

### CHAPTER III

#### RESEARCH METHODOLOGY

##### A. Research Design

This research was classified into pre-experimental research that was included in qualitative research. “An experimental design is the traditional approach to conduct quantitative research” Creswell (2014). It could be as a research method, which used to find out the effect of the treatment toward something else in controlling condition. Furthermore, in “An experiment design , you test an idea (or practice or procedure) to determine whether it influence an outcome or dependent variable” Creswell (2014:295).

The researcher was applying pre-experimental design in conducting this research. It was appropriate with the aim the research, which find out whether of the self-directed dialogue technique to teach speaking ability. Based on the explanation above, the researcher concluded the pre-experimental only used one group pre-test and post-test to be observe and does not have a control group to compare with. The pre-experimental type one group pre-test and post-test design, where the researcher did the experiment in a one class only.

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

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

Taken from (Ary, 2010)

Note :

$Y_1$  = Pre-test

$X$  = Treatment

$Y_2$  = Post-test

$Y_1$  was applied in order to know the students's mean score before giving the treatment. Then,  $X$  represents as the treatment.  $Y_2$  was applied in order to measure the student's achievement after the treatment given. A pre-experimental does not have a control group. The influence of experimental treatments can be seen by seeing the mean score between the pre-test and post-test. In this reserach, the researcher investigatied the effectiveness of Self-directed dialouge tehcnique in teaching speaking skill to the eight grade student of SMP Negeri 2 Pontianak in the academic year of 2022/2023.

## **B. Setting of the Study**

This research took place at SMP Negeri 2 Pontianak. This school is in Pontianak Selatan. This school chosen to be participant in this research because this school is one of the best schools in Pontianak. The aimed of this study was to investigate the effectiveness of Self-directed dialogue technique and the significant of this technique student was speaking skill to the eight-grade student of SMP Negeri 2 Pontianak.

### **1. Population**

Population is a group of individuals that share one or more characteristic from which data can be gather and analysis. Murphy (2016), stated that "a population is a group of individuals, objects, or items from among which samples are taken from measurement". The population in this research was all the second-grade students of SMP Negeri 2 Pontianak. The total were 258 students that divided into eight classes. The classes were VIII A, VIII B, VIII C, VIII D, VIII E, VIII F, VIII G, and VIII H.

**Table 3.2 Population Table**

<b>No</b>	<b>Grade</b>	<b>Number of Students</b>
1.	VIII A	32 students
2.	VIII B	32 students
3.	VIII C	32 students
4.	VIII D	32 students
5.	VIII E	31 students
6.	VIII F	34 students
7.	VIII G	31 students
8.	VIII H	34 students

## **2. Sample**

Sample is the part of the population that indicate all the population. As state by Ary (2010), “Sample is the small group that is observed and a portion of population”. Supported by Downs (2016) also stated that sample is the group on which information is obtained. Therefore, in this research took one sample. The sample in this research that was VIII E.

## **3. Sampling**

In the research, the researcher picked up one class as the sample of the research. Concerning this, the researcher used cluster random sampling technique. The researcher took the sample by using cluster random sampling because cluster random sampling involves grouping the population and then selected the group to be sample. Moreover, Marton (2013). “In cluster random sampling the sample units contain groups of elements (cluster) instead of individual members in the population. Before, the researcher selected one class, the researcher wrote the name of all classes from second-grade in a paper, after that rolled all the paper and shake it a piece of paper so it become as a sample. The researcher got one class it was VIII E.

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

### **1. Technique of Data Collection**

In this research, researcher used the Measurement technique to measure the student's achievement in learning Speaking ability by using Self-Directed Dialogue technique. The aim of the measurement is to know the students score which categorized into good to excellent, average to good, fair to poor and very poor. The measurement was conducted two times. Firstly, pre-test to collect the data before the treatment. Secondly, post-test to collect the data after treatment. The speaking test evaluated by concerning five components and each component has score-level.

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

The tools of data collection are a device which used by the researcher for collecting the data. Ary (2010) states that test is a set of stimuli presented to an individual in order to elicit responses on the basis of which a numerical score can be assigned. The researcher used oral test as the tool of data collecting that given in the pre-test and post-test to collect the students score.

The researcher asked the students to have a conversation with their classmates, after that the researcher asked the students to focus on the aspects contained in the speaking assessment, such as pronunciation, grammar, vocabulary, fluency, comprehension, after having the conversation, the researcher asked the students to practice it. In front of the class without bringing a book or text. Researchers give time to do the test ten-twenty minutes. This test intended to determine the students' speaking ability.

## **D. Instrument of Data Analysis**

To know the students' speaking skill, the researcher used quantitative method to analyze the data. In regarding the quantitative

technique as a tool of collecting data in this research. For knowing students' pre-condition pre-test gave first. In this test firstly students' shared their different opinion about the expressing asking for attention and checking understanding that provided by researcher. After that the researcher gave the treatment by asking the students to chose one of expressing asking for attention and checking understanding that the researcher gave and read the example of conversation about this expressing loudly, and then gave their opinion about the conversation by using their word in front of the class. Further, the researcher gave post-test and analyzed the data through t-test in order to find out the significance of the scores.

### **1. Readability Test**

In order to know the test could be easier to understand by the students, the researcher used the readability test. Budiarti (2014) stated that the readability is the level of ease or difficulty with which test material can be understood by a particular reader who is writing that text for a specific purpose. The success is the extent to which the readers understand it, read it at optimum speed and find it interesting. The term readability used in this paper to refer to the ease with which a reader can read and understand the text. The readability test conducted by giving the questionnaire to the grade VIII E students of SMP Negeri 2 Pontianak in order to know how easy the instruction can be understood. To calculate the result of readability test, the researcher used the percentages with the formula as below:

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

Where :

X = the result of percentages

n = the total number of students who said yes/no

N = the total number of students who in observation

The criteria :

00,00% - 33,33% = low

33,34% - 66,67% = middle

66,68% - 100,00 % = high

Based on the percentages result, when the result is either high or middle, meaning that most of the students understand the instruction and the speaking test can be applied as the instrument for collecting the data regarding students speaking ability.

## 2. Inter-rater Technique

Inter-rater technique was used to determine the students' individual score. In this case, the researcher asked the teacher to help in scoring students' individual score. Inter-rater technique was used to compare the students' individual score by comparing the score that was taken by researcher and the English teacher. This technique was used in order to minimize subjectivity and human error.

In this research, inter-rater technique has count by using formula:

Which :

$l$  : Inter-rater

$d1$  : Difference between researcher and teacher mean score

$d^2$  : Square of  $d1$

$n$  : Number of Students as the sample

The result of interater technique of this research can be seen below:

Mean Score by Researcher		Mean Score by teacher	Agreement
Pre-test			
Post-test			

Cohen suggested the Kappa result be interpreted as follows as values  $\leq 0$  as indicating no agreement and 0.01- 0.20 as none to slight,

0.21 – 0.40 as fair , 0.40 – 0.60 as moderate, 0.61- 0.80 as substantial, and 0.81- 1.00 as almost perfect agreement based on the table.

## **E. Technique of Data Analysis**

There were six kinds of data analysis that the researcher used in this research such as students individual score, mean score, standard deviation, t-test, testing hypotheses and effect size. These data analysis clearly act as a critical point of this research in finding and answering both research question and finding the research hypotheses. This research used statistical analysis in order to find out of the answer to research question and to test the hypotheses of the research procedure of data analysis were required. The numerical data analysed using the windows-based program, statically package for the social science (SPSS) statistic 16. The technique of data analysis in this research as follows:

### **1. The students Individual Score of Pre-test and Post-Test**

In order to analyse the student imdividual scores`the researcher used the formula below:

$$x = \frac{A}{N} \times 100$$

Where :

X = Individual score of pre-test and post test

A = The number of correct items pre-test and post-test

N = The number of scoring items pre-test and post-test

Taken from (*Dimitrov & Rumrill, 2003*)

To calculate the students individual score, from a test result, the number of students correct answer multiplied by 100 and then divided by the total number of test items. After finding the individual score the reseacher continue to analyze the means score.

### **2. The Students Mean Score of Pre-test and Post-test**

The mean score is the sum of the individual score, each stement and score. The function is to find out the standard deviation. The students

mean score of pre-test and post-test calculated by using the mean formula as detailed below:

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

Where :

$\bar{X}$  = the students mesn score pre-test and post-test

$\sum x$  = the total score of student individual score

$N$  = the total numbers of students

### 3. The Students Different Score of the Pre-test and Post-test

To know the students different score in this research used the formula as shown below:

$$\bar{D} = \bar{X2} - \bar{X1}$$

Where:

$\bar{D}$  = The interval score of Pre-test and post-test

$\bar{X1}$  = The mean score of pre-test

$\bar{X2}$  = The mean score of post-test

Taken from (*Dimitrov & Rumrill, 2003*)

### 4. The Students Pre-test and Post-test Standard Deviation Score

Standard deviation score is static's value which using to determine the spread of the data in sample *Dimitrov & Rumril (2003)* defined standard deviation as standardized measure of the dispersal of the scores, i,e how far away from the mean/average each score. Its function is to find out t-test score. The researcher use the formula below as quoted from (*Dimitrov & Rumrill, 2003*)

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

Where :

$SD$  = Standard Deviation

$d^2$  = The deviation of the score from the mean

$$\begin{aligned} & \text{(average) squared} \\ \Sigma & = \text{Total of value} \\ N & = \text{The number of students} \end{aligned}$$

To analyze the normality of the data, reseracher used Kolmogrov-Sminorv test that is available in SPSS statistic 16.

### 5. Normality Test

Normality test is used to determine whether the data distributed normal or not. The researcher did testing the normality of the data both pre-test and post test by using formulavas follow :

$$X^2 = \sum \left[ \frac{(fo - fe)^2}{fe} \right]$$

$$\begin{aligned} x^2 & = \text{value of chi square} \\ fo & = \text{observed freaquency} \\ fe & = \text{expected freaquency} \end{aligned}$$

Adopted from (Ary, 2010)

With the degree of freedom as follow :

$$Df = n-1$$

Where :

Df = Degrees of freedom

n = Number of class interval

Asopted from (Ary, 2010)

### 6. T-test

After calculation mean score, standard deviation and the data is in normal distribution, then the researcher analyze the data by using t-test analysis. Based on Ary (2010) t-test means a statistical procedure for testing hypothesis conceringthe difference between two means. The analysis of t-test is use to compare the mean score two group. In this research, the mean score from the experimental group compared by using t-test analysis. The formula of t-test is a shown below :

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

Where:

t	= t ratio
$\bar{D}$	= average difference
$\sum D^2$	= different scores squared, then summed
$(\sum D)^2$	= different scores summed, then squared
N	= number of pairs

Taken from (Ary, 2010)

## 7. Testing Hypothesis

To test hypothesis, is the researcher looked at the t-test result and compared to with t-table. However, the level of significance ( $\alpha$ ) it as 0.05 degree. In order to determine which hypothesis is rejected and another hypothesis is accepted, the researcher reffered to Creswell (2014:190), the rules is as follow:

- If  $t\text{-test} > t\text{-table}$ , the null hypothesis is rejected. It means that the mean score of post-test in higher than the mean od pre-test and the treatment by using Self-directed dialogue technique in speaking ability is not effective to teach student speaking skill
- If  $t\text{-test} < t\text{-table}$ , the null hypothesis is accepted. It means that the mean score of post-tests is lower than the mean of pre-test and treatment by using Self-directed dialogue technique in speaking ability is not effective to teach student speaking skill.

## 8. Effect Size

The effect of the treatmen (effect size) towards the students used analyze by comparing the pre-test and post-test score. Dimitrov & Rumrill (2003), "Effect size is a measure of the dgree to which a phenomenon is present or the degree to which a null hypothesis is not

supported “. This formula is use to calculate the effect of the treatment:

$$d = \frac{\overline{X}_2 - \overline{X}_1}{SD_{Pooled}}$$

Where :

d = effect size

$\overline{X}_1$  = mean score for pre-test

$X_2$  = mean score for post-test

$SD_{Pooled}$  = standard deviation of pre-test + stadard deviation of post-test

**Table 3.3 Effect Size**

The Level Of Effect Size

<b>Effect Size</b>	<b>Qualification</b>
0-0.02	Weak effect
0.21-0.50	Modest effect
0.51-1.00	Moderate effect
>1.00	Strong effect

Taken from (*Dimitrov & Rumrill, 2003*)

## **F. Research Procedures**

Before conducting the researcher, a procedure is necessary to make study on track and systematically to achieve maximum efficiency over time and precision of the research. Furthermore, Creswell (2014) states that “Because quantitative studies are the traditional mode of research, carefully worked out procedures and rules exits for the research. “In other words, a systematic step in conducting of the study. The researcher conducted research on implementing Self-Directed Dialogue Technique

practice and to see the effect of that strategy toward the students speaking ability. The procedures of the research are as follow:

**1. Administration**

At this stage the researcher firstly asked permission to Headmaster of SMP Negeri 2 Pontianak to conduct the researcher. After gaining the permission, the reseracher selected the sample from the eight grade class which is VIII A, VIII B, VIII C, VIII D, VIII E, VIII F, VIII G, VIII H classes and contacted the teacher to have perimition.

**2. Pre-test**

The researcher gave student pre-test to know student score before treatmen. The speaking test consist 1 oral test about make a conversation test.

**3. Treatment**

In this section, the researcher gave a student treatment. Treatment here means the researcher taught student by using Self-directed dialogue practice as strategy in teaching speaking.

**4. Post-test**

After the researcher finished in giving the treatment, the researcher gave post-test to student. The purpose of post-test is to know students score after treatment whether change or not. The test that used in post-test is the same test as pre-test.

**5. Analyzing the Test Result**

Last stage of the research was analyzing the data collection from both pre-test and post-test using formulas.