CHAPTER III
RESEARCH METHOD

This chapter presents the discussion regarding the research method employed in this study. It covers research design, research subject, population and sample, research instrument, data collection and data analysis. Each section is presented as follows:

3.1 Research Design

Research design is the researcher’s plan of how to proceed to gain and understanding of some groups or some phenomena in the natural setting. The researcher design that is used in this research is quantitative research which is designed to measurement and statistical analysis of numeric data to understand and explain a phenomena. According to Ary (2010:22) quantitative research is one of the categories in educational research to answer question or test predetermined hypotheses that require a well-controlled setting and accommodate objective measurement to collect numeric data.

In this research, an experimental research design was used to investigate whether or not Mind Mapping can improve the seventh grade students’ speaking skill at SMP Muhammadiya 8 Batu. In this case, mind mapping was used as independent variable and the students’ speaking skill was used as dependent variable.

Furthermore, this research used quasi-experimental research designs because the research was not able to randomize the class that had already been organized by the school based on the regulation. According to Ary (2010:316), quasi-experimental design involves manipulation of independent variable and the
participants for experimental group are not randomly assigned. However, the present regulation cause the researcher to impossibly assign randomly research subject. The experimental group was taught by using mind mapping and the control group was taught without using mind mapping. Pre-test was given to both groups. Both group give different treatments. In the last phase of the research, both groups were given a post-test. It was used to evaluate the students’ ability in speaking skill.

Table 3.1 - The research design of nonrandomized pretest-posttest

<table>
<thead>
<tr>
<th>Group</th>
<th>Pretest</th>
<th>Independent Variable (The Treatment)</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>Y1</td>
<td>X</td>
<td>Y2</td>
</tr>
<tr>
<td>C</td>
<td>Y1</td>
<td>-</td>
<td>Y2</td>
</tr>
</tbody>
</table>

Notes:
E : The experimental group (E class which was taught with treatment)
C : The control group (C class which was taught without treatment)
Y1 : Pretest of experimental and control group
Y2 : Post-test of experimental and control group
- : There was no treatment
X : Treatment by using mind mapping

3.2 Research Subject

One of the components that play an important role to gain data in research is research subject. McMillana (1996, in Mardhyah, 2015) stated that research subject is an individual who participates in the research study, or is someone from whom the data are collected. This research was conducted in Junior High School in Batu, SMP Muhammadiyah 8 Batu. The researcher doing experimental research about Mind Mapping Technique to Improve Students Speaking Skill that consisted of 66 students; therefore, the subject of this research is the students in that school.

3.2.1 Population and Sample
Population is the whole member of the group in which the researcher used as subject for data collection. According to Ary (2002), population is defined as all members of any well-defined class or people, events, or object. Furthermore, the population of this research was the students at Junior High School Level.

A small portion of the population is called sample (Ary, 2002:163). A selected sample is part of population that the researcher uses to get real data resources. From that statement, the researcher get information that population is all of the subject researched. Moreover, the sample was taken from two classes at seventh grade of SMP Muhammadiyah 8 Batu, the group of classes were grouped into two classes, 7C wich consisted of 33 students and 7E consisted of 34 students. Therefore, the total amount of all the students is 67. Both groups had the same English teacher and similar competence. The process of taking the sample was cluster sampling because the unit chosen was not an individual but a group of individuals who were naturally together (Ary, 2002:163). Then, the researcher determined class 7E as the experimental group and class 7C as the control group by using non random assignment.

3.2.2 Treatment

In conducting this research, the researcher gave the treatment to the experimental group while the control group was given a method that the teachers usually used.

3.2.2.1 Treatment of the Experimental Group

The treatment of the experimental group (class E) was given in each meeting through the following procedure:

1. The teacher explained the material about describing people.
2. The teacher gave clear explanation and instruction of what should they do to make and present their speaking in describing people.
3. The teacher taught about describing people use mind mapping as the technique, the teacher taught about how to make mind mapping in describing people.
4. Then, the students were asked to practice making their own mind mapping in describing people and presented it in front of the class.
5. Teacher gave students time 3-5 minutes to have practice in front of the class about describing people.

3.2.2.2 Treatment of Control Group

The teaching learning process for the control group was different from the experiment group. In this case, the control group was taught using lecturing method which could be illustrated as follows:

1. The teacher taught the material by using lecturing method;
2. The students learned the material only based on the teacher’s explanation and did what the teacher asked them to do.
3. The teacher gave exercises to the students to evaluate their learning result orally.
4. The teachers give students’ time 3-5 to describe people in front of the class.

3.3 Data Collection

Data collection is generally the ways and instruments that the researcher takes and uses to obtain the data.

3.3.1 Technique and Instrument

Instrument is the tool that is chosen and used by the researcher to collect the data. The instrument of the current research was test. Moreover, Ary (2010:201)
stated that test is a set of stimuli presented to an individual in order to obtain responses which is assigned from a numerical score and it is valuable measuring instrument to use in educational research. In this case, the researcher used performance test because the researcher would like to investigate the use of mind mapping to improve students’ speaking skill. According to Ary (2010:204), a performance test is a technique in which a researcher directly observes and assesses an individual’s performance of a certain task and/or judges the finished product of that performance. Moreover, the researcher collects the data from the students’ speaking skill measurement result in pre- and post-test above.

In addition, to measure the test is valid, the researcher has already consulted the test with the advisor and English teacher at school where the researcher did the research. Furthermore, these test also reliable for the students because the researchers already choose one rater that used in this research which was the English teacher as the expert of 7C and 7E to obtain the students speaking score. According to Alias (2005:236), intra-scorer reliability is the same teacher who gives score based on scoring rubric or evaluation form that is prepared in advance. It can be assumed that this test was valid and reliable. Hence, the evaluation of speaking skill adapted from Brown (2001, pp 406-407)

<table>
<thead>
<tr>
<th>Aspects</th>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pronunciation</td>
<td>5</td>
<td>The student can pronounce well</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>The student make mispronunciation in a few words</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>The student make mispronunciation in some words</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>The students pronunciation is hard to understand</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>The students pronunciation is possible to understand</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>5</td>
<td>The student uses various vocabulary</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>The student uses the wrong word</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>The students mix vocabulary with English and Bahasa</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>The student rarely uses Bahasa</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>The student use Bahasa or no vocabulary use</td>
</tr>
</tbody>
</table>
Based on the mentioned scoring rubric, the aspects that should be achieved in the speaking skill test included pronunciation, grammar, vocabulary, and fluency. The analytic score has four items and each item scores five points. So, the maximum score is 25. But it will be multiplied with 4, and the final maximum score will be 100.

### 3.3.2 Procedure of Data Collection

The data of this research were obtained from the scores of the pre-test and post-test. The data were used to observe whether or not Mind Mapping could improve the seventh grade students’ speaking skill at SMP Muhammadiyah 8 Batu. Then, there were some procedures conducted by the researcher in order to collect the data. Those included pre-test, treatment and post-test and are presented as follows:

1. **Pre-test**
The pre-test was given to both experimental and control groups in the first meeting. The pretest was given to the experimental and control group by asking the students to performance in describing people in their own words in two minutes. This test given to know the basic competence for both of the experimental and control groups before any treatment was given.

The pre-test was given to both experimental and control groups through the following procedures: (1) the teachers gives instruction to the students to describe their favorite idol in front of the class. (2) the teachers give the students time 2-3 minutes to perform their speaking. (3) the students performs their speaking in front of the class about 2-3 minutes and the teachers give score.

2. Treatment

After the pre-test had been administrated, the treatment was started. Each group was treated with different teaching strategies. The Experimental Group (class E) was taught by using mind mapping while the Control Group (class C) was taught without mind mapping. The treatment was given in three meetings and it was done around eighty minutes.

3. Post-test

After the treatment, the post-test was given to the experimental group as well as the control group. The tests in post-test were same as in the pretest. However, the experimental group applied mind mapping and the control group did not apply mind mapping in their speaking performance.

The post-test was given to both the experimental class and control class through the following activities: (1) the teacher gives picture to the students (2) the teacher gives instruction to the students to describe the picture in front of the class. (3) for the experimental class, before they perform their speaking the teacher ask the students to make mind mapping about the picture. (4) for
the control class, the teacher gives time to the students about 5 minutes to prepare their performance. (5) students perform their speaking in front of the class and the teacher gives the scores.

3.4 Data Analysis

Data analysis was directed to determine whether the experimental group achieved better performance than the control group. From the data collection, the researcher was analyzed and calculated in order to find out whether null hypothesis accepted or rejected in order to determine the use of mind mapping in teaching speaking skill. In fact, The post-test and pre-test scores of both groups were computed using dependent sample t-test by using SPSS 21. Then, the steps of the data calculation are presented as follows:

1. The researcher arranged the pre-test and post-test scores from the experimental group and the control group and presented them into table.
2. The researcher classified the pre-test and post-test scores between the experimental group and control group.
3. The researcher computed the means of both groups score by using SPSS 21.
4. The researcher calculated the means of pre-test and post-test by using paired sample t-test in SPSS 21.
5. The researcher analyzed the result of the calculations to see whether mind mapping can improve students speaking skill or not.

If the result of sig (2tailed) is > at 0.05 level of significance, Ho (null hypothesis) would be rejected. It means that the students who used mind mapping had better speaking skill rather than the students who did not. However, if the result of sig (2tailed) <at 0.05 level of significance, Ho (null hypothesis) would be accepted. It meant that there was no difference
between the students who used mind mapping and the students who did not when they had their speaking skill.