MA.Irtiqaiyah Banjarmasin.
- b. Informant: English teacher of MA Irtiqaiyah Banjarmasin.
- c. Documents: All written resources that are needed in this research.

## **E. Technique of Data Collecting**

To collect the data in this research, the writer uses some techniques which consist of:

### **1. Test**

This research uses achievement test, a test that is used to measure the achievement of a person having learned something (Arikunto, 2002, p.143). In addition, Heaton (1975) assumes the use of test is may be constructed primarily as device to reinforce learning and to motivate the students, or primarily as assessing the students' performance in language.

This technique is used to get data about score of the pre-test and post-test was given for both of groups. The both of groups are experiment class and control class.

#### **a. Pre-test**

Before the teacher taught new material by using advertisement, the teacher gave a test to the students. Pre-test were given to the experiment class and control class. This test is given before the experiment was run.

#### **b. Post-test**

Post-test was given to the experiment class and control class. The test was given in order to know the effect of students' achievement in vocabulary by using advertisement. The post-test was given to the experiment class and control class after received

treatment. The experiment class was taught by using advertisement task and the control class without using advertisement task.

## 2. Interview

This technique is used to collect the data which is related to this research to the interviewers like the English teacher, the headmaster, and the administration staff.

## 3. Observation

This technique is used to get information about condition of school facilities and about how English learning and teaching process mainly in teaching vocabulary in general.

## 4. Documentary

This technique is purpose to look for all written document or report that related with this research. It will help the writer in doing the experiment. Students' name list and score will be used to determining for the experiment. In this case, the data will be gained by the help of the English teacher.

## **F. Design Measurement**

This design is to measure: the using advertisement to improve the students' vocabulary between the eleventh IPS class and the eleventh IPA class in MA Irtiqaiyah Banjarmasin. In this research, students will answer, they are:

1. There are 15 questions in multiple choice tests, the right answer will be marked 3.5 and wrong answer will be marked 0. If students answer all questions correctly, they will get score 52.5.
2. There are 10 questions true or false, the right answer will be marked 3.5 and wrong answer will be marked 0. If the students answer all question correctly, they will get score 35.
3. There are 5 questions rearranging the vocabularies into an exact picture test, score for right answer is 2.5 and for wrong answer is 0. If students answer all questions correctly, they will get score 12.5.

After counting up all the three aspects, the highest score will be 100 points and the lowest score will be 0 point.

#### **G. Technique of Data Processing**

All the data collected and processed data then analyzed descriptively and quantitatively by using statistical. Analyzing data in a process by which data simplified into a form can be read and interpreted easily.

1. Editing

This technique is use for re-examining all collected data to make sure whether they have already completed or not.

2. Coding

The writer makes certain codes on all collected data classify them into each category.



### 3. Tabulating

The researcher tabulates data all the collected based on the frequency computation by using the joining formula:

$$P = \frac{F}{N} \times 100\%$$

Where:

P = Percentage score

F = Frequency of the answers by respondents for each item of question.

N = Total number of respondents.

## H. Research procedure

### 1. Preliminary step

- a. To build a prior observation in this research object.
- b. To discuss the result of the pervious observation with the writer's academic advisor.
- c. To make a research design proposal to be submitted to the Tarbiyah and Teacher's Training team to have approval.

### 2. Preparatory step

- a. To hold a seminar on the research design proposal.
- b. To ask the Dean of Tarbiyah and Teacher's Training faculty for written to conduct the research.
- c. To make the instrument of data collecting.

3. Research step
  - a. To meet all respondents (students) and informants who are needed to obtain the data.
  - b. To collect all the needed data from the sources by using some techniques of data collecting.
  - c. To process the data in procedural way and then analyze them properly.
4. Organization step
  - a. To arrange and write the collected data in the first draft.
  - b. To consult it with the writer's advisor to get some comments and contributions.
  - c. To write the final draft after having approved by the writer's advisor.
  - d. To be examined before the team of the thesis examiner of Tarbiyah and Teacher's Training Faculty.

#### **I. Data Analysis Procedure**

All the collected and processed data are then analyzed descriptively and quantitatively. Data analysis is a process by which data simplified into a form can be read and interpreted easily.

Learning outcomes data in the form of vocabulary test scores and final grade classroom control experiment were analyzed by using descriptive analysis and statistical analysis. Analytic statistics used

were different test is the T test or Mann-Whitney test (test U). Prior to the first test performed statistical calculations which include the average and standard deviation, “T” test used when data normally distributed and homogeneous and “U” test is used when data normally distributed and not homogeneous, whereas the Mann-Whitney test ( U test) is used if the data are not normally distributed.

### 1. Average

According to Sudjana, to determine the qualifications of learning outcomes achieved by students can be known through an average that is formulated with:

$$\bar{x} = \frac{\sum x_i}{n}$$

Explanation:

$\bar{x}$  = the average value (mean)

$\sum X_i$  = amount of data (Sudjana, 2002, p. 67)

### 2. Standard Deviation

Standard deviation is used in calculating the value  $z_i$  on tests of normality.

$$S = \sqrt{\frac{\sum f_i(x_i - \bar{x})^2}{n-1}}$$

Explanation:

S = standard deviation

$\bar{x}$  = the average value (mean)

$\sum f_i$  = number of frequency data to-i where  $i = 1, 2, 3, \dots$

$n$  = number of data

$X_i$  =  $i$  data where  $i = 1, 2, 3, \dots$  (Sudjana, 2002, p. 95)

### 3. Normality Test

Normality test is used to determine normalcy of data distribution.

Testing normality of the data obtained using the test Liliefors role in the study with test steps as follows:

- a. Observations  $X_1, X_2, X_3, \dots, X_n$  be used as raw number  $Z_1, Z_2, Z_3, \dots, Z_n$  by using the formula  $Z_i = \frac{X_i - \bar{x}}{s}$  ( $\bar{x}$  and  $s$  respectively are the average deviation and sample standard deviation).
- b. For each of these raw numbers and use a list of the standard normal distribution, then calculated the odds  $F(Z_i) = P(Z \geq Z_i)$ .
- c. Next proposition calculated  $Z_1, Z_2, Z_3, \dots, Z_n$  are less than or equal to  $Z_i$  if the proposition expressed by  $S(Z_i)$ , then 
$$S(Z_i) = \frac{\text{number } Z_1, Z_2, Z_3, \dots, Z_n \text{ that } \leq Z_i}{n}$$
- d. Compute the difference  $F(Z_i) - S(Z_i)$  then specify the absolute price.
- e. Take the price of the largest among the absolute difference in prices, the price is referred to as  $L_{count}$
- f. To accept or reject  $H_0$ , compare  $L_{table}$  with  $L_{count}$  by using tables of critical values of test Liliefors the real level  $\alpha = 5\%$ , the criterion is: reject the null hypothesis of normally

distributed population when  $L_{count}$  obtained from observational data exceeds  $L_{table}$ . In another case the null hypothesis is accepted. (Sudjana, 2002, p. 466).

#### 4. Homogeneity test

Once the data is normally distributed, then perform a test of homogeneity. Test used was the largest variance test compared with the smallest variance using the table f. the steps of this test are as follows

- a. Calculate the largest variance and the smallest variance

$$F_{count} = \frac{\text{the largest variance}}{\text{the smallest variance}}$$

- b. Comparing the  $F_{count}$  value with the table  $F_{table}$  value, db numerator =  $n - 1$  (for the largest variance), db denominator =  $n - 1$  (for the smallest variance), with a significance level ( $\alpha$ ) = 5%

- c. Testing criteria;

If  $F_{count} > F_{table}$  is not homogeneous

If  $F_{count} \leq F_{table}$  is homogeneous (Riduan, 2005, p. 120)

#### 5. T Test

Comparison test used is the two-sample t test used to compare the (distinguishing) if the data (variables) are the same or different if the normal distribution of data is valuable. Here are the t test when data normally distributed and homogeneous.

The test measures the following:

- a. Calculating the average value ( $\bar{x}$ ) and variance ( $S^2$ ) of each sample:

$$\bar{x} = \frac{\sum f_i X_i}{\sum f_i} \text{ and } S^2 = \frac{\sum f_i (x_i - \bar{x})^2}{n-1}$$

- b. Calculate the price of t by the formula:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{(\bar{n}_1 - 1) S_1^2 + (\bar{n}_2 - 1) S_2^2}{\bar{n}_1 + \bar{n}_2 - 2} \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

Explanation:

$n_1$  = the first amount of data (treatment class)

$n_2$  = the second amount of data (control class)

$\bar{x}_1$  = the count average value the first data

$\bar{x}_2$  = the count average value of the second data

$S_1$  = the first data variance

$S_2$  = the se

cond data variance

- c. Determining the value of t on t distribution table with a significance level

$$\alpha = 5\% \text{ with } d_k = (n_1 + n_2 - 2)$$

- d. Determining criteria for testing if -  $t_{table} \leq t_{count} \leq t_{table}$

$H_0$  is accepted and  $H_a$  rejected.

Whereas if the data was normally distributed but not homogeneous, then testing using parametric statistical test, namely through the t test calculation with the following formula:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\left(\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}\right)}}$$

Explanation:

$n_1$  = the first amount of data (treatment class)

$n_2$  = the second amount of data (control class)

$\bar{x}_1$  = the count average value the first data

$\bar{x}_2$  = the count average value of the second data

$S_1^2$  = the first data variance

$S_2^2$  = the second data variance

While determining the value of t on t distribution table with significance level  $\alpha = 5\%$  with  $d_k = (n_1 + n_2 - 2)$ .  $t_{count}$

Proceed consulted on t distribution table ( $t_{table}$ ). Provisions

of the hypothesis  $H_0$  is accepted if  $t_{count} < t_{table}$ .

(Sudjana, 2002, p. 239-240).

## 6. Mann-Whitney (U test)

If the data being analyzed are not normally distributed we used the Mann-Whitney test or a test called U. according Sugiono, U test serves as an alternative to the use of parametric t test if the preconditions are not met. This technique is used to determine the significance of differences in the populations. The test measures the following:

- a. Combining these two classes of independent and given the levels in each of its members ranging from the smallest

observed values to the largest observed value. If two or more observations are the same then use the average level.

- b. Calculate the numbers of levels for each of the first and second sample are denoted by  $R_1$  and  $R_2$ .
- c. To test statistic U, is then calculated from the first sample with  $N_1$  observations,  $U_1 = N_1 N_2 + \frac{N_1(N_1-1)}{2} - \sum R_1$  or from the second sample with  $N_2$  observations.

$$U_2 = N_1 N_2 + \frac{N_2(N_2+1)}{2} - \sum R_2$$

Explanation:

$N_1$  = - number of samples in the first sample

$N_2$  = - number of samples in the second sample

$U_1$  = - U statistical test of the first sample  $N_1$

$U_2$  = - U statistical test of the second sample  $N_2$

$\sum R_1$  = number of levels in the first sample

$\sum R_2$  = number of levels in the second sample

- d. U value used is the smaller value signified by U and the larger marked with U test. Prior to testing to check whether it has obtained a U or U 'by comparing it with  $\frac{N_1 N_2}{2}$ . If the value is greater than  $\frac{N_1 N_2}{2}$  value is U and U values can be calculated:

$$U = N_1 N_2 - U'$$



- e. Comparing the U value with the  $U\alpha$  value in the table. With decision-making criteria if  $U \geq U\alpha$  then  $H_0$  accepted, and if  $U \leq U\alpha$  then  $H_0$  is rejected. Significant test for the larger (> 20) using the normal curve approaches the critical price of z as follows:

$$z = \frac{U - \frac{N_1 N_2}{2}}{\sqrt{\frac{N_1 N_2 (N_1 + N_2 + 1)}{12}}}$$

If  $-Z\alpha/2 \leq Z \leq Z\alpha/2$  with the level of real  $\alpha = 5\%$  then  $H_0$  is accepted and if  $Z > Z\alpha/2$  or  $-Z\alpha/2$  then  $H_0$  is rejected.

**Note:**

The writer will account manually and using SPSS version 19. It can be seen in chapter IV and the detail in appendices.