

CHAPTER III

RESEARCH METHOD

3.1. Research Design

This study would be conducted by using correlational research. According to Fraenkel and Wallen (2009), correlational research is a research which purpose to find out the relationship between two or more variables and their cause and effect. Correlational research is similar to descriptive survey in that is non experimental, consisting of only one group of individuals and two or more variables that were not manipulated or controlled by the researcher.

According to Cresswell (2012), a correlation is a statistical test to determine the tendency of pattern for two (or more) variables or two sets of data to vary consistently. This study has two variables, X variable and Y variable. X variable is as critical thinking and Y variable is as students' writing descriptive text measured through tests. Then the correlation, and the influence between variables was analyzed through Statistical Package for Social and Science (SPSS) 20.00 based on the results of the critical thinking test and writing descriptive essay test. The design of the research was pictured the following diagram by Creswell (2012, pp. 115-116) :

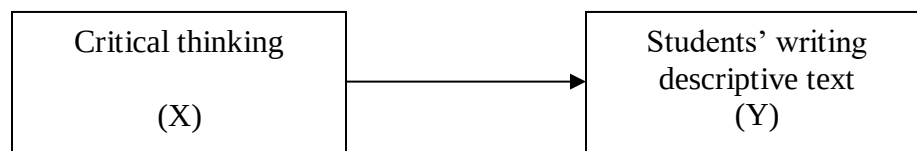


Figure 3.1. Research design

3.2. Population and Sample

3.2.1. Population

Sugiyono (2018:117) states population is a generalization area consisting of objects or subjects that have certain qualities and characteristics that are determined by researchers to be studied and then draw conclusions. The population of this research is the seventh-grade students in SMPS Al-Washliyah 26 Medan. The total of population were 108 which were divided into three classes. The distribution of population of the study can be seen below:

Table 3.1.

The Distribution Of Population

Class	Number of Students
VII-1	37
VII-2	34
VII-3	37
Total	108

3.2.2. Sample

Sugiyono (2018:118) states the sample is part of the number and characteristics of the population. It is clear that sample was a group in population which represents that population which had researched. According to Gay (2016) the sample for a correlational study is selected by using an acceptable sampling method and a minimally acceptable sample size is generally 30 participants. If

validity and reliability are low, a larger sample is needed because errors of measurement may mask a true relation. The higher validity and reliability of the variables to be correlated, the smaller of sample can be, but not fewer than 30.

In this research, the researcher was take 30 students from the classes by using simple random sampling. Simple random sampling is a method conducted by taking the sample randomly from the population without further classifications (Sugiyono, 2018:82). Based on that statement, the researcher had taken the lottery method to get the 30 students from 108 students in the school as the population of the research.

3.3. Research Instrument

According to Sugiyono (2018:148) states that research instrument is a tool that use to measure of natural or social phenomenon has researching. It means that the research instrument is needed to measure the data that researcher collect in a research. In this research, the researcher had given two test. The first was test to know critical thinking of students. And the second test was to know students' writing descriptive text. Below the detail explanation of the research instrument of this study.

3.3.1. Critical thinking test

The critical thinking test used in this research is Cornell Critical Thinking Test (CCTT) that developed by Robert Ennis (1985). The Cornell Critical Thinking Test series offers two levels of testing: level X for grades five through twelve and level Z for grades ten through twelve. So, in this research, the

researcher was use CCTT in level X, because the sample of this research was the seventh-grade of students. Level X includes 44 items, 60 minutes, questions that evaluate student skill in Induction, Deduction, Credibility, and Identification of Assumptions. It was multiple-choice test with three answer options (YES, NO, MAYBE).

Table 3.2.

The Specification Test of CCTT

No	Content	Indicator	Test Number in The Instrument	Total Of Test Item
1	Induction	The students are able to generalize and explain the arguments	1,2,3,4,5,6,7,8,9,10 11,12,13,14	14
2	Deduction	The students are able to make decision and conclusion about the arguments	15,16,17,18,19,20, 21,22,23,24,25,26, 27, 28,29	15
3	Credibility	The students are able to assess the credibility of sources of information and claims they make	30,31,32,33,34,35, 36, 37,38,39,40,41	12
4	Identificatio	The students are able to	42,43,44	3

n of assumption	identify assumptions, reason, examine the arguments
Total	44

3.3.1. Writing Descriptive Test

This test has provided to find out the students' writing descriptive text. In this test the students were ask to write a descriptive text for 60 minutes. The text should be composed at least 50 words. The students were ask to describe people by picture. The students' writing descriptive test was measured by using the rubric for writing descriptive text from Brown (2007). This rubric was use because of the appropriateness to measure the seventh-grade level writing descriptive text. The scoring test is consisted of 5 items in writing descriptive text that following items: content, the organization, grammar, vocabulary, and mechanics.

3.4. Reliability and Validity of Instrument

3.4.1. Reliability of Instruments

Reliability refers to the scores from an instrument which is stable and consistent (Creswell, p.159). The reliability coefficient of the test should be $\geq 0,70$ to be considered as a reliable.

3.4.1.1. Reliability of CCTT

According to the developer of CCTT, the developers claimed that the reliability coefficient of the CCTT range from .67 to .90 are considered higher than 0,70 which meant this critical thinking test was reliable.

3.4.1.2. Reliability of Writing Descriptive Test

Reliability testing in this test involves evaluators or experts called inter rater reliability. In terms of inter rater reliability outside the context of the study must be established. This test aims to determine students' difficulties regarding the descriptive text material that has been given in the learning process. In this research used the Cohen Kappa agreement coefficient. According to Widhiarso (2006:2) the use of the kappa coefficient is appropriate if one subject is judged by two rater. To found the Cohen Kappa coefficient, can use this following formula:

$$K = \frac{Pa - Pc}{1 - Pc}$$

Where:

K = Coefficient Cohen Kappa.

Pa = Proportions of agreement were observed.

Pc = Proportion of the expected agreement.

1 = Constant.

Widhiarso (2006:15) categorized reliability levels between raters as follows:

Kappa < 0,4 : Bad

Kappa 0,4 – 0,60 : Fair

Kappa 0,60 – 0,75 : Good

Kappa > 0, 75 : Excellent

3.4.2. Validity of Instruments

Validity refers to the degree to which such evidence supports any inferences a researcher makes on the basis of data collected with a particular evidence (Wallen & Fraenkel, 1991).

3.4.2.1. Validity of CCTT

For critical thinking test, it was a ready-made test. There was no need to conduct the validity test anymore. Moreover, the developers stated that the test was adequate to measure the students' critical thinking.

3.4.2.2. Validity of Writing Descriptive Test

Ary et al (2010:226) stated that to have a content validity, the instruments are representative of some defined universe or domain of content. If the instrument contains a representative sample of the universe, the content validity is good (Kothari, 2004:74). According to Heaton (1991: 135) there are five aspects evaluated in writing descriptive text; they are content, organization, vocabulary, grammar and mechanic. The following table presents the five aspects of evaluating which was used.

Table 3.3.

The Specification of Writing Descriptive Text

No	Aspect of Writing	Definition	Percentage
1	Content	The substance of the	20%

		writing, the idea expressed	
2	Organization	The form of content (coherence)	20%
3	Vocabulary	The selection of word that suitable with the content	20%
4	Grammar	The employment of grammatical forms and syntactic patterns	20%
5	Mechanic	The conventional devices used to clarify the meaning	20%

In this research, the researcher was use formula of Pearson's Product Moment test as the validity of instruments, as follows :

$$r_{xy} = \frac{N \sum XY - (\sum X) (\sum Y)}{\sqrt{[N \sum X^2 - (\sum X)^2][N \sum Y^2 - (\sum Y)^2]}}$$

Where :

r_{xy} = correlation between x and y

n = number of sample

x = independent variabel

y = dependent variable

The following table classifies the value of the pearson r correlation coefficient:

Interval coefficient	Relationship level
0,80 – 1,000	Very high
0,60 – 0,799	High
0,40 – 0,599	High enough
0,20 – 0,499	Low
0,00 – 0,199	Very low

3.5. Technique of Data Collection

Data collection techniques refer to methods used to collect and analyze different forms of data. Standard data collection techniques include going through documents related to a topic, as well as conducting interviews and observations.

3.5.1. Data Collection of Critical Thinking Test

In critical thinking test, the researcher had used Cornell Critical Thinking Test (CCTT) in level X that developed by Robert Ennis (1985). This test was considered suitable to be used in the present study because it was claimed by its developers to be a general critical thinking test which attempts to measure the critical thinking skills as a whole and it is best used for grade 5 to 12 students. So, the researcher had used the questioner to take the data collection by CCTT. For CCTT, the items are in the form of “Yes, No, Maybe” questions.

The total numbers of questions were 44 questions. The classification score of critical thinking test were explain below:

Table 3.4.

The Classification Score of Critical Thinking Test

Level of Critical Thinking	Raw Score
High	71-100
Medium	50-70
Low	0-49

3.5.1. Data Collection of Writing Descriptive Test

To collecting the data of writing descriptive text, the researcher had used rubric for assessing of writing descriptive text by Brown (2007). The rubric will be showed in the table 3.6. below :

Tabel 3.5.

Rubric for Assessing of Writing Descriptive Text

Aspect	Score	Performance description	Weightning
Content (C) 30%	4	The topic is complete, clear and the details are relating to the topic	3x
- Topic	3	The topic is complete and clear but the details are almost relating to the topic	
- Details	2	The topic is complete and clear but the details are not relating to the topic	
	1	The topic is not clear and the details are not relating to the topic	
Organization (O) 20%	4	Identifiati on is complete and descriptions are arranged with proper connectives	2x
-	3	Identifiati on is almost complete and descriptions are almost arranged with proper connectives	
Identifiati on	2	Identifiati on is not complete and descriptions are arranged with few misuse proper connectives	
- Descripti on	1	Identifiati on is not complete and descriptions are arranged with misuse proper connectives	
Grammar (G) 20%	4	Very few grammatical or agreement inccuaracies	2x
- Use present tense	3	Few grammatical or agreement inccuaracies but not effect on meaning	

- Agreement	2	Numerous grammatical or agreement inaccuracies	1,5x
	1	Frequent grammatical or agreement inaccuracies	
Vocabulary (V) 15%	4	Effective choices of words and word forms	1,5x
	3	Few misuse of vocabularies, word forms, but not change the meaning	
	2	Limited range confusing words and word forms	
	1	Very poor knowledge of words, word forms, and not understandable	
Mechanics (M) 15% - Spelling - Punctuation - Capitalization	4	It uses correct spelling, punctuation, and capitalization	1,5x
	3	It has occasional errors of spelling, punctuation, and capitalization	
	2	It has frequent errors of spelling, punctuation, and capitalization	
	1	It is dominated by errors of spelling, punctuation, and capitalization	

Adapted from Brown (2007)

$$\text{Score} = \frac{3C + 2O + 2G + 1,5V + 1,5M}{40} \times 10$$

After the real score of the seventh-grade students in SMPS Al-washliyah 26 Medan in writing descriptive text had been analyzed, the researcher needed to know the average of the students in writing descriptive text and classified their ability to the table followed:

Table 3.6.

The Classification of Students' Writing Score

No	Score Range	Categories
1	81-100	Very good

2	61-80	Good
3	41-60	Average
4	21-40	Poor
5	0-20	Very Poor

Cohen (1994:328)

From the research instrument of scoring test above, it was examined the significant correlation between critical thinking and students' writing descriptive text of the seventh-grade students in SMPS Al-washliyah 26 Medan.

3.6. Technique of Data Analysis

3.6.1. Critical Thinking Analysis Test

After giving the critical thinking test, the researcher had been checked, and then scored the results manually to know students' critical thinking level. The results of critical thinking level had been analyzed by using percentage of students' choice as follows:

$$\frac{\text{Numbers if students choose the correct answer}}{\text{All questions}} \times 100\%$$

All questions

The range scores of critical thinking used as follows: High, Medium, and Low.

Tabel 3.7.

The Range Scores of Critical Thinking

Students' Competency Level	Range of Score
High	71-100
Medium	50-70
Low	0-49

Source: critical thinking disposition self-rating form, 2011 p. 13

3.6.2. Writing Descriptive Analysis Test

The students' writing descriptive text had been analyzed by using rubric assessing of writing descriptive text by Brown (2007). There are five aspects of the writing scoring system and the scale of each aspect is from one to six. As a result, the highest point of all is 30 point. The following is the category of students' writing achievement :

Table 3.8.

The Category of Students' Writing achievement

No	Score Interval	Category
1	25-30	Very good
2	19-24	Good
3	13-18	Avarage
4	7-12	Poor
5	1-6	Very poor

Source: Diablo Valley College (2012)

3.6.3. Correlation Analysis

Correlation's analysis was apply after analyzing the data from critical thinking test and students' writing descriptive test. In order to found the correlation between critical thinking and students' writing descriptive text achievement, *Pearson-Product Moment Correlation* was used. The meaning of a given correlation coefficient can be seen below based on Cohen, Manion, and Morrison (2005).

Table 3.9.

The Category of Correlation

Interval Coefficient	Level of Correlation
0.20 – 0.35	Weak
0.35 – 0.65	Fair
0.65 – 0.85	Strong
Over 0.85	Very strong

Source: Cohen, Manion, and Marrison (2005)

3.6.4. Regression Analysis

To answer the second question, *Regression Analysis* was used. To know the size of the correlation or the contribution of critical thinking skill towards variable writing descriptive text achievement, the determination coefficient (R) was calculate in percentage. This was to found how far students' critical thinking influences their writing descriptive text achievement.

