## CHAPTER III

## RESEARCH METHODOLOGY

### 3.1 Research Place and Time

This study was conducted at MAS PAB 1 Sampali. This school is located on 69 Pasar Hitam Sampali, Percut Sei Tuan District, Deli Serdang Regency, North Sumatra. In collecting the data, this study took about two months, from April to May 2024.

### 3.2 Research Population and Sample

#### 3.2.1 Population

Nurrahmah et al. (2021) explained that a group of individuals or objects in an area that becomes the center of a study is called as population. This study involved all tenth grade students in the 2023/2024 academic year as the population. There were 48 students in two classes: 27 students in class X-1 and 21 students in class X-2. This is shown in Table 3.1.

Table 3.1. Research Population

| No. | Class | Number of Students |
|-----|-------|--------------------|
| 1. | X-1 | 27 |
| 2. | X-2 | 21 |
| Total Number of Population | | 48 |

#### 3.2.2 Sample

Swarjana (2022) stated that a research sample is a selected part of the population through research sampling techniques. In this study, the researcher involved all population as the research sample. Since the population only consisted of 48 students, the research sample was all of the students. This decision is based on the research sampling technique called total sampling. According to Arikunto (2006), total sampling is a technique of taking samples whose number is the same as the population. This technique is chosen when

the participants are below 100 people. Thus, the research sample of this study can be seen in Table 3.2.

Table 3.2. Research Sample

| No. | Class | Number of Students |
|-----|-------|--------------------|
| 1. | X-1 | 27 |
| 2. | X-2 | 21 |

## 3.3 Research Method and Procedure

### 3.3.1 Method

This study used a quantitative research method. A quantitative research is a means of testing objective theories by examining the connection of variables. These variables are commonly measured by instruments. Creswell (2008) stated that statistical procedures should be used to analyze numerical data. The researcher used a research design named a quasi-experimental design. Campbell & Stanley (1966) stated that in quasi-experiments, the placement of subjects into experimental and control groups are non-randomized. Sugiyono (2014) named this type of design as nonequivalent control group design. This type of design includes several observations in two classes, which are given different treatments. This aims to identify whether there is an effect of treatment on the experimental class. This can be seen in Table 3.3.

Table 3.3. Nonequivalent Control Group Design

| Group | Pre-Test | Treatment | Post-Test |
|-------|----------|-----------|-----------|
| Experimental (X-2) | $O_1$ | X (Partner Reading Strategy) | $O_2$ |
| Control (X-1) | $O_3$ | (Expository Learning) | $O_4$ |

(Sugiyono, 2014)

Description:

Experimental class : the class that was given the treatment according to the independent variable of this study. The experimental class was class X-2.

| | |
|---|---|
| Control class | : the class that was given a different treatment for comparison. The control class was class X-1. |
| $O_1$ | : The first observation was in the form of a pre-test in the experimental class. |
| $O_3$ | : The first observation was in the form of a pre-test in the control class. |
| X | : The treatment given was in accordance with the independent variable of the study, namely the partner reading strategy. |
| $O_2$ | : The final observation was in the form of a post-test in the experimental class that had been given the treatment. |
| $O_4$ | : The final observation was in the form of a post-test in the control class that had been given a different treatment. |

### 3.3.2 Procedure

This study had three procedures based on the research design, i.e. pre-test, treatment, and post-test.

1. Pre-Test

Pre-test is the first phase of the study before the treatment is given (Smith, 2005). In this context, the pre-test refers to a test that students must take before learning the material. The pre-test in this study was a number of valid questions to measure the students' skills regarding reading comprehension in both classes.

2. Treatment

Treatment is the implementation of the independent variable to find out its effect on the dependent variable in a quantitative research. In this study, the researcher provided a treatment in the form of a teaching

strategy to the research samples. The treatment was conducted for 5 meetings in each class with different teaching strategies. In the experimental class, the teaching strategy used was the partner reading strategy but in the control class, it used the expository learning.

3. Post-Test

Post-test is the last phase in quantitative research, where the sample will do another test after being given treatment. This is done to see if there is any effect that the treatment has on the sample. In this study, the researcher tested the students' skills with a number of questions that were different from the pre-test. It aimed to seek for the effect of reading partner strategy on the students' reading comprehension in the experimental class.

## 3.4 Research Instruments

The researcher used two types of questions, such as multiple choice and short answer questions as research instruments. There were a total of 25 questions from both types of questions. Multiple choice questions consisted of 20 items and short answer questions consisted of 5 items. In multiple choice questions, students had to put a cross on one of the choices, while in short answer questions students had to give answers briefly (Fidalia, 2014).

According to Nuttal (1982), there are 4 aspects of multiple choice questions on reading comprehension tests that are generally used at the school student level, namely the main idea, vocabulary, inference, and reference. Furthermore, the researcher used these four characteristics in each item, both multiple choice questions and short answer questions. These are described in Table 3.4 and 3.5.

Table 3.4. Characteristics of Multiple Choice Questions

| No. | Aspect | Item | Amount |
|-----|--------|------|--------|
| 1. | Main idea | 5 | 5 |
| 2. | Vocabulary | 5 | 5 |
| 3. | Inference | 5 | 5 |
| 4. | Reference | 5 | 5 |

Table 3.5. Characteristics of Short Answer Questions

| No. | Aspect | Item | Amount |
|-----|--------|------|--------|
| 1. | Main idea | 1 | 1 |
| 2. | Vocabulary | 2 | 2 |
| 3. | Inference | 1 | 1 |
| 4. | Reference | 1 | 1 |

In addition, to assess students' tests, this study used the following formula.

$$\text{Score} = \frac{Number\ of\ correct\ answers}{Total\ number\ of\ questions} \times 100$$

(Sudjana, 2004)

To determine in which category the students' reading comprehension skills was, the researcher used a language assessment. This is shown in Table 3.6.

Table 3.6. Language Assessment (Brown, 2003)

| No. | Category | Score |
|-----|----------|-------|
| 1. | Excellent | 80-100 |
| 2. | Good | 70-79 |
| 3. | Enough | 60-69 |
| 4. | Less | 50-59 |
| 5. | Very Less | 0-49 |

### 3.4.1 Conceptual Definition

Conceptual definition is an explanation of the concept of research variables (Nasrudin, 2019). This study has two variables, namely:

1. Partner reading strategy is a strategy of reading and understanding text along with a partner.
2. Reading comprehension is to understand a text thoroughly.

### 3.4.2 Operational Definition

According to Hikmawati (2020), operational definition is a concept that makes it easy to measure research variables.

1. Partner reading strategy involves two people reading, discussing, identifying and addressing reading comprehension problems.
2. Reading comprehension requires readers to gain information and construct meaning from written text.

### 3.4.3 Instrument Calibration

There are two types of research instrument testing, namely:

1. Validity Test

The validity test measures each question item to determine whether or not it can be said to be valid. Valid question item means that it can be used, while invalid ones cannot be counted or should be removed. To determine whether or not it is valid, this study used Pearson Moment Product on IBM SPSS Statistics 29. However, the validity test can be performed with the following formula.

$$r_{xy} = \frac{n\left(\sum XY\right) - \left(\sum X\right) - \left(\sum Y\right)}{\sqrt{\left\{ n \sum X^2 - \left(\sum X\right)^2 \right\}} . \sqrt{\left\{ n \sum Y^2 - \left(\sum Y\right)^2 \right\}}}$$

(Arikunto, 2010)

Description:

$rxy$ : the correlation coefficient between variable X and variable Y

$N$ : the number of test participants

$x$ : the score of each item

$y$ : the total score of all items

This test correlates the item score and the total score of each student. In the validity test, there are two ways of making decisions on IBM SPSS software. First, it refers to the following hypothesis.

a. If $r_{count} \geq r_{table}$, the item is valid.
b. If $r_{count} \leq r_{table}$, the item is invalid.

Secondly, it refers to the significance value of each item.

a. If the significance value is <0.05, the item is valid.

b. If the significance value is >0.05, the item is invalid.

This study used the decision based on the significance value. All valid results are shown in Table 3.7.

Table 3.7. The Validity Test Results

| No. | Question Items | Significance Value |
|-----|----------------|--------------------|
| 1. | Question 1 | 0.033 |
| 2. | Question 2 | 0.024 |
| 3. | Question 3 | 0.006 |
| 4. | Question 4 | 0.021 |
| 5. | Question 5 | 0.038 |
| 6. | Question 6 | 0.015 |
| 7. | Question 7 | 0.034 |
| 8. | Question 8 | 0.046 |
| 9. | Question 9 | 0.028 |
| 10. | Question 10 | 0.026 |
| 11. | Question 11 | 0.039 |
| 12. | Question 12 | 0.004 |
| 13. | Question 13 | 0.033 |
| 14. | Question 14 | 0.004 |
| 15. | Question 15 | 0.015 |
| 16. | Question 16 | 0.033 |
| 17. | Question 17 | 0.019 |
| 18. | Question 18 | 0.028 |
| 19. | Question 19 | 0.012 |
| 20. | Question 20 | 0.001 |
| 21. | Question 21 | 0.018 |
| 22. | Question 22 | 0.021 |
| 23. | Question 23 | 0.029 |
| 24. | Question 24 | 0.011 |

| 25. | Question 25 | 0.001 |
|-----|-------------|-------|
| 26. | Question 26 | 0.009 |
| 27. | Question 27 | 0.018 |
| 28. | Question 28 | 0.009 |
| 29. | Question 29 | 0.005 |
| 30. | Question 30 | 0.005 |
| 31. | Question 31 | 0.005 |
| 32. | Question 32 | 0.004 |
| 33. | Question 33 | 0.000 |
| 34. | Question 34 | 0.015 |
| 35. | Question 35 | 0.000 |
| 36. | Question 36 | 0.037 |
| 37. | Question 37 | 0.011 |
| 38. | Question 38 | 0.003 |
| 39. | Question 39 | 0.034 |
| 40. | Question 40 | 0.007 |
| 41. | Question 41 | 0.014 |
| 42. | Question 42 | 0.028 |
| 43. | Question 43 | 0.001 |
| 44. | Question 44 | 0.009 |
| 45. | Question 45 | 0.008 |
| 46. | Question 46 | 0.009 |
| 47. | Question 47 | 0.013 |
| 48. | Question 48 | 0.004 |
| 49. | Question 49 | 0.010 |
| 50. | Question 50 | 0.021 |

2. Reliability Test

The reliability test measures the consistency of the values of the question items to determine whether the items are reliable or not. There is a formula for measuring the reliability test, namely:

$$r_1 = \frac{k}{(k-1)} \left\{ 1 - \frac{\sum s_i^2}{s_t^2} \right\}$$

(Arikunto, 2010)

Description:

$r_1$    : the reliability coefficient

$k$    : the number of instrument items

$\sum s_t^2$   : the number of variances of each item's score

$s_t$    : the total variance

In reliability test, there is a way of making a decision on IBM SPSS software. It refers to the Cronbach's Alpha value.

a. If the Cronbach's Alpha value >0.60, the data is reliable.

b. If the Cronbach's Alpha value <0.60, the data is not reliable.

The reliability test result in this study is shown in Table 3.8.

Table 3.8. The Result of Reliability Test

**Reliability Statisctics**

| Cronbach's Alpha | N of Items |
|---|---|
| 0.924 | 50 |

Based on the result above, it can be inferred that the data is reliable because the Cronbach's Alpha value 0.894 is greater than 0.60.

## 3.5 Data Analysis Techniques

According to Sugiyono (2022), calculation or statistics is the techniques of analyzing data in quantitative research. This study used the IBM SPSS Statistics 29 as software to analyze the data. There are three types of tests, namely:

### 3.5.1 Normality Test

Normality test is used to identify whether the data is normally distributed. This study used the Shapiro-Wilk normality test as the total sample was only 48 students. The formula for performing the normality test lies below.

$$T_3 = \frac{1}{D}\left[\sum_{i=1}^{k} a_i \left(X_{n-i+1} - X_i\right)\right]^2$$

Description:

| | |
|---|---|
| $D$ | : the Shapiro-Wilk test coefficient |
| $X_I$ | : the number $i$ in the data |
| $X$ | : the average of the data |
| $T_3$ | : statistical conversion of Shapiro-Wilk |

In addition, the decision making on the Shapiro-Wilk normality test is as follows.

1. If the significance value $\geq 0.05$, the data distribution meets the normality assumption.
2. If the significance value $\leq 0.05$, the data distribution does not meet the normality assumption.

### 3.5.2 Homogeneity Test

Homogeneity test is used to find out whether the variance of the control class and experimental class is homogeneous. The homogeneity formula is as follows.

$$W = \frac{(n-k)\sum_{i=1}^{k} n_1 (\bar{Z}_i - \bar{Z})^2}{(k-1)\sum_{i=1}^{k}\sum_{j=1}^{k}\left(\bar{Z}_{ij} - \bar{Z}_i\right)^2}$$

Description:

| | |
|---|---|
| $n$ | : total students |
| $k$ | : number of classes |
| $Z_{ij}$ | : $\lvert Y_{ij} - Y_t \rvert$ |
| $Y_i$ | : average of group $i$ |
| $\bar{Z}_i$ | : average of group $Z_i$ |
| $\bar{Z}$ | : average of group $Z_{ij}$ |

In addition, the homogeneity test decision making can be seen below.

1. If the significance value ≥0.05, the variances of the two groups are homogeneous.

2. If the significance value ≤0.05, the variances of the two groups are not homogeneous.

### 3.5.3 Independent Sample T-Test

An independent sample t-test is a hypothesis test to compare two unpaired samples. This kind of test is performed when the normality test is successful or the data is normally distributed. In this test, the data used are only the post-test scores in both classes. This type of hypothesis test has the following formula.

$$t = \frac{\overline{x_1} - \overline{x_2}}{\sqrt{\dfrac{s_1^2}{n_1} + \dfrac{s_2^2}{n_2}}}$$

Description:

$T$      : student t test

$X_1$      : average of the first class

$X_2$      : average of the second class

$S_1$      : standard deviation of the first class

$S_2$      : standard deviation of the second class

$N_1$      : number of observations in the first class

$N_2$      : number of observations in the second class

In addition, the independent sample t-test decisions are as follows.

1. If the significance value (Sig. 2-tailed) <0.05, then $H_0$ is rejected and $H_a$ is accepted.

2. If the significance value (Sig. 2-tailed) >0.05, then $H_0$ is accepted and $H_a$ is rejected.

### 3.6 Statistical Hypothesis

Based on the statistical tests above, there are two hypotheses, namely:

$H_a$ : There is a significant effect of partner reading strategy on the students'
reading comprehension at MAS PAB 1 Sampali.

$H_0$ : There is no significant effect of partner reading strategy on the students'
reading comprehension at MAS PAB 1 Sampali.