# CHAPTER III

# RESEARCH METHODOLOGY

## Research method

This research conducted on the action quantitative method. According to Ary (2010: 22), quantitative research uses objective measurement to gather numeric data that are used to answer questions or test predetermined hypotheses. It generally requires a well-controlled setting. This study classified as pre-experimental study, according to Ary (2010: 303) because they provide little or no control of extraneous variables.

The data analysis uses quantitative research which means that researcher collects the data from samples. The researcher used experimental research because in the research there are pre-test and post-test to get the data, two classes where involved in this research, experimental class and control class. The experimental class consists of the students who received treatment.

However, the control classes received a pre-test on whatever instrument is used to use the effect of the experiment before the treatment has been given. To make this research clearer, the researcher provide the research design as follows:

**Table 3.1**

**Research design**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Classes** | **Pre-test** | **Treatment** | **Post-test** |
| 1 | Experimental class |  |  |  |
| 2 | Control class |  |  |  |

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## Population and sample

### Population

A population is defined as all members of any well-defined class of people, events, or objects (Ary, 2010: 408). Based on the statement above, it can concluded that the population is all object of the research. It is the universe/whole object that conduct by the researcher in this study as the source data. Population is whole of subject research. In related with this research, the research take population in the tenth grade students of SMA Dharma Bakti Medan with total 120 students.

### Sample

Arikunto (2010: 174) stated that sample is a part representative of population that is observed. Students participating in this study are students of tenth grade in SMA Dharma Bakti Medan. The students involved in this study are chosen by using convenience sampling. A convenience sample is a group of individuals who are available for study (Fraenkel and Wallen, 2007: 100). There are two reasons for choosing the students by using convenience sampling. First, the participants in this study mostly have poor, medium and good in speaking ability. Second, relates to material in the curriculum in this grade. According to explanation above, in this research the researcher took two classes as sample research with total of the sample 80 students.

1. **Variable and Indicator**
   1. **Variable**

Based on the title, the writer of the research is two variables. The first variable is speaking ability and the second one is mind mapping strategy.

* 1. **Indicator**

The indicator of the study is the students have master in vocabulary, correct pronunciation, and grammar.

## Instrument of collecting data

Instrument is a tool or device used by the researcher in collecting data to make her or his work become easier and get a better result, means accurate, complete and systematic in order to make the data easy to be processed (Arikunto, 2010: 160). In collecting the required data in this research, the researcher used Oral communication test as instrument. The data collect by quantitative data approach, the researcher choose mind mapping , interview, observation sheet and Oral test. Mind mapping contained everything happened during teaching-learning process. The interview be done in the beginning and in the end of the meeting. The interview be done to find out the obstacle that faced by students during studying English. Observation sheet used to measure the level of students’ activities during learning and teaching process. The observation sheets contained a list of activities by each students in teaching learning process. Observation sheet for students’ activities contained students’ attendance, involvement in asking question, answering question, working in group, doing task and paying attention to the teacher’s explanation.

**Table 3.2**

**OBSERVATION SHEET**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No. | Statement | Never | Sometimes | Always |
| 1. | Pays attention in class |  |  |  |
| 2. | Participates actively in discussions |  |  |  |
| 3. | Raise his/her hand to answer a question |  |  |  |
| 4. | Students ask question to the teacher |  |  |  |
| 5. | Talks with classmates too much |  |  |  |
| 6. | Works well with other students |  |  |  |

## Technique of collecting data

Before procedure of collecting data began, the pre-test was administered to identify the basic knowledge of the students about mind mapping. The technique of data collection of the study would be conducted in :

1. Pre-test

A pre-test is the measurement of dependent variable prior to introduce of the treatment (the student are given mind map test before the teacher gives them the treatment in experimental and control group).

1. Treatment

Each group gave the treatment, there the treatment was different. The experimental group explained about the topic and mind mapping strategy. In contrast to the experimental group, the control group teach same topic but it did not used mind mapping strategy. Experimental group is taught by applying group discussion technique. The students are grouped by counting 1-5, the students which mention number 1 entered in the first group so on until get six groups and each group contains 5 students. Control group is taught without applying group discussion. The treatment is done in two meetings. In experimental group, the researcher give the definition of the topic that researcher teach in the classroom, how to design a mind map by divide the topic to the sub topic by use symbol, and color.

1. Post-test

A post-test is the measurement of dependent variable after the treatment has been applied to the experimental group (the students are given oral communication test after the treatment is applied). Control group be tested by conventional way in post-test meanwhile the experimental groups’ test though mind mapping.

## Scoring of the test

The data of students’ speaking ability be collected by conducting the oral pre-test and post-test for each student. Then the test be recorded and scored following the criteria adapted from brown (2001: 406-407). The test recorded and scored by considering several aspects such as : fluency, pronunciation, grammar and comprehension as what has been categorized by Brown (2001: 406-407).

The test scoring categories for speaking adapted from Brown (2001:406-407) as what can be seen as follows:

**Table 3.3**

**THE TEST SCORING CATAGORIES FOR SPEAKING**

**(Brown, 2001: 406-407)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Scores** | **Fluency** | **Pronunciation** | **Grammar** | **Comprehension** |
| 1 | No specific fluency description. Refer to other to four language areas for implied level of fluency. | Errors in pronunciation are frequent, but can be understood by a native speaker. | Errors in grammar are frequent. But speaker can be understood by native speaker. | Within the scope of his very limited language experience and can understand simple question. |
| 2 | Can handle with confidence but not with facility most social situations and casual conversation. | Accent is intelligible though often faulty. | Can usually handle elementary construction quite accurately but does not have thorough or confident control on grammar. | Can get the gist of most conversations of non-technical subjects. |
| 3 | Can discuss particular interest of competence with reasonable ease. | Errors never interfere with understanding and rarely disturb the native speaker. | Control of grammar is good. | Comprehension is quite complete at a normal rate of speech |
| 4 | Abe to use language fluently on all levels normally pertinent to professional need. | Errors in pronunciation are quite rare. | Able to use the language accurately on all levels normally pertinent to professional need. | Can understand any conversation within the range of experience. |
| 5 | Has complete fluency in the language. | Equivalent to and fully accepted by educated native speaker | Equivalent to that of an educated native speaker | Equivalent to that of an educated native speaker |

The total score of speaking for each student be counted by summing up the four aspects of speaking (fluency, pronunciation, grammar and comprehension). And then the total score be multiplied by 5. Hence if a students has a total score 20 ( 5 for each aspect), then the students’ score for speaking aspect is 100.

1. **The technique for analyzing the data**

This research use quantitative data. The quantitative data are used to analyze the students’ score of Oral communication test. The component of Oral communication test are fluency, pronunciation, grammar and comprehension. hence the test be scored by considering fluency; how the spoken language flows, pronunciation; whether any errors or not in pronunciation, grammar; how the control of the grammar is, and comprehension; accomplishing objective of the task. The quantitative data are analyzed by applying the following formula :



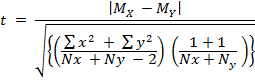
Where :

 : the mean of the students

 : the total of scores

 : the number of the students

Order to know the different effect between two group the writer used to test the formula of t-test that proposed by Arikunto (2013 : 354) used the following pattern:



Where:

T = Total Score

= Mean of experimental class

 = Mean of control class

∑X² = The deviation score of experimental class

∑Y² = deviation score of control class

Nx = The total sample of experimental class

Ny = The total sample of control class