

## **CHAPTER III**

### **RESEARCH METHODOLOGY**

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

Research can be defined as a problem-solving process. The research design that will be applied in this research is experimental. Singh, (2006: 135) states that the experimental method is a scientific method that is future-oriented in the sense that the researcher trying to evaluate something new. This is the process of contributing to an acquired knowledge. The type of experimental research that will be used by the researcher in this study is pre-experimental research using a one-group pre-test and post-test design. The pre-test is a test given before the experimental treatment to see if the groups are equal, the groups are then given a post-test with the same alternative test form, while the post-test is a test given after the experimental treatment (Lodico, Spaulding, and Voegtler, 2010:228).

In this study, the researcher would take one class to determine the students speaking abilities. The researcher would give a pre-test before giving treatment and after that, the researcher would give treatment to the students to determine the effectiveness of the retelling of animated video in teaching speaking ability. After that, the researcher would give a post-test to the students to find out the results before and after being given treatment with the same test there will be a speaking test rubric. The reason for choosing this strategy is to find out whether the strategy to be used in this study is effective or not.

According to Ary et al (2010: 303), it is stated that: One group pre-test and post-test designs usually involve three steps: (1) Giving a pre-test measuring the dependent variable; (2) Applying experimental treatment X to the subject, and (3) Administering a post-test, again measuring the dependent variable. Furthermore, to explain how the design will work, the researcher will adopt the experimental design by Ary et al (2010: 304), as follows:

**Table 3.1**  
**One Group Pre-Test and Post-Test**

Pre-Test	Treatment	Post-Test
$Y_1$	X	$Y_2$

*Adapted from Ary et al (2010:304)*

$Y_1$  = will be applied to determine the student's average score before being given treatment. Then, X = is represented as treatment.  $Y_2$  = will be applied to measure student learning after being given treatment. Pre-experiment has no control group. The effect of the experimental treatment can be seen by looking at the average score between the pre-test and post-test. In this study, the researcher tried to investigate the effectiveness of the retelling animated video in teaching speaking skills to the ten graders of SMK Negeri 1 Pontianak.

## **B. Population, Sample, and Sampling**

### **1. Population**

A population is a group of individuals who have one or more characteristics from which data can be collected and analyzed. According to Singh, (2007: 88), states that a population is a group of individuals, objects, or items from which samples are taken to be measured. The population in this study were all students of class ten graders of SMK Negeri 1 Pontianak. The total population was students who were divided into eleven classes, namely.

**Table 3.2**  
**Population Table**

No	Class X SMK N 1 Pontianak	
1	X MPK 1	30 Students
2	X MPK 2	30 Students

<b>3</b>	<b>X BID 1</b>	33 Students
<b>4</b>	<b>X BID 2</b>	30 Students
<b>5</b>	<b>X AKL 1</b>	31 Students
<b>6</b>	<b>X AKL 2</b>	30 Students
<b>7</b>	<b>X AKL 3</b>	35 Students
<b>8</b>	<b>X AKL 4</b>	30 Students
<b>9</b>	<b>X AKL 5</b>	30 Students
<b>10</b>	<b>X HTL</b>	30 Students
<b>11</b>	<b>X UPW</b>	30 Students

*Taken from: Administration of SMK Negeri 1 Pontianak*

## **2. Sample**

The sample is part of the population that shows the entire population. According to McMillan (1996:86), the sample is a group of elements, or one element, from which data is obtained. Supported by Weiss (2007:4), said that the sample is part of the population from which information is obtained. Therefore, in this study, the researcher will take one sample to be observed randomly using cluster random sampling.

## **3. Technique of Sampling**

Sampling is the basis of all statistical techniques and statistical analysis. In cluster sampling the sample unit contains a group of elements (cluster) not individual members or items in the population (Singh, 2006:89). In this study, the researcher will take cluster random sampling, in which the researcher will choose only one class at random to make population restrictions.

Cluster random sampling is a type of sampling where each item in the population has the same chance of inclusion in the sample and each possible sample, in the case of a finite universe, has the same probability of being

selected, (Kothari, 2004: 15). In this technique, the number of students should not be less than 30 participants. Cohen et al (2007:101) mention that “a sample size of thirty is considered by many to be the minimum number of cases if researchers plan to use some form of statistical analysis on their data, although the number is very small and we would suggest very much more.”

The researcher would prepare a sheet of paper and divide the paper into seven parts, then write each paper with the codes, namely; X MPK 1, X MPK 2, X BID 1, X BID 2, X AKL 1, X AKL 2, X AKL 3, X AKL 4, X AKL 5, X HTL , and X UPW. After that, the researcher would shuffle and take one of the papers from a container as a draw the class that would be selected is the class that is written on the paper to represent the population.

## **C. Techniques and Tools of Data Collection**

### **1. Techniques of Data Collection**

In this study, the researcher would use measurement data collection techniques. "Measurement techniques is a process of mapping aspects of a domain into other aspects of a range according to some correspondence rules" (Kothari, 2004: 69). On the same note, Creswell (2012:623) states that "measurement means that the researcher observes and records scores on an instrument". This measurement technique is intended to measure changes in students' speaking abilities before and after the treatment of retelling animated video.

### **2. Tools of Data Collection**

Data collection tools are tools used by the researcher to collect data. Based on Ary et al (2010: 201) states that "the test is a set of stimuli presented to an individual to obtain a response based on which a numerical score can be given". The researcher would use an oral test as a data collection tool that will be given in the pre-test and post-test to collect student scores and measure students' speaking ability. Pre-test and Post-test designs are experiments in which measurements are taken before and after

treatment Because the test is valid as a data collection tool, the researcher will check the test items by asking the validator to check the content of the test to determine the test and use the readability test. The validator to check the items is the lecturer of the English Language Study Program, IKIP PGRI Pontianak.

#### **D. The Technique of Data Analysis**

In this research, the researcher would use statistical analysis to find out the answers to the research questions and to test the research hypotheses, data analysis procedures are needed. The data analysis technique uses statistics that are quantitative, so it can be called statistical analysis or statistical inference analysis. Statistics is an inference or deductive inference to an observed event by analyzing sample data. Numerical data were entered and analyzed using a windows-based program, Statistical Package Statistics for Social Sciences (SPSS) 16. Data analysis techniques in this study are as follows:

##### 1. Analysis of Students' how to calculate Readability

In order to analysis of students' how to calculate readability, the researcher would use the following formula:

$$X\% = \frac{n}{N} \times 100\%$$

Where:

X% = the result of a percentage

n = the total number of students who said Yes/No

N = the total number of students in observation

*Adopted from Ary et al (2010:176)*

##### 2. Analysis of Students' Individual Scores in Pre-Test and Post-Test.

In order to analyze the students' individual scores, the researcher would use the following formula:

$$X1 = \frac{A1}{N1} \times 100$$

Where:

X1 : The students' individual score

A1 : Number in the scoring rubric (P+F+G+V+C)

P : (Pronunciation), F (Fluency), G (Grammar), V (Vocabulary), C  
(Comprehension)

N1 : Total number of scoring item (Maximal 25)

*Adapted from Cohen et al (2007:423)*

### 3. Analysis of Students' Mean Score of Pre-Test and Post-Test

The mean is the average score that students get from the test. To analyze the students' average scores, the researcher would use the following formula:

$$X = \frac{\sum x}{N}$$

Where:

X = is the mean score

$\sum$  = means "the sum of"

x = is an individual score in the distribution

N = the number of scores in the population

*Adapted from Cohen et al (2007:338)*

**Table 3.3**

#### **Means Score Classifications**

<b>Test Score</b>	<b>Classification</b>
80.0 – 100.0	Excellent
70.0 – 79.0	Good
60.0 – 69.0	Average
50.0 – 59.0	Poor
0.0 – 40.0	Very Poor

*Adapted from Cohen et al (2007:338)*

a. Analysis of the Students' Interval Score of Pre-Test and Post-Test

After calculating students' means scores on Pre-Test and Post-Test, the researcher would be calculated students' interval scores on Pre-Test and Post-Test, the researcher would use the following formula:

$$\bar{D} = X_2 - X_1$$

Where:

$D$  = Students' Interval Score of Pre-Test and Post-Test

$X_2$  = Students' Mean Score of Post-Test

$X_1$  = Students' Mean Score of Pre-Test

*Adapted from Cohen et al (2007:423)*

b. Standard Deviation

The standard deviation is a measure of variability that indicates the number of mean scores that vary from the mean. To analyze the students' standard deviation, the researcher would use the formula below:

$$SD = \frac{\sqrt{\sum d^2}}{N - 1}$$

Where:

SD = Standard

$d^2$  = the deviation of score from the mean (average)

$\sum$  = the total value of

N = the number of the subject

*Adapted Cohen, Manion and Morrison (2007: 512)*

c. Testing Hypothesis

To analyze whether the material test is effective or not, the researcher would use computer software SPSS Ver. 16.0. T-test, if the Kolgomorov-Smirnov test results are normal, the researcher continues the t-test for the dependent sample. T-test for the dependent sample is a test used to compare the sample mean before and after treatment. Ary, et al (2010:176) state that in the t-test for the dependent sample the size to be analyzed by the dependent test is the average difference between paired scores. The pre-test

and post-test scores of the same individual are examples of paired scores." The formula that the researcher would use for the t-test for the dependent sample is:

$$t - test = \frac{\bar{D}}{\sqrt{\frac{\sum D^2 - \frac{(\sum D)^2}{N}}{N(N-1)}}$$

Where:

$t$  = t ratio

$D$  = average difference

$\sum D^2$  = different scores squared, then summed

$(\sum D)^2$  = different scores summed, then square

$N$  = the number of the element in a sample

*Adapted from Ary et al (2010:177)*

Furthermore, to answer the first research question, whether the retelling animated video is effective or not, the researcher would use the t-value of the two t-tests. If the value of the t count is greater than the t table, it means that the retelling animated video is effective and  $H_a$  is accepted. If the value of the t count is less than the t table, it means that the learning community strategy is not effective and  $H_o$  is rejected.

#### d. The Effect Size

After testing the hypothesis, the researcher would proceed to the next step to answer the second question of this study, namely to determine the effect size of the treatment. The second research question that is strongly related is the effect of the retelling animated video which would be answered by using the effect size. The researcher would use the formula for the effect size as follows:

$$ES = \frac{\bar{X}_{post-test} - \bar{X}_{pre-test}}{SD_{weighted}}$$

Where:

ES = Effect Size

$\bar{X}_{Post-test}$  = the students' mean score of Post-Test



$\bar{X}_{\text{pre-test}}$  = the students' mean score of Pre-Test  
 $SD_{\text{weighted}}$  = average standard deviation of both test

*Adapted from Cohen et al (2007:195)*

**Table 3.4**  
**Effect Size**

A Cohen's Effect Size could be lie between 0 to 1 as followed:

<b>Effect Size</b>	<b>Qualification</b>
0 – 0.20	Week effect
0.21 – 0.50	Modest effect
0.51 – 1.00	Moderate effect
>1.00	Strong effect

*Adapted from Cohen et al (2007:521)*

## **E. Research Procedure**

There are several procedures that would be carried out by researcher in conducting this research. The procedure is described as follows:

### **1. Administration**

At this stage, the researcher would first ask permission from the Principal of SMK Negeri Pontianak to conduct research. After obtaining permission, the researcher will select samples in classes X MPK 1, X MPK 2, X BID 1, X BID 2, X AKL 1, X AKL 2, X AKL 3, X AKL 4, X AKL 5, X HTL, and X UPW and contact the homeroom teacher.

### **2. Pre-Test**

The next stage is the second stage, the researcher would give a pre-test in which the researcher would try to find out the real condition of the sample before applying the treatment of the retelling animated video to students.

### 3. Giving Treatment

In the next stage, the researcher would carry out the treatment in the sample class using retelling animated videos. The retelling animated video treatment would be carried out five times.

### 4. Post-Test

In the next stage, the researcher would conduct a post-test to find out the results of implementing the retelling animated video on students' speaking ability.

### 5. Analysing the Test Result

The last stage is this researcher would analyze the data collection on both pre-test and post-test using the formula that has been planned in this chapter.