

## CHAPTER III

### RESEARCH METHOD

This chapter presents the procedures used in conducting the research. It covers: research design, population and sample, research instrument, data collection and data analysis.

### A. Research Design

The research design of the study comparison by using quantitative research analysis. Technical analysis is one of quantitative analysis or statistical analysis, a technique that can be used to test hypothesis about the presence or absence of differences among the variables under investigation. If there are differences in the study, those differences are significant or by chance. Comparational analysis technique includes in group inferential statistical analysis methods. The inferential analysis techniques are to test hypothesis and to make conclusions about whether there are significant differences among the variables under investigation.<sup>44</sup>

Quantitative research analysis attempts to describe the statistical calculation to find whether there are differences based on students seating arrangement who sit in the front and those who sit at the back row. The comparison of the data is done through statistical calculation.

<sup>44</sup> Anas Sudijono, *Pengantar Statistik Pendidikan* 7<sup>th</sup> ed, (Jakarta : PT Grafindo Persada, 1996), 261

## B. Population and Sample

## 1. Population

According to Suharsimi Arikunto, the population is the subject of study or group of subjects that would be a subject to generalize the study results.<sup>45</sup> The target population of this study was the students who sit in the front and those who sit at the back row at the grade eight of SMPN 1 Plemahan Kediri in the 2010-2011 academic year.

## 2. Sample

Sutrisno Hadi in Suharsimi Arikunto stated, the sample is part of the population, or number of residents whose number less than the total population, often refers to a representative sample of the population.<sup>46</sup>

In selecting sample, there are four techniques used in education research, they are random, stratified, cluster, and systematic sampling. Meanwhile, in this study, the process of taking sample is cluster random sampling. According to Donald Ary, "cluster sampling is the chosen unit and not an individual but a group of individuals who are naturally together."<sup>47</sup> The researcher uses cluster random sampling because the students of the grade eight of SMPN I Plemahan Kediri in the 2010-2011 academic year consists of nine classes and each class consist of 32 students. The way to take cluster

<sup>45</sup> Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktek 6<sup>th</sup> ed.* (Jakarta: Rineka Cipta, 2002), 130

<sup>46</sup> *Ibid.*, 131.

<sup>47</sup> Donald Ary, et al., *Introduction to research in Education 6<sup>th</sup> ed.*, (Belmont : Wadsworth- Thomson Learning, 2006), 154

random sampling are in two ways, as like by lottery and by using table random numbers.<sup>48</sup> The researcher takes the sample among the population randomly using lottery. Then, class 8D and 8E are selected as the sample. In the class 8D and 8E, there are 32 students in each class and the researcher takes 16 students in each class (8 students who sit in the front row and 8 students who sit at the back row). So that, there are 32 students as the sample.

### C. Research Instrument

Instrument can be defined as the tool that is used by the researcher in collecting data in order to get complete and systematically data. In this research, the researcher uses observation, tests, and documentation as the instruments of data collection. The instruments are used to collect all the data that were necessary for the research.

## 1. Observation

According to Donald Ary, “observation is the most basic method for obtaining data in qualitative research”. Donald Ary also classifies observation into participant and non-participant observation. Participant observation is an observation where the observer becomes participant or involves in particular group or member of organization. Meanwhile, non-participant observation is procedure in which the observer does not include in the member of group.<sup>49</sup>

<sup>48</sup> Moh. Nazir, *Metode Penelitian* 6<sup>th</sup> ed, (Bogor: Ghalia Indonesia, 2005), 280

<sup>49</sup> Donald Ary, *op cit.*, 432.

To collect the data, the researcher used non-participant observer because the researcher wants to know how many students and the name of students who sit in the front and the back row and what kind of seating arrangements which is used in the class.

## 2. Test

Test is series of questions or exercises and other tools used to measure students' skills, knowledge, intelligence, ability or talent. Based on the target or object which is investigated, the test is divided into several kinds of tests and other measuring instruments, such as: personality test, aptitude test, intelligence test, attitude test, projective test, and achievement test.<sup>50</sup>

Here the researcher uses achievement test. It is used for measuring the achievement of person after learning something. The researcher uses achievement test that is usually used in school. Achievement test is divided into two types, they are the test written by teacher and standardized test.<sup>51</sup> Test which is written by the teacher is non-standard test. Standardized test is designed by the government. In this research, the researcher used test given by the teacher.

<sup>50</sup> Suharsimi Arikunto, *Prosedur Penelitian Suatu Pendekatan Praktek 6<sup>th</sup> ed*, (Jakarta: Rineka Cipta, 2002), 150-151

<sup>51</sup> *Ibid*, 224-225

### 3. Documentation

The documentation method is the mean used to collect research data using items such as books written records, documents, and so forth.<sup>52</sup>

In this research, the researcher takes the record of test given by teacher and the students' score to know students' achievement, especially the students who sit in the front and those who sit at the back row.

#### D. Data Collection

The steps of collecting data of this study are as follows:

1. The researcher do the observation to collect the information how many and the name of students who sit in the front and the back row and what kind of seating arrangements that is used in the class.
2. The tests are tested to know the students' score, especially the students' score who sit in the front and at the back row.
3. Documentation is used to collect the data to know students' achievement of the grade eight of SMPN I Plemahan Kediri in the 2010-2011 academic year. It is taken from the record of test written by teacher and the students' score from the tests in the second semester.

### E. Data Analysis Technique

Data analysis is a step that must be done in research. After the data are collected, they are analyzed by using statistical calculation, namely t-test of Anas

<sup>52</sup> *Ibid.*, 158





H1 : There is a significant difference Mean between X variable and Y variable.

10. Testing the truth or the error to these two hypothesis by comparing the calculated  $t$  ( $t_0$ ) and  $t$  listed in the table value of " $t$ ", with the first set the degrees of freedom by the formula

$$db \text{ or } df = (N1 + N2) - 2$$

By obtaining the result  $df$  or  $db$ , the value of  $t_t$  can be searched for the level of significance of 5% or 1%. If  $t_0$  is equal to or greater than  $t_t$ , so  $H_0$  is rejected; means there is a difference of mean between the two investigated variables, the students who sit in the front and the back row. However, if  $t_0$  is less than  $t_t$ , so  $H_0$  will be received it means there is no difference of mean between variables I and II.