

## **CHAPTER III**

### **RESEARCH METHOD**

In this chapter, the researcher describes the research methodology applied in the present. It covers research design, population, sampling and sample, instrument and instrumentation of the research, validity and reliability testing, normality and homogeneity testing technique data collection, technique of data analysis and hypothesis testing.

#### **A. Research Design**

Homby (1955:996) states research is careful study on investigation, especially in order to discover new facts or information such as scientific historical research. It means that the research is different from other professional activities. Research is based on existing and relevant theory and conducted intensive and controlled in its execution. So, the design of the research should be suitable for the research position. Therefore, a researcher has to follow the research design if a researcher want success to doing research.

The type of research used in this study is the method of experimental research. The researcher used experimental research because it does not have random assignment of subject to group or other strategy to control extraneous variable. This design just has a control one or one class to use pretest and postesst. The purpose of this design is to know the result of treatment.

## **B. Population, Sampling and Sample**

### **1. Population**

The population on this research are all of student's class 10 of MAN 3 Tulungagung from class MIA 1, 2, 3, IIS 1, 2, 3, and IIK. Population is all of the research subjects which can be consist of human, animal, testing score/event as a source data which have a certain characteristic in the research. According to Ary et al (2010:148) population is all members of any well-defined class of people, events, or objects. A population is the group to which the results of the study are intended to apply stated by (R.Frankael 1996: 91).

### **2. Sampling**

Sampling is a technique to taking the sample. Sampling is also as a way the researcher take to select number of individuals. So, sampling is process selecting unit from population. The purpose of sampling is to gain of information about a population. 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. According to Ary et al (2010: 648) that purposive sampling technique is a type of non-probability sampling technique in which subject judged to be representative of the population are include in

the sample. In purposive sampling, the researcher believes that the subject could give sufficient information that the researcher want to search.

### **3. Sample**

The explanation about who is the sample in this research is very important in the research. According to Ary et al (2002:148) a sample is a portion of a population. It means that sample is smallest part from population. The sample of this research is students in 10 IIS 2 class that consist of 31 students, 14 male and 17 female.

### **C. Research Variable**

In this research, the writer thinks it is important to know the meaning of variable itself. According to R. Frankael (1996:51) variable is concept a noun that stands for variation within a class of objects. According to Donald Ary (2010:37) A variable is a construct or a characteristic that can take on different values or scores. The most important classification is on the basis of their use within the research under consideration, when they are classified as independent variables or dependent variables. Independent Variable (X) is a factor that affect a dependent variable. In this reseearch, the independent variable is mindmapping technique. Dependent Variable (Y) is a variable that is affected by independent variable. In this research, the dependent variable is students reading achievement in narative text.

### **D. Research Instrument**

The instrument used in the research was test which could be explained as follow:

## 1. Test

Test are valuable measuring instruments for educational research.

A test is a set of stimuli presented to an individual in order to elicit responses on the basis of which a numerical score can be assigned (Ary et al, 2010:202).

In this research, the researcher uses 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 learning English before and after they are taught using mind mapping technique.

## E. Validity and Reliability Testing

### 1. Validity

Validity is a criterion to show legality level of an instrument. A valid instrument can produce a high validity of data. Validity was defined as the extent to which instrument measured what it claimed to measure (Ary, *et al*, 2010:225). Conversely, an invalid instrument can produce a low validity of data. According to Ary et al (2010: 228) there are five types of validity, those are: face validity, content validity, criterion-related validity, concurrent validity and construct validity. In this research the researcher used content validity, face validity and construct validity.

a. Face Validity

Face validity is a term sometimes used in connection with a test content. Face validity refers to the extent to which examinees believe the instrument is measuring what it is supposed to measure.

Face validity refers to the degree to which a test looks right, and appears to measure the knowledge or abilities it claims to measure, based on subjective judgment or the examinees who take it, the administrative personnel who decide on its use, and other psychometrically unsophisticated observers (Brown, 2004). In this study, the face validity was done through validated by the expert.

b. Content Validity

According to Lodico (2006: 93) “content validity is composed of two items of validity, they are sampling validity and item validity”. Both of them involve having experts examine items that check the instrument. Content validity is especially important for achievement test, it is also a concern for other types of measuring instrument. Content validity means there is correspondence between curriculum objectives and the objectives being tested. It is sometimes called curriculum validity. The test will be valid if the objectives of the test do not outside from the curriculum objectives that have been set by educational policy. The relevancy of the objective of the test and the content of the test items shows the content validity of the test.

### c. Construct Validity

According to Brown (2004:45) mentioned that a construct is any theory, hypothesis, or model that attempts to explain observed phenomena in our universe of perception. Based on the theory above, the researcher asked the students to answer the question about descriptive text based on brochure to measure students' achievement in reading comprehension in the form of multiple choices to fulfill the construct of reading test and therefore valid in term of construct validity.

## 2. Reliability

According to Ary et al (2010: 212) that reliability is concerned with the extent to which the measure would yield consistent result each time it is used.

To measure reliability in this research, we need a measuring tool, and measuring tool which is used technique of Alpha Cronbach. According to Riduwan (2004:118), the criteria of reliability instrument can be divided into 5 classes as follows:

1. If the *alpha cronbach* score 0.00-0.20 : less reliable
2. If the *alpha cronbach* score 0.21-0.40 : rather reliable
3. If the *alpha cronbach* score 0.41-0.60 : enough reliable
4. If the *alpha cronbach* score 0.61-0.80 : reliable

5. If the *alpha cronbach* score 0.81-1.00 : very reliable

**Reliability Statistics**

Cronbach's Alpha	N of Items
.611	30

The result of calculation showed that reliability coefficient of pre-test was 0.611. based on the criteria of reliability the test of pre-test was reliable.

**F. Normality and Homogeneity Testing**

1. Normality Testing

Normality testing is conducted to determine whether the gotten data is normal distribution or not. The computation of normality testing in this research using SPSS.16. *One- Sample Kolmogorov-Smirnove test* by the value of significance (  $\alpha$  ) = 0.050 rules as follow:

- a.  $H_0$  : If the value of significance  $> 0.050$ , means data is normal distribution.
- b.  $H_1$  : If the value of significance  $< 0.050$ , means the distribution data is not normal distribution.

2. Homogeneity Testing

Homogeneity testing is conducted to know whether the gotten data has a homogeneous variance or not. The computation of homogeneity testing using SPSS Statistics 16 is *Test of Homogeneity of Variances* by the value of significance (  $\alpha$  ) = 0.050. Before doing homogeneity

testing, the researcher decides hypothesis in this homogeneity as follow:

- a.  $H_0$  : If the value of significance  $> 0.050$ , means data is homogeny
- b.  $H_1$  : If the value of significance  $< 0.050$ , means data is not homogeny

### **G. Data Collection Method**

Data collecting method is the way to collect the data in the research. To collect the data the researcher uses instrument. Instrument of the research is a tool of collecting data. The data collection methods used are test, observation, and documentation. Data collecting method and instruments of this study is:

#### **Test**

The test is a series of questions or exercises and other tools used to measure skills, knowledge of intelligence, abilities or talents possessed by students. This test is done by answering the subjective problem. Then answer sheet to be corrected and analyzed. In this research, there is a one-time test in experiment class and control class that is post-test.

The technique of collecting data was clarified as follow:

#### **1. Pre-test**

At the first meeting, the researcher gave a pre-test to the students. It was conducted to know the students score in reading. This test is given in order to know how far the students ability in reading



comprehension of narrative text. The pre-test comprised 20 items, in the form of multiple choices items and essays..

## 2. Post-test

Post-test is to measure their ability after treatment process, this test was given to know the basic competence for students and to know their earlier knowledge after they get treatment. It is done to know the final score and to know the students, difference competence before and after they get treatment.

A post-test was given in order to know the scores of the students after they were taught by using mind-mapping technique. Time allocation is 60 minutes. This test was used to measure the students' achievement after they were given treatment.

## H. Treatment

There are some step that the researcher make for teaching reading comprehension through mind mapping technique in the class;

### 1. Pre activity

Before starting the main activity, the teacher:

- Greet students.
- Check the attendance list of students.
- Attract to remind the previous lesson by asking the students several questions.
- Ask some questions about the text.
- Introduce the topic.

- Announce the lesson procedures.
- Explain the mind mapping.

## **2. Whiles activity**

The teacher :

- Show the mind map on a blank sheet of paper.
- Discuss the text based on their schemata.
- Flash the mindmapping in front of students for a second or two before taking it away.
- Ask the students to write down the titles they read.
- Review their responses about the words on the mindmapping for accuracy.
- Flash the mind map in front of the students.
- Ask students to read the words within each text box as if they were just one word.
- Ask students to make complete sentences based the words on the mindmap.
- Test students' comprehension of the sentences by having them explain in writing what they read.
- Advance to create mind maps with text boxes that contain entire sentences.
- Complete the speed reading lessons with the most advanced mind maps.

- Ask the students to answer the question that relates with the text which have given by the teacher.

### **3. Post activity**

The teacher :

- Discuss whether the students have difficulties during the lesson.
- Make conclusion of what have been learned by asking some students.
- Evaluate the students by giving questions to be answered in written form.

### **I. Data Analysis**

In this study, researchers used quantitative data analysis techniques, data that can be realized with numbers obtained from the field. The quantitative data is analyzed by researchers using statistics. The analysis used is t-test analysis or Independent Sample t-test using SPSS 16.0 for windows program.