

CHAPTER III

METHODOLOGY

This chapter includes Information on the research techniques the author used for his study. These include the research design, methodology, instrument, demographic and sample, data collection strategy, and data analysis method

3.1 The Research Method

The research method that was be used in this research is quantitative research. Their search approach must be used appropriately to understand their search problem clearly. Sugiyono (2019) defines "method quantitative" as are search methodology with positive its positive is masits foundation. It includes the following steps in the analysis process: data collection, data analysis using statistics, development of hypotheses, and analysis of the population or sample.

The quantitative research method is a data method. Their search is in the form of numbers and analysis using statistics. In the words of Sugiyono (2015), "Quantitative method scandal so be interpreted as research methods that are used to research on a particular population or sample. Technique sampling is done randomly, data collection using research instruments, and data analysis are quantitative with the purpose of testing pre-determined hypotheses. "Thus, the quantitative research approach provides a thorough, accurate process and a well-defined hypothesis.

Method of inquiry is described as an ethical way to obtain data for the desired purpose and intended use. One must use the reliability and effectiveness evaluation process to obtain reliable data. Ibid (2015) states that reliable and

objective data is usually considered valid. When taken literally, the ability of collected data to understand new Information implies that it can solve problems and eliminate them to prevent problems from arising. Therefore, the method of analysis is the use of ilmiah to obtain data that is accurate about the goal that the data be obtained, developed, and verified so that it may be understood, addressed, and resolved issues in the field of education that is being evaluated.

3.2 The Research Design

The research design was be quasi-experimental research using quantitative data analysis. According to Creswell (2015), a quasi-experiment is a random experiment in which individuals can participate alone or in groups. The quasi-experimental is one type of group pretest-posttest design that is being employed. Christensen (Seniati, Yulianto, and Setiadi, 2017) states that pretest-posttest design is also utilized for one group before the design. Testing was conducted using a test variable the participant had already selected at the start of the study. Restart modifying the variable using the same angle of curvature after the alteration. Based on Sugiyono (2016) and Saputra et al. (2021), the study's design was as follows:

Table 3.1. The Pretest and post-test

Group	Pretest	Treatment	Post-test
One group	01	X	02

Explanation:

01 = Pretest (before the treatment)

X = Teaching learning activity (treatment)

02 = Post-test (after the treatment)

The paradigm of this study design entails administering a pretest before beginning therapy to compare the treatment outcomes with the pre-treatment circumstances and ascertain whether the results are more accurate.

3.3 The Research Location

This research was be conducted in MTSS Samahani, Aceh Besar Regency, one of the schools in Aceh Besar. The location is Jln. Banda Aceh Medan km—19, Kuta Malaka district, Aceh Besar regency, Aceh province. There searcher was only study one class, specifically 18 students in grade VIII 2.

3.4 The Research Population and Sample

3.4.1 Population

The population's quantity under consideration is referred to as the "sample" in this context. As per Sugiono's (2018) assertion, the sample is contingent upon the size and features of the population, so the sample selected from the population needs to be precisely representative.

When sampling from any population, there was be many samples. We cannot validate a study in the absence of a population, as the research topic is evident. In research circles, populations are well-liked and typically used to test hypotheses. A population can refer to a group of people, a time phenomenon, or anything else.

There were 215 students in total, 113 male and 102 female students from MTSS Samahani, who formed the population of this study.

3.4.2 Sample

The sample of this study is VII students at MTSS Samahani, which consists of one class, and each class consists of 18 students. Sugiyono (2018) defines population as the overall features of a territory and the group of items or subjects that has particular attributes that were chosen for inclusion by the jury before the production of the conclusion. Furthermore, populism incorporates all traits or tenets that comprise an organization or the subject being examined, not only the number of people in those institutions or subjects (Sugiyono,2017). Most of the study's sample population on consists of students enrolled at MTSS Samahani. Students from MTSS Samahani in second grade are included in this study.

3.5. The Research Instrument

In this research, the researcher needs various data that should be obtained from several students at MTSS Samahani. The instrument used in this research is an oral test in pretests and post-tests.

3.5.1 Test

An exam is a tool to gauge a person's knowledge or sample of Information. Susanto (2023) states that the exam consists of several questions that need to be answered. The purpose of the test is to assess an individual's aptitude or uncover hidden characteristics about them. Written, oral, and action exams are the three categories into which the test forms can be separated based on how pupils respond.

The exam consists of a collection of questions that are administered to the students in three different ways: practically, in writing, often known as a test written, orally, sometimes called an oral test. The exam assesses how well students have learned about cognitive capacities, particularly how well they have mastered the course materials about the learning objectives.

3.5.1.1. Pre-test

The author of this study used a pretest to assess students' reading proficiency before treatment. This portion of the study set out to ascertain the students' reading proficiency prior to applying the scanning approach during five class periods. Before starting treatment, researchers questioned students on several topics. A sample invitation card was be read aloud to the class as part of the Pretest to assess students' English reading proficiency.

3.5.1.2. Posttest

The author of this study measured the extent to which students' reading abilities improved using a post-test. The purpose of this portion of the research was to ascertain the students' reading proficiency following five class meetings in which scanning techniques were used. Following the session, the students answered a series of questions from the researcher. The pot test consists of twenty questions on the same topicEnglish. Using scanning techniques, these questions are utilized to reflect students' post-treatment English reading ability.

3.5.2 The Scoring Rubrik

This study uses an assessment rubric as a guide throughout the conduct of research. According to Abdullah (2022) :

3.2 The Scoring Rubrik Table

Students Name	Understand the topic	Understand the conclude	Pre-test/Post test score	Assessment criteria

3.6 Technique of Data Collection

To prevent inaccurate data produced, researchers schedule time with participants that is comfortable for all parties. The researcher used a questionnaire as an analysis tool.

The researcher will provide care by applying scanning techniques in reading an invitation card text in class after getting the pre-test results. The teacher presented the topic of how to use scanning techniques in reading invitation card material in the main activity, which was started by the researcher.

The researcher provides an opportunity for students to ask questions after explaining the topic thoroughly. The researcher instructed students to practice using scanning techniques in reading invitation card text. They receive many opportunities from researchers to prepare topics given by researchers. There are three phases in this research's data collection process, including:

3.6.1. Before Data Collection

In preparation for this study, the researchers received permission from the school. The school, therefore, gave researchers permission to do research in one of the school classes and to negotiate with the guidance counselor that the study would be conducted during field experience (PPL) at the school.

3.6.2. While Data Collection

After the planning, the researcher provided the students with a series of treatments throughout the five meeting. In the first meeting, the researcher provided several questions that were part of a twenty-choice question set and also explained a bit about the scanning technique. In the second meeting, the researcher administered the first treatment using the scanning technique on the material of invitation cards (formal invitation) referring to the teaching module. In the third meeting, the researcher administered the same treatment using the scanning technique on the material of invitation cards (informal invitation) referring to the teaching module. However, the meeting material was still an intermediary from before the meeting. In the fourth meeting, the researcher used the scanning technique in the invitation card material to provide more beneficial content to the students. In the final meeting, the researcher was given material reinforcement to provide some insights regarding the Posttest. The researcher organized each learning session into three phases to determine the extent of improvement in students' reading abilities after the treatment, including:

3.6.2.1. Pretest

Before implementing the treatment, the researcher asked the students several questions to measure their level of reading proficiency. The researcher then provided testing by providing an invitation card using scanning techniques. Students read the invitation.

3.6.2.2 Treatment

In this section, the researcher uses scanning as a teaching technique in the teaching module. The researcher started the class meeting as usual. In the first meeting, the researcher provided several questions that were part of the twenty questions exercise. After completing the questions, the researcher briefly explained the scanning technique material. In the second meeting, the researcher was given the first treatment using the scanning technique in the formal invitation material, referring to the teaching model. In the third meeting, the researcher was given the same treatment using the scanning technique in the informal invitation material, referring to the teaching module. However, the meeting material was still an intermediary from before the meeting. In the fourth meeting, the researcher used the scanning technique to provide more beneficial material to the students. In the final meeting, the researcher provided material reinforcement to offer some insights regarding the post-test.

3.6.2.3 Post-test

In this section, students complete work designed to measure how well they read after receiving treatment using a reading rubric analysis. This allows students to see how much their reading has progressed over several study sessions. The

questions given to students cover three subjects: writing, listening, and vocabulary. This third subject is important for improving students' reading skills.

3.6.3 After Data Collection

The researcher employed data triangulation in this part to examine and assess the accuracy of the data. The researcher used the triangulation approach to assess the data after obtaining the necessary Information to strengthen the validity and reliability of the results.

According to Creswell & Creswell (2018), data-collecting methods are "techniques or means used to collect data relevant to answering research questions, which include such techniques as observations, questionnaires, interviews, and documents."

3.7.Data Analysis

This analysis contrasted student achievement at the time of the Pretest, treatment, and post-test to determine the student's reading comprehension. The researcher assessed vocabulary, topic, and grammar.

Sugiyono (2018) defines data analysis as looking for and gathering methodically systematic data from field notes, interviews, and documentation. It also involves learning how to synthesize, arrange patterns, break down data into units, organize data into categories, select what is significant and what was be learned, and draw simple conclusions for the individual and the audience. On the other hand, data analysis, according to Moleong (2017), is arranging and classifying data into basic descriptive units, patterns, and categories to identify themes and develop working hypotheses based on the data.

The obtained data must be accurate and precise, but cannot additionally refute the idea that Information obtained from many sources was vary. Data analysis demands focus, mobilization, and a lot of physical and mental effort. Researchers must examine the literature in addition to data analysis to support the theory.

This research used SPSS version 25 to analyse the data collection, performing reliability and validity tests, normality tests, and hypothesis tests.

3.7.1 Theory Triangulation

According to (Moelong, 2017), triangulation is a technique to verify the validity of data that utilizes other things. outside of the data for comparison with or verification of the data. Examining other sources is the most commonly used triangulation method. Denzin Dalam (Moelong, 2017) distinguishes four types of triangulations as an examination technique that utilizes the use of sources, methods, researchers, and theories.

The researcher took several hypotheses for the same case, namely the use of scanning techniques in invitation card materials to improve students' reading ability, and based the study on two variables: "reading ability" and "scanning technique," in order to determine how many theories have been successfully applied in similar research variables." According to Nurfajriani (2024), Triangulation is essentially a multi-method approach carried out by researchers when conducting research, collecting and analyzing data.

3.7.2 Analysis of Pre-test and Post test

One Sample T-test

According to One of the tests used in data analysis that only employs one sample group and bases its conclusions on the t-student distribution is the one-sample T-test. Since this test is categorized as parametric, the data must satisfy a number of presumptions before the test may be conducted.

These presumptions are:

1. Test variables that are continuous, whether they be ratios or intervals.
2. The data in the sample is roughly distributed regularly.
3. There is no correlation between the test variable scores.

This test's overall goal is to determine whether the population mean and a particular constant value the hypothesized value differ in a way that is statistically significant. The following is the hypothesis under test.

$$t_{hitung} = \frac{\bar{X} - \mu}{S/\sqrt{n}}$$

with:

$\bar{X}$: sample mean value

μ : test value

S : sample standard deviation

n : sample size

The decision-making criteria are as follows. H_0 is accepted when $|t_{hitung}| < t_{tabel}$. Conversely, H_0 is rejected when $|t_{hitung}| \geq t_{tabel}$. The t -table value is taken from the t -table or by using a program like Excel.

3.8 Normality Test

According to Andy Field (2013), the normality test is an important step in ensuring whether the data meets the basic assumptions for the use of certain statistical tests, especially parametric tests such as ANOVA or linear regression. The findings of statistical tests may be skewed or unreliable if the data is not regularly distributed. In order to determine whether the data distribution is appropriate for the normal distribution, it is crucial to perform a normality test.

3.9 Validity Test

The validity test, Sugiyono (2018) defines the validity test as the process of comparing data reported by researchers with data that was obtained directly from study participants. Tests for validity are used to assess the reliability of a questionnaire. A questionnaire is considered legitimate if it can be used to determine what it will measure based on the statements it contains. Examine each question for validity; the instrument is considered invalid if the r count is less than the r table or greater than the r count at a significant level ($\alpha = 0.05$).

In this study, there are twenty questions in the questionnaire in the pre-test and post-test sections given to 18 second-grade students of MTSS Samahani. The questions were based on a reading rubric. After obtaining the data, the researcher applied the data to check its validity using SPSS version 25 on Windows.

Validity formula:

$$r_{xy} = \frac{N\sum xy - (\sum x)(\sum y)}{\sqrt{(N\sum x^2 - (\sum x)^2)(N\sum y^2 - (\sum y)^2)}}$$

Information:

r_{xy} = Correlation coefficient between variable X and variable Y

$\sum xy$ = Sum of multiplication between variables X and Y

$\sum x^2$ = Sum of the squares of X values

$\sum y^2$ = Sum of the squares of the value Y

$(\sum x)^2$ = Sum of X values then squared

$(\sum y)^2$ = Sum of Y values then squared

3.10 Reliability test

According to Sugiyono (2016), validity is the degree of accuracy between the data that occurs on the item and the data that the researcher obtained to assess the validity of a statement.

Sugiyono (2018) explains that a reliability test gauges the extent of coherence and steadiness of Information or conclusions. Only reliable data can be processed further since unreliable data was provide biased results. A measurement tool is considered reliable if it generates trustworthy data over an extended period.

After the validity test, a statement or question is put to the test to see fit is reliable. The large Cronbach's alphas range from 0.50 to 0.60. The researchers used 0.60 as the coefficient in this investigation. Its accuracy. The seared there querulents for dependability testing: a) If the value of Cronbach's alpha $\alpha > 0.60$, then the

instrument has good reliability; in other words, the instrument is reliable or trustworthy. b) If the Cronbach's alpha value is <0.60 , then the instrument being tested is unreliable. This research used twenty questions in the pre-test and post-test based on the reading assessment rubric. After obtaining the data, the researcher applied the data to check its reliability using SPSS version 25 on Windows. The researcher input the data into SPSS version 25 from the results of the questionnaire.

3.11 Hypothesis Test

This research used SPSS version 25 to determine whether a hypothesis was be accepted or rejected by statistically testing its relevance. According to Arifin (2017), hypothesis testing is conducted to statistically test the truth of a statement and draw conclusions to accept or reject that statement. To help make informed conclusions about a given hypothesis, hypothesis testing is done.