

## **BAB III**

### **RESEARCH METHOD**

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

This is a field research which conducted by going directly to the field to examine the application of Extensive Reading technique in improving vocabulary for eleventh grade students of MAN 2 Pulang Pisau. The data obtained are quantitative data, which are in the form of numbers and analyzed statistically, thus this study is included in quantitative research. According to Saifuddin Azwar (2005), "research with a quantitative approach emphasizes its analysis on numerical data (numbers) processed by statistical methods"

The method used in this research is the experimental method. According to Nazir (2003), the experimental method is observation under artificial conditions and regulated by the researcher. Experimental research is a research controlled by manipulating the object of research and the control classes are treated differently. The aim is to find out whether there is a significant difference in the effect of the different treatments both in experiment class and control class.

## B. Population and Sample

### 1. Population

The population of this research were the eleventh grade students of MAN 2 Pulang Pisau, who are divided into four classes. In this grade, the amount of students are 91 students. To know clearly about the population, it can be seen in the following table :

Table 3.1 The Distribution of Population from the Eleventh Grade Students of MAN 2 Pulang Pisau in Academic Year 2018/2019.

No	Class	Sex		Total
		Male	Female	
1	XI IS 1	12	10	22
2	XI IS 2	11	10	21
3	XI MIA 1	10	14	24
4	XI MIA 2	7	17	24
<b>Total</b>		45	55	91

Resource: The document of MAN 2 Pulang Pisau academic year 2018/2019

### 2. Sample

In this research sample was taken as a part of population that was considered representative. The writer chose XI MIA 1 with 24 students as the sample to observe by using purposive sampling in

experimental class and XI MIA 2 with 24 students as the sample of control class. They consist of 48 students as seen in the next table

Table 3.2 Frequency Distribution of Students' Sample

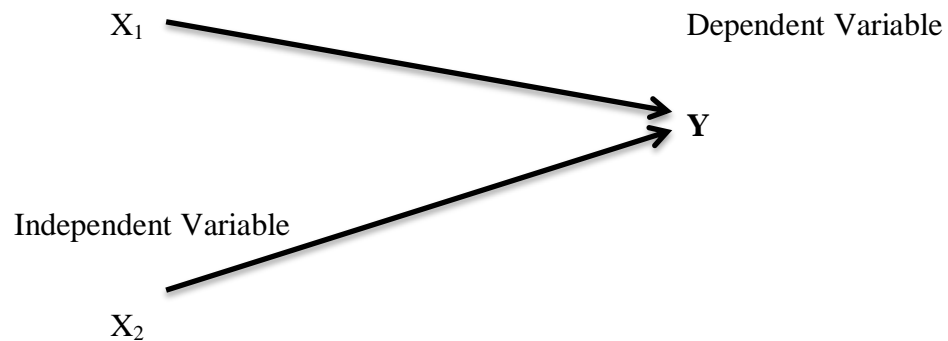
No	Class	Sex		Total
		Male	Female	
1	XI MIA 1	10	14	24
2	XI MIA 2	7	17	24
<b>Total</b>		17	31	48

### C. Research Variables

The variables in this study are of two types, namely the dependent variable and the independent variable. The dependent variable in this study was the learning outcomes of students in English subjects. While the independent variable in this study was the use of extensive reading techniques to increasing students' vocabulary in English subjects. The relationship between the two variables can be seen from the following scheme:

### SCHEME

Independent Variable



Explanation:

$X_1$  : The used of extensive reading technique

$X_2$  : The used of conventional model

$Y$  : Learning outcome of students in XI MIA 1 and MIA 2

### **D. The Techniques of Data Collecting**

The most important thing in the research is collecting the data that can determine the result of the research. Some techniques used in collecting data in this research were:

## 1. Test

Widiyoko (2016,p.2) Test as the number of questions that require answers or a number of questions that must be responded to with the aim of measuring a person's ability level or revealing certain aspects of the person subject to the test.

Tests are used to measure the level of a person's ability to achieve the goal or target.

### a. Pre-Test

The writer gave the pre-test to the students. The pre-test was in objective test form. Consisting of 20 questions. The writer gave the questions to the number of students before the measured was given.

### b. Post-Test

The writer also gave the post-test after the treatment had been done by teaching reading in extensive technique to developing vocabulary students. The items of the post-test were the same as that pre-test.

There is important question about the instrument of the test. Is the test valid or not? To know how valid it is, the writer did try out of the test to other students who were not the sample that is, the eleventh grade students at MAN 3 Banjarmasin . Also the writer asked the first advisor and the English teacher to recheck the validity and what they think of the content and design of the

test. Their opinions are important because they have a lot experiences with the test. Beside asking the first advisor and teacher, researcher also used the SPSS application.

## 2. Non Test

### a. Document

Documentation is a record of past events. Documentation can be in the form of writing, drawing or monumental works from someone, says Sugiyono (2013, p. 240). Documentation is another way to obtain respondent data.



## **F. The Instruments of the Study**

### **1. Development of research instruments**

#### **a. Preparation of learning outcomes instruments (tests)**

The preparation of this instrument is carried out by observe the several things as follow:

1. Questions refer to the curriculum used
2. The items of the question is matching and completing word
3. Measuring instruments used to fulfill the validity and reliability

#### **b. Instrument non Test of Learning Outcomes**

The non-test instruments used were documentation and interviews. Interviews were conducted by giving questions given to informants relating to the condition of school and school activities. The documentation requires documents that are in school, digital cameras as a documentation tool during the learning process and used in the pre-test and post-test.

### **2. Testing Instrument Test**

According to Abdullah ( 2012, p. 76) "valid and reliable are the two main criteria that are characteristics of a good instrument". Therefore before the data collection is done the trial is carried out to find out the validity and reliability of the questions being tested.

#### **a. Validity**



Instrument is said to be valid if the instrument can precisely measure what will be measured. To determine the validity of the pre-test and post-test items, there is a testing phase by calculating the validity of each item. Basic decision making in the validity test uses the product moment correlation formula was used as follows

If  $r_{\text{count}} > r_{\text{table}}$  pada in significant 5% then it is valid

If  $r_{\text{count}} \leq r_{\text{table}}$  in significant 5%, then it is not valid

Validity test is carried out by product moment correlation formula. Product moment correlation formula, namely:

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

Explanation:

$R_{xy}$  = Correlation coefficients between variables X and Y

N = amount of respondent

X = students score in an item

Y = scores of students on all items

#### b. Reliability

Eko (2016, p.252) state instruments are said to be reliable if they provide consistent results if tested many times. Reliability can be determined by the Alpha formula, namely:

$$r_i = \left( \frac{n}{n-1} \right) \left( 1 - \frac{\sum s_i^2}{\sum s_t^2} \right)$$

Explanation:

$R_{11}$  = instrument reliability

$N$  = lots of questions or lots of question

$\sum S_i^2$  = item variance number

$S_i^2$  = Total variance

To give interpretation through  $r_{11}$  so that  $r_{11}$  which can be compared to  $r_{table}$  with significant 5%. If  $r_{11} \geq r_{table}$  then the item is reliable.

c. Validity and reliability used SPSS 22 for windows

According to Wiratna (2014, p.194-198) the steps used to measure the validity of the items and the reliability of the questions using SPSS 22 as follows:

### 1) Enter data into SPSS

- Open a new worksheet click File-New-Data
- Displays the variable view to prepare input names and variable properties.

### 2) Fill in the data

After the variable name is defined, the next step is to fill in the data for that, return the Data View feature. Fill in the data

### 3) Save Data

- From the SPSS main menu, select the File-Save As menu
- Give the file name for uniformity with the name Validity and Reliability and place the file in the desired place.

### 4) Processing data

- Click the Analyze-Scale-Reliability Analysis menu
- Input p1, p2, p3, p4, p5 into the Items box
- Click Statistics
- Mark ✓ on Scale if items deleted
- Click Continue
- Click Ok

### 5) Save the output results

## d. The Result of Try Out

Before conducting research, researchers first conduct a test instrument test. The trial was conducted in class IX of MAN 3 Banjarmasin with the number of trial participants 35 students. The trial held on Wednesday, October 3, 2018. The test instrument consists of 40 items. From the test results, the data obtained are then calculated for validity and reliability of the test instruments

Based on the results of the calculation of the validity and reliability of the test instruments that have been proposed, to determine the instruments used in this study, valid and reliable items will be selected from the question. The results of the calculation of validity and reliability can be seen in the following table:

Tabel 3.4 Validity and Reliability of Questions Try Out

Item-Total Statistics					
Item	R table	R count	Validity	R 11	Reliability
1	2	3	4	5	6
Question_1	.349	.643	Valid	0.831	Reliable
Question_2	.349	.181	Not Valid	0.831	Reliable
Question_3	.349	.367	Valid	0.831	Reliable
Question_4	.349	.118	Not Valid	0.831	Reliable
Question_5	.349	.695	Valid	0.831	Reliable
Question_6	.349	.084	Not Valid	0.831	Reliable
Question_7	.349	.589	Valid	0.831	Reliable
Question_8	.349	.297	Not Valid	0.831	Reliable
Question_9	.349	-.089	Not Valid	0.831	Reliable
Question_10	.349	.081	Not Valid	0.831	Reliable
Question_11	.349	.589	Valid	0.831	Reliable
Question_12	.349	.445	Valid	0.831	Reliable
Question_13	.349	.576	Valid	0.831	Reliable

Question_14	349	.402	Valid	0.831	Reliable
Question_15	349	.510	Valid	0.831	Reliable
Question_16	349	.461	Valid	0.831	Reliable
Question_17	349	.576	Valid	0.831	Reliable
Question_18	349	.537	Valid	0.831	Reliable
Question_19	349	.309	Not Valid	0.831	Reliable
Question_20	349	.130	Not Valid	0.831	Reliable
Question_21	349	.113	Not Valid	0.831	Reliable
Question_22	349	.073	Not Valid	0.831	Reliable
Question_23	349	.236	Not Valid	0.831	Reliable
Question_24	349	.308	Not Valid	0.831	Reliable
Question_25	349	-.168	Not Valid	0.831	Reliable
Question_26	349	.433	Valid	0.831	Reliable
Question_27	349	-.479	Not Valid	0.831	Reliable
Question_28	349	.608	Valid	0.831	Reliable
Question_29	349	.370	Valid	0.831	Reliable
Question_30	349	.061	Not Valid	0.831	Reliable
Question_31	349	.062	Not Valid	0.831	Reliable
Question_32	349	.333	Valid	0.831	Reliable
Question_33	349	.610	Valid	0.831	Reliable
Question_34	349	.402	Valid	0.831	Reliable
Question_35	349	.355	Valid	0.831	Reliable
Question_36	349	.455	Valid	0.831	Reliable
Question_37	349	-.006	Not Valid	0.831	Reliable
Question_38	349	.607	Valid	0.831	Reliable
Question_39	349	.254	Not Valid	0.831	Reliable
Question_40	349	.459	Valid	0.831	Reliable

based on the results of the validity and reliability of the question, it can be concluded, from the 40 questions that meet the criteria for the validity and reliability test is number 1, 3, 5,7, 11, 12, 13, 14, 15, 16, 17, 18, 26, 28, 29, 32, 33, 34, 35, 36, 38, 40.

Therefore, questions that meet the criteria for good questions can be used as research instruments totaling 22 questions. However, the questions

used as test instruments in the study were only 20 questions out of 22 questions that met these criteria, namely the number are 1,3,5,7, 11, 12, 13,15, 16, 17, 26, 28, 29, 32, 33, 34, 35, 36, 38, 40.

#### e. Criteria for Scoring Instruments

The written test was divided into pre-test and post-test, the writer give a pre-test in the first meeting and post-test in the last meeting. The writer has designed ten items for objective test. The pre-test work sheet consists of 20 items, for each question has score 5 points while the wrong answer gets 0. If the students can answer all correctly, they will get score 100 points. The writers used the matching format test and fulfill completion to measure the students' abilities in vocabulary.

Criteria for giving a score on assessment of learning outcomes from test could be counted with the formula:

$$\text{Value of student} = \frac{\text{acquisition score}}{\text{ideal maximum score}} \times 100$$

After getting the grades of students, that value will be clarified with the category as suggested by David P, Haris (1469,p.134). The following table shows the categories

Table 3.5 The Categories of Students' Mastery in Vocabulary

NO	Score	Category
1	80-100	Very good
2	70-79	Good
3	60-69	Fair
4	50-59	Poor
5	0-49	Very poor

### G. The Technique of Data Analysis

The data of the study results are the final test scores which are analyzed by using descriptive statistics and analytic statistics.

Descriptive statistics is a method relating to the collection and presentation of data clusters so as to provide useful information. The descriptive report on this research includes mean, standard deviation and varians.

The analytic statistics were also used, that is *t test* or *Mann-Whitney test (U Test)*. Prior to conducting the test, statistical calculations were performed, including mean and standard deviation. The *t test* is used when the data is normally distributed and homogeneous, while the *Mann-Whitney test (U Test)*

is used if the data is not normally distributed. There were some steps to use in statistics analysis in this research , starting from mean, standard deviation, normality test, homogeneity test, and using t-test.

The data analysis in this study used SPSS 22 assistance. The data analysis was carried out through the following stages:

#### 1. Mean

According to Sudjana (2002), the qualifications of learning achievement achieved by students can be known through the mean formulated by:

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

$\bar{x}$  = Mean

$\sum f_i x_i$  = number of multiplication results between each data with its frequency

$\sum f_i$  = Number of data



## 2. Standard Deviation

Standard deviation is used to count on the normality test as follows:

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

Explanation:

S = Standard deviation

$\sum f_i x_i$  = number of multiplication results between each data  
with its frequency

n = the amount of data

## 3. Variance

The sample variance is used in the calculation of the homogeneity test and t test. According to Sugiyono (2013, p. 57), to calculate the sample variance, the formula is used:

$$S = \sqrt{\frac{\sum f(X - \bar{X})^2}{n - 1}}$$

Explanation:

$S^2$  = variance sample

Hasbi Assidqi ( 2015,p 21-23) said the steps used to calculate the mean, standard deviation, and variance using SPSS 22 as follows:

a. Enter data into SPSS

- Open the worksheet, click File-New-Data
- Displays the view variable to prepare the input name and variable property.

b. Fill in the data

after the variable name is defined, the next step is to fill in the data and values of the students. For that, return to the view in Data View.

c. Processing data

- Select Analyze-Descriptive Statistics-Explore
- Then move the Student's Value in the Dependent List box and Class

List box

- On Display, select Statistics
- Click Ok.

d. SPSS Output and Analysis

#### 4. Normality test

Normality test is used to know the normal distribution of data. The formula used to calculate  $X^2$  is:

$$X^2 = \sum \frac{(f_0 - f_e)}{f_e}$$

$X^2$  = Chi-Square Value

$f_0$  = Frequency being observed

$f_e$  = Expected frequency

If  $F_{\text{count}} > F_{\text{table}}$  then the data are not normal. If  $F_{\text{count}} \leq F_{\text{table}}$ , then the data are normal

#### 5. Homogeneity Test

After the data is normally distributed, then the homogeneity test is done. The test used to see the largest variance test compared to the smallest variance using table F. The test steps are as follows

- a. Calculate the largest variance and the smallest variance

$$F_{\text{hitung}} = \frac{\text{varians terbesar}}{\text{varians terkecil}}$$

- b. Compare the value of  $F_{\text{count}}$  with value  $F_{\text{table}}$

db numerator =  $n-1$  (for largest variance)

db denominator =  $n-1$  (for smallest variance)

Significant level ( $\alpha$ ) = 5 %

c. Testing criteria

If  $F_{\text{count}} > F_{\text{table}}$  then it is not homogeneous

If  $F_{\text{count}} \leq F_{\text{table}}$  then it is homogeneous

The steps of normality and homogeneity test using SPSS 22 as follows:

a. Enter data into SPSS

- Enter a new worksheet click File-New-Data
- Displays the view variable to prepare the input name and variable property

b. Fill in the data

After the variable name is defined, the next step is to fill in the data and values of the students. For that, return to the view in Data View.

c. Processing data

- Select Analyze-Descriptive Statistics-Explore

- Then move the Student's Value in the Dependent List box and Class

List box

- then click Display Plots

- Then click None in the Boxplots column

- Click Normality Plots with Tets on the display

- Click Power Estimation in the Spread vs. Level with Levene Test column

- Then click Continue

- Click Ok

a. SPSS Output and Normality Analysis

If Sig. > 0,05 then data received

If Sig. < 0,05 then data is not received

6. T- Test

Comparative test is two pair samples t-test was used to compare (differentiate) whether the two data (variables) are the same or different. The test steps as follows:

a. Calculate the mean value  $(\bar{x})$  and variance ( $S^2$ ) every sample:

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

b. Calculate the price of t with the formula:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2} \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

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

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

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

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

$s_1^2$  = variation of the first data

$s_2^2$  = variation of the second data

c. Determine the value of t on the distribution table t with the level of significance  $\alpha = 5\%$ . with  $d_k = (n_1 + n_2 - 2)$

d. Determine the test criteria if  $-t_{\text{table}} \leq t_{\text{count}} \leq t_{\text{table}}$  then  $H_0$  is accepted and  $H_a$  is rejected. Ridwan ( p, 214-215)

According to Hasby (2015, p.36-38), the steps using SPSS 22 in the t-test are:

a. Enter data into SPSS

- Open a new worksheet click File-New-Data
- Displays the view variable to prepare the input name and variable property

b. Fill in the data

After the name of the variable is defined, the next step is to fill in the value data. For that, return the appearance of Data View.

c. Processing data

- Select Analyze Means-Independent Sample T-Test
- Then move the Value of the students in the Test Variables box and

d. Class to the Variable Grouping box

- Then click Display Define Group
- Then click Continue so that it returns to the independent sample T-Test dialog box
- Click Ok

e. SPSS Output and T-Test Analysis

If Sig. > 0,05 then  $H_0$  acceptable

If.  $< 0,05$  then  $H_0$  not acceptable

### **A. Preparation**

Before conducting research, the first step taken by researchers is preparation of research, so there are no obstacles when conducting field research. Research preparation includes:

- a. Test the validity and reliability of the question
- b. Request a research permit to the Dean of the Tarbiyah and Teacher's Training Faculty along with the Head of Ministry of Religious Affairs of Pulang Pisau Regency
- c. Consult with the learning teacher to arrange a meeting schedule
- d. Arrange lesson plans and questions for pre-test and post-test

### **B. Research Procedure**

The procedure of this study is divided into several stages, namely:

1. Planning Phase
  - a. Scoping the research location in consultation with the principal of MAN 2 Pulang Pisau
  - b. After determining the problem, the writer consulted with the academic supervisor and then made a proposal design
  - c. Propose the design of the proposal
2. Preparation phase



- a. Hold a thesis proposal design seminar
- b. Request a research letter to the Dean of the Tarbiyah and Teacher Training Faculty
- c. Submit a research letter to the school concerned and consult with the teacher to arrange the research schedule
- d. Arrange teaching material that will be taught for experiment class and control class
- e. Arrange Lesson Plan.

### 3. The Implementation Phase

- a. Do the Research
  - Carry out the final test on the experiemen class and the control class
  - Processing the data that has been collected
  - Do data analysis
  - Conclude the results of the study
- b. The Reporting Preparation Phase
  - reparation of research results in the form of a thesis
  - Consult with the thesis supervisor