

## CHAPTER III

### RESEARCH METHODS

#### A. Research Setting

This research was conducted at MTs Miftahul Husna in JL. Makmur Pasar 7 / Anggrek 25 Desa Sambirejo Timur Dusun IV Tembung, Kec. Percut Sei Tuan, Kab. Deli Serdang, North Sumatera

#### B. Research Design

The author in this study uses a quantitative approach, because the problem is related to the effect of using mind mapping on students' writing comprehension skills.

Quantitative data is data in the form of numbers, or quantitative data that is assessed (scoring). So quantitative data is data that tends to be analyzed by means or statistical techniques. Data can be in the form of numbers or scores and are usually obtained using data collection tools where the answers are in the form of a range of scores or weighted questions.

In addition, the research design that used in this study is a quasi-experimental research. As Goddard and Melville see, experimental research is primarily concerned with cause and effect. The researcher identifies the variable of interest and tries to determine whether a change in one variable (called the independent variable, or cause) results in a change in another variable (called the dependent variable, or effect). The author apply an experimental study using two sample groups; control and experimental groups to investigate the effect of using mind mapping on students' writing comprehension skills. The experimental group is the group that was treated using mind

mapping, while the control group was the group that was treated using the teacher's lesson. The writer also used pre-test before treatment and post-test after treatment for both sample groups.

### **C. Population and Sample of the Research**

#### **a. Population of the Research**

Population is (univesum) the object of research which can be humans, animals, air, symptoms, values, events, life attitudes and so on.<sup>28</sup> Population research is carried out when the researcher sees all the twists and turns in the population, therefore the subject includes everything in the population, it is also called a census.<sup>29</sup> The population in this study were all students of class VII at Miftahul Husna Private MTs using a sample of 50 students.

#### **b. Sample of the Research**

The sample is part of the population (part or representative of the population under study). The research sample is part of the population taken as a data source and can represent the entire population. Determination of the number of samples used by this author is the experimental learning method, this research involves one class as an experimental class that is taught using mind mapping and the other class as a control class that is taught with teacher presentations or without a teacher. In determining the experimental class and control class from the two classes, the author decided to choose class VII-1 which had a low pre-test score to be the experimental class that needed

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<sup>28</sup> Siregar, Syofian. 2013. *Quantitative Research Methods*. Jakarta: PT Fajar, p. 30

<sup>29</sup> Arikunto, Suharsimi. (2012). *Research Procedure*. Jakarta: n Rineka Cipta. p. 108

more improvement than the control class and class VII-C which got a score. better score to be the control class. There are 25 students In each class there are 50 students from two classes as the sample in this study.

#### **D. Variable Definition and Operationalization of Research Variables**

##### **a. Variable Definition**

The research variable is anything in the form of anything determined by the researcher to be studied in order to obtain information about it then draw conclusions.<sup>30</sup> In accordance with the research title chosen by the author, namely the effect of thoughts mapping on the students 'logical thought writing mts narrative text Private miftahul husna the author classifies the variables used in this study into the independent variable (x) and the dependent variable (y).

##### **b. Operationalization of Research Variables**

The operational definition is a systematic description of the theory and research results that are relevant to the variables under study. The operational definition in this study is as follows:

The explanation is as follows:

##### **1. The independent variable**

The independent variable (X) is often referred to as the stimulus variable, predictor, abteseden. In Indonesian it is often referred to as an independent variable.

Independent variables are variables that influence or cause changes or the emergence

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<sup>30</sup> Sugiyono. (2016). *Quantitative Research Methods, Qualitative and R & D*. Bandung: PT Alfabet. P.38

of the dependent variable. The independent variable examined in this study is the use of mind mapping.

## 2. Bound variable (dependent variable)

The dependent variable is a variable that is influenced or becomes a result, because of the independent variable. The research variable used in this study was the students' Write Narrative Text.

### **E. Research Instrument**

Research instruments are tools that can be used to obtain, process, and interpret information obtained from respondents using the same measurement pattern. In this study, the research instrument used was to provide a description test.

Collecting research data used by methods test. Tests are in the form of questions or exercises as well as other tools for measure skills, intelligence knowledge, abilities or talents owned by individuals or groups (Suharsimi Arikunto, 2002:127). In this study, tests were performed to measure ability learners, so the test used is a form of achievement test (learning outcomes), which is a test used to measure achievement someone after learning something. Tests used in the study this is in the form of 10 essay questions. The problem that composed covering the entire subject matter of the naratve text,

This test was applied to the post test and pretest pretest to collect data on writing comprehension skills before treatment, while the prostest was used to collect data on the ability to write procedural texts after treatment. namely by using mind mapping to

facilitate data processing, the researcher clarifies the value by giving weight to each element that is assessed using the following assessment indicators

**Tabel 3.1**

**Assessment Indicators For Narrative Text Writing Ability**

<b>Aspects That Are In The Score</b>	<b>Description</b>	<b>Score</b>
Linguistic Aspects:	Contents; Reasoning; Neatness And Suitability	25
	Contents; Reasoning; The Accuracy And Suitability Are Not Neatly Arranged	15
	Contents; Reasoning; Accuracy And Suitability Are Not Neatly Arranged	10
serving technique;	presentation style and language; legibility / clarity; spelling, punctuation; neat word choice	25
	presentation style and language; legibility / clarity; spelling, punctuation; the choice of words is not neatly arranged	20
	presentation style and language; legibility / clarity; spelling, punctuation; the choice of words is not neat	5
<b>Skor</b>		<b>100</b>

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## **F. Technique of Data Collection**

### **1. Validity test**

Validity test is used to measure whether something is valid or valid questionnaire. An instrument or questionnaire is said to be valid if the questions are on instrument or questionnaire is able to reveal something to be measured by the questionnaire (Ghozali, 2018: 51). The significance test was carried out by comparing the calculated  $r$  values with the value of  $r$  table. In determining whether or not an item is appropriate will be used, usually a significance test of the correlation coefficient is carried out at the level significance of 0.05 which means an item is considered valid if it is correlated significant to the total score. If  $r$  count is greater than  $r$  table and the value is positive then the item or question or variable is declared valid. On the contrary, if  $r$  arithmetic is smaller than  $r$  table, then item or question or variable is declared invalid.

### **2. Reliability Test**

According to Ghozali (2018: 45) real reliability is a tool for measuring a questionnaire which is an indicator of a variable or construct. A questionnaire is said to be reliable or reliable if one's answers to statement is consistent or stable over time. Reliability test used to measure the consistency of measurement results from the questionnaire in repeated use. The respondent's answer to the question is said reliable if each question is answered consistently or answers can't be random. In this study, the authors used tests to collect data and measure writing comprehension.

The tests given to students are pre-test and post-test. The pre-test was given to the experimental group and the control group before the study was conducted to

measure the ability to understand writing. After getting the pre-test, the experimental group was given the treatment of writing comprehension using mind mapping, while the control group was given the treatment of writing procedural texts with teacher presentations or without mind mapping. After the treatment, both groups received a post-test to determine the learning achievement of the experimental group and the control group.

#### **G. Technique of Data Analysis**

Data analysis technique is a compilation method by presenting answer categories in tables, figures or trends accompanied by preliminary analysis of various field data findings as an initial process in data processing. According to the problem and set of hypotheses.

The analytical technique used in quantitative research is descriptive analysis method. Descriptive analysis is a systematic, factual and accurate depiction or description of the problem being investigated. The instrument will be used in quantitative research to collect data. then the data analysis technique used in this study is to use the

##### *1. Normality Test*

- a. The data normality test aims to test whether the regression model, the independent variable, and the dependent variable have a normal distribution or not. A good regression model is that it has a normal or near normal distribution of data to test the normality of the data. It can be done in two ways, the first is by looking at the normal probability plot, the basis for decision making from the normal probability plot graph display which

refers to: If the data (points) are spread Around the diagonal line and following the direction of the diagonal line means showing a normal distribution pattern so that the regression model can fulfill the assumption of normality.

- b. If the data (points) spread far from the diagonal line and or do not follow the direction of the diagonal line, it means that it does not show a normal distribution pattern so that the regression model does not fulfill the assumption of normality.

Another normality test that is better done is to use statistical analysis. This test is used to test the residual normality of a regression model using the Kolmogorov-Smirov test. In the Kolmogorov-Smirov test, data is said to be normal if the Asymptotic Significant value is more than 0.05. The basis for making decisions in the K-S test are:

- a. If the probability value 2 of the K-S test is not statistically significant  $<0.05$ , then  $H_0$  is rejected, which means the data is not normally distributed.
- b. If the probability value 2 of the K-S test is significant  $> 0.05$ , statistically  $H_0$  is accepted, which means the data is normally distributed.

## 2. *Independent Sample $t$ -test*

In this study, the formulation of the problem is in the form of a comparative analysis of two independent samples (non-correlated), the sample is declared not correlated (independent) between the two groups, if the samples that are the object of the study can be separated explicitly. To analyze two independent samples with the interval / ratio data type, the two-sample  $t$ -test was used.



According to Sugiyono (2012: 263), there are several t-test formulas used for testing, the formula used for the number of members of the same sample (n1 = n2) is:

$$t = \frac{x - \mu_0}{\frac{s}{\sqrt{n}}}$$

Where:

T = the calculated value

X = Average

$\mu_0$  = Hypothesized Value

s = sample standard deviation

n = number of sample members

### 3. Homogeneity Test

The homogeneity test aims to determine whether the data has homogeneous variances or not. The formula used is:

$$F_{hit} = (\text{Largest Variance}) / (\text{Smallest Variance})$$

Homogeneity testing is carried out with the criteria: accepted  $H_0$  if  $F_{hit}$  (count)

<  $F_{table}$  which states that the sample comes from a homogeneous population.

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