

## CHAPTER III

### RESEARCH METHODOLOGY

#### A. Research Design

In carrying out the research, it is necessary to describe the method used to achieve the goal. In this research the researcher intended to find out whether effective to teaching reading comprehension on narrative text by using PORPE or not in SMAN 04 Sungai Raya in the academic year 2016/2017, the researcher used quantitative research. Lodico, *et al* (2010: 24), “All quantitative research approaches summarize results numerically and this research draws on a principle of scientific realism that there is a single reality that can be describe by numbers.” It means that the result of quantitative approach can be analyzed and explained by the numbers.

This research conducted in the form of One group Pre-test and Post-test. According to Ary, *et al* (1972: 247) the one-group design usually involves three steps: (1) administering a pretest measuring the dependent variable; (2) applying the experimental treatment X to the subjects; and (3) administering a posttest again measuring the dependent variable.

**Table 3.1 Design of Research**

Pretest	Independent Variable	Posttest
O <sub>1</sub>	X	O <sub>2</sub>

(Cohen *et al*, 2005: 213)

Where:

O<sub>1</sub> : Students' score before given the treatment

X : Treatment

O<sub>2</sub> : Students' score after given the treatment

## B. Research Population And Sample

### 1. Population

The larger group to which one hopes to apply the results is called the population. According to John and Cheryl (2004: 5), "Population means all of an object, material, or area, for example, that is under investigation or whose properties need to be determined." In this research, the population is the eleventh grade students of SMAN 04 Sungai Raya in academic year 2016/2017.

There are classes of the eleventh grade; XI IPA and XI IPS with the total number of population in this research were 69 students. The distribution of the population is depicted by the table below:

**Table 3.2**

**Table 1.2 The numbers of the students for each class**

No	Class	Total of Students
1	XI IPA	35
2	XI IPS	34
	Total	69

*Taken from: Administration of SMA Negeri 04 Sungai Raya*

### 2. Sample

A sample is a smaller group selected from a larger population that is representative of the larger population. In this research, XI IPA selected to be the sample by using the sampling technique.

According to Fraenkel and Wallen (2009: 90), Sampling refers to the process of selecting these individuals. The sampling that used is cluster random sampling. The researcher used cluster random sampling to choose the sample. The selection of groups, or clusters, of

subjects rather than individuals is known as cluster random sampling (Fraenkel and Wallen, 2009: 95). In this technique, the researcher first prepared a piece of paper and then split or divided the paper into two pieces. Each of the pieces was given name codes namely XI IPA and XI IPS. After that the researcher put the pieces into a small box and then shuffled the box to finally pick one of the pieces out the box. A piece of the papers was picked up and selected to be the sample of the experiment class.

### **C. Technique And Tool of Data Collection**

#### **1. Technique of collecting data**

To conduct the research, the researcher applied the measurement technique to collect data in this research to measure the students' achievement in reading passage by using PORPE. Kothari (2004: 69) state that measurement technique is the process of assigning numbers to objects or observations, the level of measurement being a function of the rules under which the numbers are assigned. The measurement given twice. First, pre-test was conducted to collect the data before treatment held, therefore the researcher can figure out the students' precondition before treatment. The second one is post-test to collect the data after an experimental treatment. The result of pre-test and post-test measured by using formula in order to figure out the significant of interval score of pre-test and post-test.

## 2. Tool of Collecting Data

To conduct the research, the tool of data collecting is test. According to Ary, *et al* (2010: 201) tests are valuable measuring instruments for educational research. The researcher applied written test in the form of multiple choice consist 30 items for each test, the kind of test is multiple choice test with five options. The student asked the answer question by crossing the letter a, b, c, d, or e. The test was conducted for pre-test and post-test.

Moreover, before the instrument used as the tool of collecting the data, the researcher was measured its validity of the test. Validity is clearly the most important criteria for the quality of an instrument or test. In order to check the validity of the instrument, the researcher checked the test items by asking a validator to check the content validity of the test.

According to Muijs (2004:66), "Content validity refers to whether or not the content of the manifest variables (e.g. items of a test or questions of a test) is right to measure the latent concept (self-esteem, achievement, attitudes,...) that the researcher are trying to measure." Actually, the researcher asked the lecturer of IKIP-PGRI Pontianak as a validator to check the content validity that was determined whether the test is valid or not.

#### D. Data Analysis

The analysis related to the computation of the data and hypothesis testing presented. The researcher done the following analysis concerning to the problem formulations to analyze the data to find out whether teaching reading comprehension on narrative text by using PORPE is effective or not.

##### 1. Students' individual score

To analyze the individual score of each student, the researcher was applied the formula of individual's score as Cohen *et al* (2005: 207) is state as follow:

$$X = \frac{R}{N} \times 100$$

Where:

- X : Students' individual score
- R : Students' test score
- N : Total number of scoring items
- 100 : Maximum score

##### 2. Mean score

To analyze the average score of the students, the researcher applied the formula of mean score. The mean scores is the sum of the individual score divided by the total number of individual, as Frankel and Wallen (2009: 192) is state as follow:

$$\bar{X}_1 = \frac{\sum X_1}{n}$$

$$\bar{X}_2 = \frac{\sum X_2}{n}$$

Where:

- $\bar{X}_1$  : The mean score of pre-test  
 $\bar{X}_2$  : The mean score of post-test  
 $\sum X_1$  : Total of students' raw score value of pre-test  
 $\sum X_2$  : Total of students' raw score value of post-test  
 $n$  : Total number of score

### 3. Standard deviation

To measure the degree of the score group is deviated from the mean, the researcher used the formula of standard deviation. The standard deviation is the average distance between each of the scores in a distribution and the mean. The formula of standard deviation as Lodico *et al* (2006: 393) is state as follow:

$$S_D = \sqrt{\frac{\sum(X-\bar{X})^2}{N-1}}$$

Where:

- $X$  : Means each score,  
 $\bar{X}$  : Means the mean, and  
 $N$  : Means the number of scores.

### 4. Normality Test

In this research, the normality of data is needed to determine whether or not the data of the pretest and posttest is distributed normally. The formula of normality data, the researcher used one sample Kolmogorov-Smirnov Test by SPSS (Statistical Product and Service Solution) version 22. The data is consider normal if the score of probability of normality test by Kolmogorov-Smirnov is higher than 0,05 (p value > 0,05). Yet, if the score of probability of normality

test by Kolmogorov-Smirnov is low than 0,05 (p value < 0,05), its mean the data is not normal.

5. The analysis of students' significance on interval score of pretest and posttest

To find out whether there was a significant difference between the averages value of the same measurement made fewer in two different conditions and also to answer the research problem number one, the researcher used t-test formula by SPSS (Statistical Product and Service Solution) version 22. Yet, to find out the effectiveness of PORPE in teaching reading comprehension on narrative text, the statistical hypothesis was needed, as follows:

- a.  $H_0$ : teaching reading comprehension on narrative text by using PORPE is not effective.
- b.  $H_a$ : teaching reading comprehension on narrative text by using PORPE is effective.

After the score of  $t_{count}$  has counted, then the researcher compared the result of  $t_{count}$  and  $t_{table}$ . There are two assumptions as follows:

- a. If the result of  $t_{count}$  was bigger than  $t_{table}$ , it meant that the null hypothesis ( $H_0$ ) was rejected and alternative hypothesis ( $H_a$ ) was accepted. Hence, PORPE is effective in teaching reading comprehension on narrative text.
- b. If the result of  $t_{count}$  was smaller than  $t_{table}$ , it meant that the null hypothesis ( $H_0$ ) was accepted and alternative hypothesis ( $H_a$ ) was

rejected. Hence, PORPE is not effective in teaching reading comprehension on narrative text.

6. Analysis the effect size of the treatment

To know the significant effect of the treatments, the researcher compared the mean  $X_2-X_1$  to determine whether the treatments have different effect on the students. If the score different is homogeneous and natural, then it examined the influences of the treatments, t-test is used to analyze the treatment influence. The next stage is analyzing the effect of the treatments, which is called Effect Size.

The effect size is measure of the effectiveness of the treatment. According to Creswell (2012: 188) effect size can be used to find out strength in population differences or relationship between variable that exist. The formula of effect size as Fraenkle and Wallen (2009: 244) is state as follow:

$$ES = \frac{\bar{X}_2 - \bar{X}_1}{SD}$$

Knowing:

$\bar{X}_1$  : Mean of pre-test  
 $\bar{X}_2$  : Mean of post-test  
 $SD$  : Standar Deviation

After measuring the students' performance test, the size effect of the treatment, the researcher determined the size effect category of the treatment. The category of the effect size classified as follows:

<b>Effect Size</b>	<b>Qualification</b>
ES 0-0.1	Weak
ES 0.1-0.3	Modest
ES 0.3-0.5	Moderate
ES > 0.5	Strong

*Muijs (2004: 195)*

Based on the category above, the higher of the effect size value, the highest the effectiveness of the teaching reading comprehension on narrative text by using PORPE.

### **E. Procedure of Research**

The procedure of this research involved three steps there are pre-test, treatment, and post-test.

#### 1. Pre-test

The purpose of pre-test is to measure the students' reading comprehension before given the treatment. Pre-test was given at July 22<sup>nd</sup> to 35 students.

#### 2. Treatment

In this stage, the researcher applied PORPE in teaching reading comprehension on narrative text as many as three times. For the first treatment was given at July 29<sup>th</sup>, and for the second treatment was given at August 4<sup>th</sup>, and for the last treatment was given at August 5<sup>th</sup>.

The treatment class was XI IPA class.

#### 3. Post-test

The purpose of post-test is to measure the effectiveness of PORPE in teaching reading comprehension on narrative text after the treatment was given. Post-test was given at August 11<sup>st</sup>.