CHAPTER III

RESEARCH METHOD

In this chapter the researcher describes the research method. It consists of research design, population, and sample, research variable, research instrument, validity and reliability testing, data collection method, research procedure and data analysis.

A. Research design

This research is conducted in pre-experimental design using quantitative approach with one group pretest-posttest design. This research uses pre-experimental because it does not have random assignment of subject to group or other strategy to control extraneous variable. The reason of researcher uses pre-experimental research because the researcher can't determine the homogeneity of students' writing ability in MTsN Tunggangri. Therefore in this research the researcher just takes one group or class to use pretest and posttest design to know the result of treatment. This research is classified as pre-experimental design because it is little or no control of extraneous variables. In the one group pretest-posttest design, a single group is measured or observed not only after being exposed to a treatment concisely but also before. Pre-experimental research involved administering pre-test to dependent variable, applying the experimental treatment to the subjects, and administering the post-test. The result of the treatment is comparing in the pretest and posttest score.

This experimental design used pre-experimental research design (one group pretest-posttest) that consist of pre-test, treatment and post-test. The pretest and posttest are given to get the score of student achievement before and after being taught by using mind mapping technique. Then, both of score were computed by using t-test to know if there is significant influence of teaching writing descriptive text using mind mapping technique. The design of this research can be seen at the table below:

Table 3.1 the design of one-group pre-test post-test

Pre-test	**Independent variable**	**Post-test**
X1	Y	X2

Explanation:

X1 = Pre-test

X2 = Post-test

Y = Treatment

B. Population, sample and sampling of the research

1. Population

According to Ary (2010: 148) population are all members of any well-defined class of people, event or object. It means that population is the all of element of object which the researcher wants to study, such as: human, animal, flora and attitude. The population in this research is all of the students from seventh, eighth and ninth class in MTsN Tunggangri from A class until J class which consists of 428 students.

2. Sample

The explanation about who is the sample in this research is very important in the research. According to Ary (2010:148) a sample is a portion of a population. It means that sample is smallest part from population. The Sample in this research is students in eighth E class that consists of 40 students; 20 male and 20 female.

3. Sampling

Sampling is a process selecting unit the individual who participate in this research (Wallen, 1996: 111). So, sampling is process selecting unit from population. The purpose of sampling is to gain of information about a population; rarely is a study conducted that includes the total of population of interest of subject (Gay, 1992: 123). So, sampling is a way that the researcher used to select number of individuals for a study in such as a way that the individuals represent the large group from which they were selected.

In this research, the researcher used purposive sampling technique to choose the sample. Purposive sampling technique is a type of non-probability sampling where the researcher consciously selects particulars elements of subjects for addition in a study so as to make sure that the element will have certain characteristic pertinent to the research. In purposive sampling, the researcher believes that the subject could give sufficient information that the researcher want to search. Based on the information of teacher in MTsN Tunggangri especially in English teacher

in E class and my preliminary observation when teaching training program (PPL), I found that students in second grade E class has weakness in writing and getting the idea when writing descriptive text.

C. Research Variable

Before the researcher explain the variable in this research, it is important to know the definition of variable itself. Variable is one of key terms in any research. According to Fraenkel (2012:77) variable is a concept a noun that stands of variation within a class of object. Such as: table, gender, achievement, color or running speed. According to Ary (2010:39) variable is constructing or characteristic that can take on different values or score. Based on definition above, we can conclude that variable is something that can be measure. In this research, there are two kind of variable. They are independent variable and dependent variable.

1. Independent variable

The treatment is independent variable and the outcome is the dependent variable. Independent variables are antecedent to dependent variable (Ary, 2010:37). In this research, the independent variable is teaching writing text using mind mapping technique.

2. Dependent variable

Dependent variable is variable that is influenced by independent variable. The dependent variable in this research is student achievement is writing descriptive text.

D. Research instrument

According to Fraenkel (2012:111) instrument is the devise such as: pencil-and-paper test, a questionnaire or rating a scale that the researcher uses to collect the data. In other hand, Research instrument is the tools that the researcher uses to collect the data. The requirement of the instrument is valid and reliable. A research instrument is called valid if the instrument measure what will be measured. To collage the data researcher uses test for student. The test in this research is a prompt test to write descriptive text using some criteria which is explained clearly in the paper of student task. There are some criteria for student to write descriptive text such as: the quantity of sentence, grammar, genre and time to make this test. The researcher also use scoring guide to scoring the student's writing achievement.

In this research, the researcher uses achievement test. The purpose of this test is to establish how successful individual, group of student, or the course themselves have been achieving objectives. The researcher uses this test to measure the student achievement in writing comprehension before and after they are taught using mind mapping technique.

In this research, the researcher applied pretest and posttest. The test is in given in form of prompt test that ask to student to write descriptive text about description the animal. The pretest was given before the researcher applied the treatment. The treatment is about writing descriptive text using mind mapping technique. The researcher was given the pretest by give the task during 50 minutes on April 21, 2015. Two days later on April 24, 2015, the researcher

gives the treatment again during 90 minutes. Four days later on April 27, 2015, the next treatment is given on the second meeting during 90 minutes. Then on April 29 2015, the researcher is given the last treatment about mind mapping to students. Finally, on April 30, 2015 the researcher is done the posttest to student to know the students' achievement is writing descriptive text using mind mapping technique.

E. Validity and Reliability Testing

1. Validity

Validity was defined as the extent to which an instrument measured what it claimed to measure (Ary, 2010:225). In experimental research, the researcher had to check the validity and reliability of the instrument.

a. Content validity

Content validity is validity in terms of the contents of the test. In this test, the researcher gives the written test to measure students' ability in writing descriptive text. Therefore, this test is valid in terms of the content validity. In this study the use of content validity because the result of test can be representative of the student for entire course material that has been taught. In order to judge whether or not the test has content validity, we need a specification of the skills or structure being tasted. The instrument of this research had a content validity because of the design from the syllabus of students in MTsN Tunggangri in academic year 2014/2015.

The content validity in this research can be shown as below:

Table 3.2 Content validity

Competence	**Task form**	**Indicator**	**Scoring Criteria**
Express the meaning of the functional written text and simple short essay in the form of descriptive text and recount to interact with the surrounding environment.	Prompt task	Students are able to write a descriptive text about the animal	• Content (topic and detail of paragraph). • Organization (identification and description object) • Grammar (use simple present tense). • Vocabulary choices. • Mechanics (spelling, punctuation, capitalization).

b. Face validity

Face validity is hardly a scientific concept, yet it is very important. Face validity is a term sometimes used in connection with a test's content. Face validity refers to the extent to which examinees believe the instrument is measuring what it is supposed to measure (Ary, 2010:228). The example of face validity, a test which

pretended to measure student's ability in pronunciation but which did not require the test-taker to speak might be thought lack face validity. The researcher uses face validity in this research by consulting with expert and teacher. And then this test has some aspect that makes it reliable in the aspect of face validity such as: the clearly of instruction that makes students understand what they should do this test such as: the picture of animal, the instruction is very simple and the step to do this test is clear. Besides that, the time allocation is suitable and enough to finish the task in order to student are able to finish the task punctually.

2. Reliability

According to Brown (2000: 398) a reliable test is consistent and dependable. A test said reliable if the subject give the same test to the same subject or matched subject on two different occasions, the test itself should yield similar result. Ary (2006: 236) also said that reliability of a measuring instrument is the degree of consistency with which it measures whatever it is measuring. Richard (2009: 157) reliability refers to the consistency of the score obtained how consistent they are for each individual from one administration of an instrument to another and from one set of items to another. Reliability of the test is the measurement that explains the consistency of the test. The test is consistence if those tests have the same relative score although examined frequent. In this research, the researcher used prompt test as an instrument to measure the student

achievement in writing. Before the researcher applied the instrument into the experimental and control class, the researcher want to know the reliability of the test. Therefore, the researcher applied the tryout of instrument and chose eighth H class as a tryout class. In that class, the researcher doing the test before the researcher applied into control and experimental class. Researcher analyzes the reliability of the instrument in the aspect of the score that the student have. The instrument is said reliable if the first scorer and the second scorer have the similarity of scoring or not very different from giving the score of student test. The students' score from first and second scorer in this case afterwards is used in statistical coefficient to analyze the reliability using SPSS Statistics. In this research, the researcher uses inter-rater reliability, where the researcher invites other scorer to scoring student's achievement in writing. The researcher search other researcher that has the understanding about the mind mapping, how to scoring students and understanding about writing descriptive text. The criteria of rater above were found in one of other researcher in the same place at MTsN Tunggangri. She has the quality that the researcher wants to find. After the researcher and second rater scoring students' writing Then, that two score is compare to know the reliability of coefficient. After that, two sets of scores are calculated using Pearson Product Moment in IBM SPSS Statistics 20 for getting correlation coefficient. The result of correlation coefficient from two score afterwards will be made the indicator of the instrument. The score of students in writing descriptive

text from researcher scorer and second scorer is used to know the reliability of instrument. The consistency of students' score from two scorers is indicating that this test was reliable and certainly can be used as an instrument of the research. The ideal value of reliability coefficient is 1. The test is called high correlation if the calculation is near to 1. A test with a reliability coefficient of 1 has accurate the same result for a particular set of test-takers regardless of when it happened to be administered. On other hand, a test which has a reliability coefficient of zero would give sets of result quite unconnected with each other.

Table 3.3 the result of Reliability Pre-Test Try Out

Correlations

		VAR00001	VAR00002
VAR00001	Pearson Correlation	1	,970**
	Sig. (2-tailed)		,000
	N	41	41
VAR00002	Pearson Correlation	,970**	1
	Sig. (2-tailed)	,000	
	N	41	41

**. Correlation is significant at the 0.01 level (2-tailed).

As Table 3.2 shows that the result of Pearson Correlation is 0.970. It indicates that the instrument has the strong high correlation. Eventually, based on the result of statistical correlation from pretest tryout above indicating that the correlation is strong respectively positive, it can be concluded that the instrument in pretest tryout was reliable and can be applied into pretest and posttest.

F. Data collection Method

Data collection method is the method to obtain the data in the research. The researcher collects the data from the score of pre-test and post-test in writing descriptive text. The researcher gives the pre-test to know student's writing ability in descriptive text without using mind mapping technique. After the researcher get score from pre-test, the researcher apply mind mapping treatment in doing writing descriptive text. Then, the researcher gives post-test to student. The result of pre-test and post-test then researcher compares using SPSS 20 to know the affectivity. The technique of collecting data can be shown as:

1. Pre-test

   At the first meeting, the researcher gives pre-test to student. The purpose of pre-test is to measure student' score in writing descriptive text without mind mapping technique. This test is given to know how far student's comprehension in writing descriptive text.

2. Post-test

   in last meeting, the researcher give the post-test to measure the student's score in writing descriptive text after taught using mind mapping technique. The time allocation when do the post test is 50 minutes. The test in posttest and pretest is different but has same the difficulty. The test is used to measure the student skill in writing, especially in writing descriptive text after taught using mind mapping technique. It is done to know the final score of student after taught using mind mapping technique

and one of the requirements to compare and commutating the effectiveness score using SPSS Statistics.

G. Data Analysis

After the researcher got the data from pretest and post test score, the researcher analyzed the data. The researcher used a quantitative analysis technique using statistical method. This technique is used to know the significant different on the students' score before and after taught mind mapping technique. The researcher is used the application IBM SPSS Statistics 20 for windows to analyzed Paired-Sample T-test.

There are some steps in analyzing data in SPSS 20. Firstly, the researcher input the data in SPSS Statistics to know the frequency of pretest and post test score. After that, by using this application the researcher know the mean, median, mode and standard deviation. Then, from the compare of data the researcher know the pair sample statistics and finally the researcher find pair sample correlation from two kinds of test. The researcher cans analysis about the result of significant two tails and degree of freedom. After the researcher knows the result of significant two tails from SPSS Statistics, the researcher can give the conclusion about the effectiveness or not about the treatment mind mapping technique in writing descriptive text. This technique is used to find the significant different on the students writing descriptive text using mind mapping technique. If the significant two tails is smaller than the level of significant (0, 05), the alternative hypothesis (ha) is accepted. It means that, there is different score of students' achievement before and after taught using

mind mapping technique. On the other hand, if the significant two tails is bigger than the level of significant (0, 05) the null hypothesis is rejected. Indicating that, there is no different score of students' achievement before and after taught using mind mapping.

H. Research procedure

The procedure of pre experimental research that use one group pretest and posttest design as follow:

1. The researcher administer a pretest with a purpose to measure students' writing achievement in writing descriptive text before taught using mind mapping technique.
2. The researcher gives the experimental treatment in teaching writing descriptive text using mind mapping technique to student. There are some steps in giving treatment in the classroom. Those are:
    a. The researcher comes into the classroom and start teaching and learning material about the treatment of mind mapping.
    b. In 20 minutes beginning, the researcher explains the generic structure of simple present tense and generic structure of descriptive text.
    c. Then in 55 minutes later, the researcher gives the example of descriptive text from the book English in focus for grade VIII junior high school. And explains the topic, main idea, supporting idea and specific idea from that text.
    d. Explain the steps how to make mind mapping using some circle, lines or boxes and the criteria of mind mapping.

e. Discuss and practice how to make mind mapping together with the example of picture.
f. Explain how to find the idea also main idea, supporting idea and specific idea. From the idea then learn how to make sentence based on the idea that was found.
g. Explain and learn how to arrange the sentences into a text using the component of written text such as: capitalization, spelling, grammar and punctuation.
h. Give the time to learn and discuss the example in front of the class together.
i. Give the feedback about the discussion of mind mapping. And give the strength about the student's discussion.
j. Asking and answering the student question about mind mapping
k. Giving the conclusion about the material and give the homework to student.
l. In the next treatment the researcher applied the same way when giving the treatment in three times in duration of 90 minutes in each treatment.

3. At the last meeting, the researcher administering the posttest with a purpose to measure students' writing achievement in descriptive text. The procedure of giving posttest was same with the procedure in pretest. It means that pretest and posttest is equal in the part of instruction.