

## **CHAPTER III**

### **RESEARCH METHODOLOGY**

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

Research is a study to identify the problem solving from the research problem. In identifying the problem solving, the researcher should decide an appropriate research design in order the procedure of research will get the valid data. Creswell (2012:3) stated that research is a process of steps used to collect and analyze information to improve understanding of a topic or problem. From the explanation above, it can be conclude that research design is a way to implement the research.

In this study the researcher used experimental research as a research design. Experimental research is one of research where the dependent variable will be affected by independent variable based. According to Ary et. Al., (2010:26) experimental research involves a study of the effect of the systematic manipulation of one variable(s) on another variable.

Experimental research design also has some its design, namely: pre-experimental, true-experimental, factorial experimental and quasi experimental (Sugiyono, 2010:73). In this study the researcher used pre-experimental design in the form of one-group pretest-posttest design. One-group pretest-posttest design means that there is only one group being subject of research. The researcher held pretest to know the real situation or the basic situation of dependent variable, afterward after seeing the result of the pretest. The researcher used independent variable to see, whether it affected the result of pretest or not. After implementing the independent variable or doing treatment stage, the subject of research would be given post-test. Then the post-test result showed the changes or effects from the independent variable to dependent variable.

The design of this study was the One Group Pretest-Posttest design, which only consists of one class.

**Table 3.1**  
**One Group Pretest-Posttest Design**

Pretest	Treatment	Posttest
Y1	X	Y2

*Taken from Cohen, Manion and Morrison (2007:212)*

**B. Time and Place**

The research of this study held at MTS Mathla'ul Anwar Pontianak. Which is located at JL. Pak Benceng, Pontianak City, Prov. Kalimantan Barat. The researcher started the research on 2rd - 16th of Mei 2023. The researcher conducted 3 meeting for each both experiment class. The first meeting was used to give pre-test. Next, second meeting until fourth meeting did the treatment and last meeting the researcher gave the post-test. Then the researcher collected all of data and analyzed them.

**C. Population, Sample, Technique of Sampling**

- a. Population is the generalization area which is containing subject or object be researched and studied. According to Sugiyono (2010:80) Population includes not only humans, but also the total amount of objects or objects to be learned, as well as the total amount of objects or object characteristics. The research target was junior high school the second semester of MTS Mathla'ul Anwar Pontianak in the academic year of 2022/2023.
- b. Sample is a small part that can present all the population observed. In choosing the sample, the researcher has to establish the technique sampling. To establish the technique used in study, there are a lot of technique sampling can be used. This sampling technique is one of the Probability types of sampling where the samples are taken randomly from the population itself (Cohen, Manion and Morrison 2007:110). Furthermore, According to McMillan (1996:90) states that "Cluster sampling involves the random selection of naturally occurring groups or areas and then the selection of individual elements from the chosen groups or areas." In other words, the researcher had to choose a classroom randomly and that classroom served as the sample of this research.

The minimum number of students in this research should be no less than 30 students because according to Cohen, Manion and Morrison (2007:101) state that "...a sample size of thirty is held by many to be the minimum number of cases if researchers plan to use some form of statistical analysis on their data..." Which means that the participant of this study is should be no less than 30 if the number is lower than 30 it could create invalidity to the data finding.

- c. The instrument of this research is reading text. Test is a means of determining a student's ability to perform the active duties of a talent or to understand content. One test the researcher used in these studies is the assessment of preferences. In collecting the data for the research, the researcher needs an instrument of the research. According to Arikunto (2006:149) instrument is a means to collect data. Arikunto (2006:150) categorized two types of instrument, test and non-test. In this case, the researcher used essay test. The tests were consisted of pre-test and post-test as instrument of the research. The test was intended to know the students' reading comprehension before and after treatment by using Partner Reading strategy. The test subject is one of the maximum famous object codes utilized in instructional evaluation, or alternatively it's far stated:

"The more than one-preference take a look at is a completely bendy evaluation layout that may be used to degree understanding, skills, abilities, values, wondering skills, etc. Such a take a look at typically includes some of objects that pose a query to which college students have to choose a solution from amongst some of choices. Items also can be statements to which college students have to locate the first-rate completion. Multiple-preference objects, therefore, are basically popularity obligations, in which college students have to become aware of the suitable response".

They are utilized in pre-test a look at and posttest instrument. Each objects of the take a look at includes four alternatives particularly A, B, C, D and E. Students asked to select the suitable solution with the aid of using crossing the suitable solution.

The indicators of reading comprehension test that according to Nuttal (1982: 80-83) are described below:

**Table 3.2**  
**Specification Pre-Test Items**

<b>No.</b>	<b>Indicator</b>	<b>Item Number</b>	<b>Total</b>
1.	Factual Information	1,8,12,16,17	5
2.	Main Idea	2,7,14,20, 21	5
3.	Vocabulary	4,10,13,19,25	5
4.	Inference	5,6,11,15,22	5
5.	Reference	3,9,18,23,24	5
<b>Total number of Question Items</b>			<b>25</b>

**Table 3.3**  
**Specification of Post-Test Items**

<b>No.</b>	<b>Indicator</b>	<b>Item Number</b>	<b>Total</b>
1.	Factual Information	1,7,11,17,24	5
2.	Main Idea	2,8,12,18,21	5
3.	Vocabulary	4,10,14,19,23	5
4.	Inference	5,6,13,16,25	5
5.	Reference	3,9,15,20,22	5
<b>Total number of Question Items</b>			<b>25</b>

Once the student has taken the test, the researcher took the total score of the previous knowledge test results. Student grades are classified as follows:

**Table 3.4**  
**Students Scoring**

<b>SCORE</b>	<b>CATEGORY</b>
80-100	Very Good
66-79	Good
56-65	Enough
40-55	Less
30-39	Fail

*Taken from Brown (2003, p. 287)*

#### **D. Technique and Tool Data Collection**

##### **1. Technique of Collecting Data**

The technique of data collecting for this research is a measurement technique used by the researcher for the data collecting purpose. Furthermore, Creswell (2012:623) states that "Measurement means that the researcher observe and records the scores on an instrument." Also, in this research the researcher measured the performance of the sample by utilizing a pre-test and a post-test in form of achievement test (Creswell 2012:151).

## **2. Tool of Collecting Data**

Test is some questions that given for people to show the condition or the level of development the people. The fundamental use of testing in educational program is to provide information for making decision that is for evaluation. In this research, test applied to measure the reading comprehension in descriptive text of the eight grade students of MTS Matlha'ul Anwar Pontianak in academic year of 2022/2023. It used to analyze whether any significant difference about using Partner Reading strategy in teaching reading. The data in the research are the result of the test. The researcher will distribute pre-test and post-test as data collection technique. Pre-test will distribute in the first meeting to controlled class and experimental class. The pre-test will aim to measure students' reading comprehension on descriptive text on both classes before conducting the treatment. After conducting the treatment in the experimental class, the researcher administered the post-test. It aims to obtain the effect of Partner Reading Strategy in students' reading comprehension on descriptive text. Both pre-test and post-test has the similar instruction to answer question about descriptive text.

### **1. The procedure of collecting data for experimental group**

#### **1) Pre-test**

Pre-test is a test that is done at the beginning of the research in order to know the students' reading comprehension before the treatment.

#### **2) Treatment**

The treatment will be conducted for experimental group only.

The form of treatment was using of Partner Reading strategy. The form of treatment was using of Partner Reading strategy. The treatment will be done by the researcher. In this approach, the researcher introduces the concept of genre (descriptive text) in teaching reading comprehension. This treatment will be given in three meetings.

### 3) Post-test

After giving treatments for three times, where the researcher taught test by using Partner Reading strategy (for experimental class) the posttest was administered. In the post-test, the students will be assigned to answer the descriptive text.

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

The appropriate technique should occur concerning with the tool of collecting data. There are six kinds of data analysis utilized in this research such as test of student individual score, mean score, standard deviation, t-test, testing hypothesis and effect size. These data analysis be the critical point of this research in finding and answering both research question and finding the research hypothesis. Moreover, to analyze the data the researcher used computer software SPSS Ver. 16.0. Reason over this choice is simply told by Cohen, Manion and Morrison (2007, p. 501) said that “numerical studying may be achieved the usage of software, for example the statistical package deal for social sciences (spss, minitab and excel). In other words, using such computer software definitely help the researcher in analyzing the data especially in form of numbers where in quantitative research numbers can tell a lot of information within it if properly analyzed.

After conducting the research and distributing the test the researcher then analyses the data by using formulas of Student Individual score, Mean Score and Standard Deviation (*SD*), T-test, Testing Hypothesis and Effect Size. Further explanations are as follow:

### **1. Student Individual Score (*X*)**

Before counting the mean score the researcher calculated the individual score from the test by using the formula below:

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

Where:

X = Student's individual score

R = Student's correct answer

N = The total of participants

*Taken from (Cohen and Manion, 2007:423)*

The maximum score for the test is 100 and to calculate it the true answer of the test is multiplied by 100 and then divided by the total of participants (23) students. After calculating it the researcher classified the score based on Brown (2003:237) criteria for assessment (see **Table 3.5**).

**Table 3.5**  
**Student's Score Criteria**

Test Score	Classification
80-100	Good to Excellent
60-79	Average to good
50-59	Poor to average
0-49	Poor

*Taken from Brown (2003:287)*

## 2. Mean Score ( *M* )

After the researcher calculates the whole individual score then the next step is to calculate the mean score of the individual score. According to Brase and Brase (2012:85) states that "The mean is the average usually used to compute a test average." Furthermore, the formula on finding the Mean score as follows:

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

Where:

$\sum x$  = The sum of the students' individual score

*N* = The total of participant

*Taken from Abbot (2011:52)*

Finding the Mean score is to find pre-treatment data from the test where the necessity of achieving the data is absolutely critical in comparing

the pre-test and post-test result after the treatment have been conducted. And then after the researcher able to calculate the Mean score of each individual score then the next process is to search for the Standard Deviation value from the question items.

### 3. Standard Deviation (SD)

Standard deviation is utilized by the researcher to calculate in depth of the Mean that previously acquired by the researcher. In depth here means that in order to see the distribution or the spread around the Mean score the correct formula to seek this data is through Standard Deviation formula. Furthermore, Brase and Brase (2012:95) argue that standard deviation is used to picture the dispersion around the Mean Score. The formula of standard deviation is as follow:

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

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

$\sum$  = The total value of students

$N$  = The number of participants

*Taken from Cohen, Manion and Morrison (2007:512)*

According to Cohen, Manion and Morrison (2007:512) argue that “A low standard deviation indicates that the scores cluster together, while a high standard deviation indicates that the scores are widely dispersed. In other words, to enrich the finding of this research seeking the dispersal value is a great addition to find the dispersal rate of the mean scores.

### 4. Testing Hypothesis

In order to test the hypothesis of this research the researcher calculated it using Wilcoxon Tests this is due to a circumstance that the data distribution is not normal or in form of non-parametric. Because the distribution of the data is not normal then the researcher calculated the data using Wilcoxon Tests that is provided in computer software SPSS Ver. 16.0. Cohen, Manion and Morrison (2007:552) suggest that the same formula as a T-Test for non-parametric data is Wilcoxon Test for two related samples

and in this case the two related samples are student's test score, to utilize Wilcoxon tests the researcher elaborated the instruction on how to operate this test in SPSS Ver. 16.0 as follow:

1. The first step is to determine each sample's individual score by calculating it using the individual score formula as above.
2. After finding the each individual score then sort both pretest individual score and posttest individual score into their respective column.
3. The next thing to do is to click the "analyze" option on the upper side of the SPSS Window and then select "non-parametric test" and choose "2 related samples".
4. After that input the pretest data into the first variable column and then followed by inputting the posttest data in the second variable column. Also, remember to check  $\surd$  on Wilcoxon Tests box below the variables column. In addition click the "option" that located just below the "exact" menu and check  $\surd$  the "descriptive" to enable in-depth data analysis and after that click continue to return to the previous window.
5. Lastly, after following each steps of this instruction simply click "ok" on the lower left of the window and then the software will automatically analyze the data.

Furthermore, by finding the significance score the researcher can extract the data and assume which hypothesis is accepted and which hypothesis is rejected for this researcher. Then, the researcher compared the significance score with the standard p value of  $p < .005$  to determine the significance score of the data and to determine the hypothesis for this research or usually in SPSS referred as "Sig." value (Connolly 2007:176)

## **5. Effect Size**

After testing the hypotheses, the researcher then continued to the next step of answering the second question of this research which is to determine the effect size from the treatment. In order to find it the researcher then use the non-parametric effect size formula. The formula as follows:

$$r = \frac{Z}{\sqrt{N}}$$

Where:

Z = The position of the student score

N = The total of participants

*Taken from Fritz, Morris and Richler (2011:12)*

This formula can be easily calculated manually, the result of this formula would reveal the value of the effect size from the treatment. Moreover, to interpret the value from this calculation the researcher refers to Muijs (2004:195) interpretation as described in the table below:

**Table 3.6**  
**Effect Size Level**

Value	Level
0 - 0.1	Weak Effect
0.1 - 0.3	Modest Effect
0.3 - 0.5	Moderate Effect
> 0.5	Strong Effect

*Taken from Muijs (2004:195)*

## **F. The Research Procedures**

In this part, the researcher explains the steps of conducting this research.

1. The first step is the researcher will give the pre-test to the students.
2. The next is giving treatment. In this phase, the researcher will use graphic organizer to determine the result of this research. The treatment will be given three times.
3. Posttest will be held after all the treatment activity conducted. The result of this data will be used to degree the students' Reading comprehension on descriptive text once they get treatments. The end result of the test will be analyzed statistically.

