

CHAPTER III

METHODOLOGY

In this chapter, the researcher presents the methodology which used in this research. The methodology of this research consists of Method and Research Design, Place and Time of The Research, Population and Sample, Definition Operational, Instrument of Research, and Technique of Data Analysis. Each of the items presented in the discussion below.

3.1 Place and Time of the Research

This research was conducted at MAS Muallimin UNIVA Medan which is located on Jl. Sisingamangaraja 5 Km, Harjosari I Kecamatan Medan Amplas, Sumatera Utara. The research was conducted in April-May 2023.

The reason for choosing this school through observations made at this school, it was found that students' reading comprehension was still low, students had low motivation to read, students found it difficult to understand the contents of books, students' interest in reading was still very low, students had low critical thinking In reading, the teacher uses the usual learning method. So, this is what makes researchers interested in conducting research in this school.

3.2 Population and Sample

3.2.1 Population

The population is a general area consisting of subjects or objects that have the quantity and characteristics to be studied. Research object is something that is used as research material. The research subject is something where the research object is attached, such as students, teachers, parents of students who have the characteristics being studied (Jaya, 2019). The population of this study was all 11th grade students of MAS Muallimin Univa Medan 2022/2023. There are six classes XI, class XI Mia-1 consists of 27 students, class XI Mia-2 consists of 26 students, class XI Mia-3 consists of 32 students, class XI Mia-4 consists of 26 students, class XI Iis-1 consists of 32 students, and class XI Iis-2 consists of 32 students.

Table 3.1

The population of research

Class	Population
XI Mia-1	27
XI Mia-2	26
XI Mia-3	32
XI Mia-4	26
XI Iis-1	32
XI Iis-2	32
Total	175

3.2.2 Sample

The sample is part of the population to be studied. Instances occur because the population is too large to study. The sample is part of the population to be studied. Instances occur because the population is too large to study. In this study, researchers used the Simple Random Sampling technique. Simple Random Sampling is random sampling, where each element has the same opportunity to be selected from the population. Simple random sampling can be determined if the sampling of sample members from the population is carried out randomly without regard to the strata in that population. (Yulianto, 2020). The sampling technique in the simple random sampling technique is by determining the population, determining the sample size, then determining the sample randomly, and finally collecting data from the samples that have been collected. The sample of this research are two classes selected from seven classes. Class XI Mia-2 as an experimental class group consisting of 33 students, and XI Mia-4 as a control class group consisting of 31 students.

Table 3.2

The sample of research

No	Class	Students	Male	Female	Group
1.	XI Mia-2	33	11	22	Experimental Class
2.	XI Mia-4	31	12	19	Control Class

3.3 The Research Methods and Procedures

3.3.1 Research Method

The researchers used quantitative methods by conducting an experimental study. According to Matthews & Ross (2010, p. 141) quantitative research methods are basically using organized data sets and which can be displayed numerically. Generally quantitative data is accumulated when the researcher follows a positivist epistemology way and data is collected that can be analyzed scientifically. Correlation is a statistical test to determine trends or patterns for two or more variables or two data sets to vary consistently. The purpose of correlational research is to investigate the existence and degree of relationship between two or more quantitative variables (Creswell, 2012). If two variables are highly related, give a score on one variable can be used to predict scores on other variables.

Moreover, experiment is a scientific study in which the researcher manipulates and controls one or more independent variables and also makes observations on the dependent variables to find variations that arise along with manipulation of the independent variables (Kerlinger, 1973). The manipulated variable is called the independent variable and the variable whose effect will be seen is called the dependent variable. According to Rakhmat (1985) in Eko Setyanto:2006 the experimental method aims to examine the causal relationship by manipulating one or more variables in one or more experimental groups and comparing the results with a control group that does not experience manipulation (Setyanto, 2006).

This study uses research methods quasi-experimental. According to Sugiyono, (2014:77) quasi-experiments are studies that approach real

experiments. This study aims to directly test the effect of a variable on other variables and test the hypothesis of a causal relationship. The quasi-experimental design has an experimental class and a control class (Sugiyono, 2014). The experimental class is referred to as the group that is given treatment and is used as a research object to prove the success or failure of the researcher. So, with that only experimental class students are taught by using critical thinking towards students' reading comprehension. Meanwhile, the control class, on the other hand, was not given treatment in this class. This quasi-experimental research is suitable for use in this study because it is to find out whether there is a significant difference between the experimental class and the control class. In addition, by using this quasi-experiment students can learn through direct experience, make learning actual. The design of experimental and controlled class as follows:

Table 3.3
The Research Design

Group	Step I	Independent Variable	Step II
Experimental	Pre test	Critical Thinking treatment (DRTA Strategy)	Post test
Control	Pre test	Without Treatment	Post test

3.3.2 The Research Procedures

In this research, there were four procedures done to collect the data. They are sequenced as follows:

Figure 3.1
The Research Procedures



1. Pre-Test

Pre-test is a test given before the treatment process begins. The test aims to determine the ability of students before being given treatment. with this Pre-test it

will show that the students' reading comprehension is low, medium, or high. Therefore, a pre-test was carried out to compare before and after the treatment was carried out. Pretest results are considered as initial data.

2. Treatment

The treatment was given to the experimental group taught by using Critical Thinking Strategy, while the control group was given by using Conventional method. At this stage both classes were used as research samples, both classes were given the same treatment and the same time allocation, but the difference was the method.

3. Post-test

After conducting the treatment, a post-test was applied to the students. The post-test functions to know whether the treatment gives the effect or not on the students' achievement in reading comprehension. The administrating of the post-test means to find the differences scores of both experimental and control groups.

Table 3.4
The Research Procedures

Group	Measurement I	Independent Variable	Measurement II
Experimental Class	Pre test	DRTA Strategy 1. The researcher briefly explains about narrative text. 2. Students make groups with their friends. 3. The researcher gave a pre-test question in the form of a text that contained 5 questions that told about folklore. 4. Students read and make predictions, opinions, and judgments based on references in the text. Then students answered the questions in the text. The time given to students to	Post test

		<p>answer is 20 minutes.</p> <p>5. After the students finished answering the questions in the test, the researcher then collected the students' answers.</p> <p>6. Then, the researcher explained more fully about the narrative test, DRTA Strategy, and Critical Thinking.</p> <p>7. Finally, the researcher gave the test back to the students in the form of a text that contained 10 questions. The time given in doing the test was 35 minutes. The test given has a more difficult level than the previous question</p>	
Control Class	Pre test	<p>Without DRTA Strategy</p> <p>1. The researcher briefly explains about narrative text.</p> <p>2. The researcher gave a test question in the form of a text which contained 5 questions.</p> <p>3. Students read, make predictions, opinions, and judgments based on references in the text, then answer the questions in the text. The time given to students is 20 minutes.</p> <p>4. After the students finished answering the questions in the test, the researcher collected the students' answers.</p> <p>5. Then, the researcher</p>	Post test

		<p>explained more about the narrative test.</p> <p>6. Finally, the researcher gave the test questions back to the students in the form of a text with 10 questions. The time given in doing the test is 35 minutes.</p>	
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3.4 The Research Instrument

This research instrument is used to find data. In this study, researchers used tests to collect data. This research instrument consists of 5 pre-test questions and 10 post-test questions. Researchers chose questions in the form of essays so that students would find it easier to work on and answer the questions in the test.

3.4.1 Conceptual Definition

Conceptual Definition is a research element that explains the characteristics of a problem to be studied. The conceptual definition in this study:

1. Reading comprehension

Reading comprehension is an active process in constructing the meaning of a text, it involves prior knowledge, both in understanding vocabulary and concepts, connecting ideas, and being able to make conclusions. Comprehension cannot be learned through rote instructions, but by various strategies using text (Lubis, 2018). In addition, reading comprehension is not an instant thing but requires continuous practice. This exercise will run optimally if students have a high interest in reading (Bano, Jabeen, & Qatoshi, 2018). In addition, reading comprehension is the ultimate goal of reading activities (Fahrurrozi, 2020). So with that if you do continuous practice on students then students will be able to understand a reading in the text.

2. The effect of critical thinking

Critical thinking is a way of thinking about meaning in which there are reasons and goals to be able to decide or conclude a problem. According to Priyatni (Titik et al., 2017:120) critical thinking skills are management in a person's self to make a decision in the form of views, insights, evaluations, and

conclusions by using evidence and data as well as clear and regular methods (Affandy et al., 2019:26). In addition, a person's knowledge and experience will affect his critical thinking ability (Wirna Doang, 2022). So, with that if students have a lot of knowledge and experience it is not possible for students to be able to think critically about what happens to a problem that must be faced.

3.4.2 Operational Definition

Operational definition is a concept whose data is examined empirically, then the concept must be operationalized by turning it into a variable or something that has value. In addition, this operational definition contains an explanation of the terms used by researchers.

1. Effect

According to Kamus Besar Bahasa Indonesia (KBBI) effect is the power that exists and arises from something (people, objects) that can shape a person's character, beliefs or actions. Furthermore, influence is a condition in which there is a reciprocal relationship, or a causal relationship between what affects and what is affected (Cahyono, 2016). So with the effect on students' critical thinking is very important to achieve students' reading comprehension.

2. Reading

According to Douglass (Cox, 1993: 6), reading is a process of creating meaning for everything that exists in an environment where the reader develops an awareness. In addition, Harris and Sipay (1980: 8-9) state that reading is an activity that can respond appropriately to written verbal symbols. So, with that, reading is a skill that must be owned by everyone, because reading is functional, which can be used to continue their studies or to plunge into society (Fauziah, 2013). According to the explanation above, reading has many meanings that are beneficial to one's life. Reading is an important thing because by reading a person can communicate with other people because reading has a lot of knowledge.

3. Critical Thinking

According to Halpern (1998) and Larsson (2017), critical thinking is a person's attempt to check the truth of an information using the availability of

evidence, logic, and awareness of bias (Sulaiman, 2018). With critical thinking someone will be able to find out the truth that exists in a problem. Seeing that social conditions are increasingly complex and advances in information technology, which encourage the exchange of information that has not been verified, many people are consumed by fake news. With that the importance of critical thinking is done by someone before he determines the next path.

3.4.3 Specification

This research instrument is in the form of a test on narrative text that tell about folk/fictional stories consisting of 5 pre-test questions and 10 post-test questions. The test is in the form of an essay, the questions in the test are based on folklore/fictional stories.

Table 3.5

The Criteria of Test

Group	Criteria	Number	Count
Pre-test	Easy	1	20%
	Moderate	3,4	40%
	Difficult	2,5	40%
Post-test	Easy	3,5,8	20%
	Moderate	4,1,7	20%
	Difficult	2,6,8,10	60%

Scoring the students' correct answer at the pre-test and post-test by using this formula:

Scoring Rubric

Table 3.6
Relevance Scoring

Score	Criteria
90-100	Statement or answer related to the questions raised, and related to the problem.
80-89	The statement is clear and thorough.
70-79	Statement or answers are unclear but thorough

60-69	Statement not related to the existing problem.
50-59	The answer is not related to existing problems and are not quite right.

Table 3.7
Accuracy Scoring

Score	Criteria
90-100	Accuracy in the use of words (vocabulary), accuracy in sentence structure and paragraph arrangement, use of correct spelling, use of proper punctuation, fluency in reading, appearance or expression when reading, accuracy of speech or pronunciation.
80-89	Fluency in reading, use of good punctuation, appearance or expression when reading, accuracy of speech or pronunciation.
70-79	The correct use of words, reading fluency is correct but the use of punctuation marks is not correct
60-69	The use of correct spelling and punctuation is less precise
50-59	Fluency and use of punctuation is not correct

Table 3.8
The Score and Classification

No	Score	Classification
1	90-100	Excellent
2	80-89	Very good
3	70-79	Good
4	60-69	Fairly good
5	50-59	Poor

(Hasri, 2021)

3.5 Technique of Analyzing Data

In research, data analysis is the last step in the experimental procedure, as in data processing. According to Jogiyanto (2009: 3), data management is the

manipulation of data into a more useful form. Data management is all kinds of management of data or combinations of various kinds of management of data to make the data useful according to the desired results that can be used immediately. (Halim, 2016). Data processing was carried out after collecting student answer sheets which included the pre-test and post-test. Researchers used SPSS 22.0 software to analyze the data. Data processing is a step to find out the effect of critical thinking strategy on students' reading comprehension.

After the data are collected, so it analyzed by using the procedure as follow:

1. Normality Test

The normality test is a prerequisite test regarding the feasibility of data to be analyzed using parametric statistics. By carrying out this test, it will be known that the results of the research are in the form of a normal distribution of data or not the normal (Misbahuddin, 2013). This parametric statistic can be used for data that passes the normality test and is normally distributed, so the researchers used the SPSS 22.0 application. The normality test used Shapiro-Wilk test. Shapiro Wilk is a test conducted to determine the distribution of random data from a small sample, used for the normality test with samples < 50 (Suardi, 2019). However, if the sample is > 50 then use the Kolmogorov-Smirnov normality test. Its originator is Vladimir Ivanovich Smirnov. In this study, researchers used a sample of < 50 . The characteristic of Shapiro-wilk test is :

- a. If the value of $t_{count} < t_{table} (0.05)$, then the data is normally distributed
- b. If the value of $t_{count} > t_{table} (0.05)$, then the data is not normally distributed.

2. Homogeneity Test

Homogeneity test is a requirement analysis test regarding the feasibility of the data to be analyzed using certain statistical tests. This is related to the parametric statistical test (Misbahuddin, 2013). The homogeneity test was used Levene test. After getting F_o it contrasted to $F_t \alpha = 0,05$. The characteristic of Levene test is:

- a. If $L_o (L\text{-observed}) < L_t (L\text{-Table}) = \text{Data is homogeneous.}$
- b. If $L_o (L\text{-observed}) > L_t (L\text{-Table}) = \text{Data is not homogeneous.}$

3. Hypothesis Test

T-test is used to know whether the null and alternative hypothesis is accepted or rejected. The criteria are:

- a. If $t_{count} > t_{table}$, the alternative hypothesis (H_a) is accepted and null hypothesis is rejected. This means that it has an influence on students' reading comprehension between students who are taught using the DRTA strategy and taught conventionally.
- b. If $t_{count} < t_{table}$, the alternative hypothesis (H_a) is rejected and null hypothesis (H_0) is accepted. This means that it has no effect on the reading comprehension of students who are taught with the DRTA strategy and those who are taught conventionally.

The researchers will find out whether the instruments being tested on students are in accordance with the level and material of the students. This instrument is suitable for use in this research because using this instrument will determine the success of critical thinking treatment for MAS Muallimin UNIVA Medan students.

3.5 Statistical Hypothesis

The mean of post-test

The statistical hypothesis in this research is:

$$H_0: \mu_A = \mu_B$$

$$H_a: \mu_A \neq \mu_B$$

In which:

A = Critical Thinking Strategy

B = Conventional Method

If H_a is accepted, it means that the ability to think critically on students' reading comprehension has increased ($\mu_A \neq \mu_B$). If H_0 is accepted, it means that the ability to think critically on students' reading comprehension has no effect or no increase ($\mu_A = \mu_B$). To find out significant differences, researchers can look at the results of the pretest and posttest in critical thinking learning by looking at the average posttest in the experimental class and the control class. After that, it can be concluded whether or not there is an influence of critical thinking on students' reading comprehension.