CHAPTER III

RESEARCH METHOD

In this chapter, the researcher presents the method of the research design, population and sample, instrument of the research, technique of collecting data, and technique of the data analysis.

A. Research Design

According to Creswell (2014), a quantitative study with a survey design is a research method used to collect data from a population or sample to describe characteristics, trends, or relationships between variables. A survey design in quantitative research often utilizes instruments such as questionnaires or tests that have been validated and tested for reliability to ensure objective data collection and statistical analysis.

In this study, the instrument used was a reading comprehension test. According to Creswell, using tests as instruments in quantitative research aims to systematically measure participants' abilities or comprehension. The results of these tests are then analyzed using statistical techniques to identify patterns or relationships within the collected data.

B. Population and Sample

1. Population

In quantitative research, there are two terms known as population and sample. According to Cresswell (2012), population is a

group of individuals who have the same characteristics. The population of this study consisted of students of class XI IPA MAS Al-Hakimiyah Paringgonan, consisting of four classes.

The following table shows the population of this research:

Table III.1

Population of the Research

No	Classes	Number of Students
1	XI IPA 1	36
2	XI IPA 2	36
3	XI IPA 3	36
4	XI IPA 4	36
	Total	**144**

2. Sample

According to Creswell (2012), a sample is a subset of the population from which the researcher collects data. For large populations, Creswell advises that researchers may select 10–15% or 20–25% of the total population as a sample if it exceeds 100 individuals. Furthermore, he emphasizes that a minimum of 30 participants is required for conducting correlational research effectively. The sampling method applied in this study was simple random sampling, specifically categorized as a convenience sampling type. Sugiyono (2018) defines simple random sampling as a technique where samples are selected randomly from the population without considering the strata within the population. In this study, the sample

was randomly drawn from students in class XI Science, all taught by the same English teacher.

Therefore, the researcher selected 25% of the population as the sample by randomly choosing a specific number of students from each class. From the four classes XI IPA 1 resulting in a total sample of 36 students.

Table III.2

Sample of the Research

No	Class	Number of Students
1	XI IPA 1	36
Total		**36**

C. Data Collection Techniques and Instruments

1. Data Collection Technique

To collect data, researcher used tests. According to Brown (2003) explains that testing is a process used to evaluate a person's skills, knowledge, or performance in a specific domain. To collect data from the sample, the researcher conducted the data of reading comprehension using by reading comprehension test. Data were collected through a reading comprehension test:

For the reading comprehension test, the researcher focused on explanation text as an assessment material. The questions consisted of twenty multiple-choice questions. There were five possible answers for each question (A, B, C, D and E).

There were several steps to take in order to collect the data, including:

a. The researcher explained the tests to the students.

b. The researcher gave a reading comprehension test with an hour of lesson time at the first meeting of the research.

2. Instruments

In scientific writing, research instruments are an essential component that should not be overlooked. These instruments are tools for measuring research variables that cannot be found in existing literature or commercially available resources. In this study, the researcher employed two types of tests as instruments: one focused on reading comprehension and the other on cognitive reading strategies.

a. Reading Comprehension Test

The test of reading comprehension was intended to collect data about the students' reading comprehension. The test for examining the students' reading comprehension consisted of some indicators. These are the basic indicators that are measured in reading comprehension.

In this study, to determine students' reading comprehension, researchers used multiple choice questions taken from Google as many as 40 questions, namely about the material of the explanation text. After the researcher got the 40 questions, the researcher tested the questions on the population to take valid questions. After that

the researcher found 20 questions that were in accordance with the indicators.

The table below shows a description of the indicators for the questions on the reading comprehension test:

Table III.3
Blueprint of Reading Comprehension Test

Basic Competencies I	**Basic Competency Indicators**	**Reading Comprehension Indicators**	**Total Item**
3.8 Distinguish social functions, text structures, and linguistic features of several spoken and written explanation texts by giving and asking for information related to natural or social phenomena covered in other subjects in class XI, according to the context of their use.	Identify similarities and differences in social functions, text structures, and linguistic features of explanation texts.	Detail information on the text	2
	Identify the parts of the explanation text structure.	Detail information on the text	2
	Understanding the structure of explanation texts in giving and asking for information related to natural or social phenomena covered in other subjects in class XI.	Main idea	2
		Detail information on the text	4
		Implied information on the text	2
	Understanding the linguistic elements of explanation texts in giving and asking for information related to natural or social phenomena covered in other subjects in class XI	Vocabulary according to context	5
		Grammar features	3
Total			**20**

D. Data Analysis Technique

1. Reading Comprehension Data Analysis

In the Scoring test, the right response received one point, and the incorrect response received no point. As a result, the correct response's

overall raw score on this achievement exam was 20 points. After that, the researcher determined the final test score using the S formula. The following is the S formula:

$$\text{The final score is calculated} = \frac{students' correct\ answer}{the\ number\ of\ item} \times 100$$

Where :

S : Final score

CA : Number of correct answer

N : Number of questions

The following is the table for the reading comprehension test:

Table III.4

Range of Score Criteria for the Reading Comprehension Test

Score Range	Classifications
80-100	Excellent
66-79	Good
56-65	Average
30-55	Poor
0-29	Fail

Source: Arikunto, Metodologi Penelitian Suatu Pendekatan Proposal, 2002

From the table above, it can be seen that there are five levels of classification for reading comprehension test scores. If the test scores are in the range of 0 to 29, it can be said that the level of students' ability to do the test is at the fail level. This is the lowest level of this test. The bottom two sequences are values from the range 30 to 55, which are classified as having a poor rating. Furthermore, if the value is in the 56-65 interval, then it is at the

average level. For values in the range of 66-79, this is already in the good category. Finally, the highest level is in the 80-100 range. If a student gets this score, then it is classified as an excellent category.

2. Validity and Reliability Test

a. Validity

Validity test shows the level of validity of a test. High validity can occur if it carries out the correct measuring function or provides measurement results that are in accordance with the purpose of the measurement. To find out whether each question is valid or invalid, namely on the condition that if r count> r table with a significance of 0.05 then the instrument is declared valid. If R count <R table with a significance of 0.05 then the instrument is declared invalid.

b. Reliability

It is a measurement of the consistency of the measurement results of the questionnaire in repeated use. In other words, it can be used repeatedly by the same researcher or other researchers and still48 give the same results. It is said to be reliable if it has a Crobanch's alpha value of more than or equal to 0.6. The requirement for a measuring instrument to show increasingly high reliability is if the reliability coefficient (α) approaches one. If the alpha coefficient (α) is greater than 0.6, the measuring instrument

is considered reliable or has internal consistency reliability and vice versa if alpha is less than 0.2, it is considered less reliable or has no internal consistency reliability.