CHAPTER III

RESEARCH METHOD

In this chapter, the researcher discussed the frame related to the method in analyzing the statement of problem. This chapter explains about research design, population and sample, research instrument, data collection, and data analysis. Each will be discussed below.

3.1 Research Design

The design of this study is correlation research design. This study was employed in quantitative research. Correlation is designed to investigate the extent to which variables are related and the direction of the relationship (Ary et.al., 2006: 377). In this case, the researcher wanted to investigate the relationship between students’ vocabulary mastery and reading comprehension.

The variable of this study were vocabulary mastery (X) and reading comprehension (Y). It means that the aim of this research is identifying correlation between students’ vocabulary mastery and reading comprehension.

3.2 Population and Sample

The larger group to which one hopes to apply the results is called as population (Fraenkel and Wallen, 2009:90). Population is the total number of the subject. The population of this study was the eighth grade students of MTs Negeri Batu which consisted of 9 classes. Sample is the small group that being observed. According to Fraenkel and Wallen (2009), there are random and non-random
sampling. In random sampling was divided into three; a simple random sample, stratified random sampling, and cluster random sampling, while in non-random sampling was divided into three. In this research, the researcher chose cluster random sampling in deciding the sample of research. Fraenkel and Wallen (2009:95) stated that cluster random sampling is the selection of groups, or clusters, of subjects rather than individuals.

In this study, the researcher used a sampling technique called cluster sampling. The selection of sample is random sample. The technique was chosen because all classes have some characteristic. The sample of this study was D class (36 students).

3.3 Research Instrument

According to Fraenkel and Wallen (2009), research instrument is general method used by the researcher for obtaining information in collecting the data. There are two classification of instruments; researcher-completed instrument and subject-completed instrument. In researcher-completed instrument was divided into several devices such as rating scale, questionnaire, observation form (tally sheet, anecdotal record, flowchart, and performance checklist). In subject-completed instrument was divided into several devices such as self-checklist, attitude scale (Linkert Scale), personality, achievement test, aptitude test, performance test, projective devices, and item format. In this study, the researcher used performance test, which is multiple-choice test for vocabulary mastery and reading comprehension test. The test was used to obtain the score of vocabulary mastery and reading comprehension test.
In this study, vocabulary mastery test consist of 25 items of multiple choice test with four alternatives (the alternatives include one correct answer and three wrong answers). In reading comprehension test, there were 4 reading text with 25 items of multiple-choice test with four alternatives.

3.4 Validity and Reliability

In order to determine whether or not the data collected was valid and reliable, validity and reliability were very important to be used in this research. As denotes by Fraenkel et al. (2012:147), “Validity refers to the appropriateness, correctness, meaningfulness, and usefulness of the specific inferences researcher makes.”

Based on the explanation above, the researcher claims that validity is necessary in the research since it is useful to examine the correctness of the instrument that the researcher used to collect the data.

In this research, the researcher adapted some texts and questions from English in Focus for grade VIII Junior High School (Published by Pusat Perbukuan Departement Pendidikan Nasional Tahun 2008). The researcher used the book because the book was qualifying which was through procedure implementation, process of writing item, redaction, has been try-out and revision by the Educational and Cultural Ministry.

The reliability of an instrument is closely associated with the validity as well. Fraenkel et al. (2012:154) states that reliability refers to the consistency of the scores obtained; how consistent they are for each individual from one administration of an instrument to another and from one set of item to another. An instrument that is reliable will produce credible data and could be trusted as a tool
to collect the data. In this research, the objective tests were reliable to collect the data because its validity has been checked and revised by the Educational and Cultural Ministry before published.

3.5 Data Collection

Collecting the data is the most important step in conducting the research. The researcher carried out some procedure to collect the data needed as follows:

1. Taking the attendance of the sample.
2. Giving the instruction how to answer the questions.
3. Giving vocabulary mastery test consists of 25 multiple choices items in 30 minutes.
4. Giving reading comprehension test consists of 25 multiple choices items in 30 minutes.
5. Scoring the vocabulary mastery and reading comprehension test.

3.6 Data Analysis

To analyze the data, the researcher used scoring technique arranged in such way: 4 point for each correct answer and 0 point for the wrong answer. There were 25 questions in each test and maximal score is 100. The researcher used the correlation technique. It is an analysis technique to evaluate hypothesis concerning correlation between two variables that are examined statistically. In finding out the correlation between the students’ vocabulary mastery and reading comprehension, the researcher applied the Pearson’s Product Moment Correlation Coefficient (Pearson $r$) to estimate the correlation between variable X (vocabulary mastery) and Y (reading comprehension). The formula is:
Where:

\[ r_{xy} = \frac{N \sum XY - \left( \sum X \right) \left( \sum Y \right)}{\sqrt{\left( N \sum X^2 - \left( \sum X \right)^2 \right) \left( N \sum Y^2 - \left( \sum Y \right)^2 \right)}} \]

- \( r \) = Pearson \( r \)
- \( N \) = number of paired X and Y scores (subjects)
- \( \sum X \) = sum of scores in X distribution
- \( \sum Y \) = sum of scores in Y distribution
- \( \sum x^2 \) = sum of the squared score in X distribution
- \( \sum y^2 \) = sum of the squared score in Y distribution
- \( \sum XY \) = the sum of products of paired X and Y scores.

(Ary et al., 2006; 149)

When two variables are highly related in a positive way, the correlation between them approaches + 1.00, when they are highly related in a negative way, the correlation approaches – 1.00, when there is a little relation between variables, the correlation will be near 0 (Ary et al., 2006).

Steps of analyzing data:

1. Taking scores of the 36 students in vocabulary mastery test (X) and reading comprehension test (Y).

2. Computing mean score to each of the tests to know the students’ vocabulary mastery and reading comprehension in the class.

\[ \text{Mean score} = \frac{\sum X}{N} \]
3. Analyzing the score of the tests with Raw Scores Illustrating the Calculation of the Pearson $r$.

<table>
<thead>
<tr>
<th>Score</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>96-100</td>
<td>Perfect</td>
</tr>
<tr>
<td>86-95</td>
<td>Very good</td>
</tr>
<tr>
<td>76-85</td>
<td>Good</td>
</tr>
<tr>
<td>66-75</td>
<td>Enough</td>
</tr>
<tr>
<td>56-65</td>
<td>Moderate</td>
</tr>
<tr>
<td>46-55</td>
<td>Close to moderate</td>
</tr>
<tr>
<td>36-45</td>
<td>Less</td>
</tr>
<tr>
<td>26-35</td>
<td>Very less</td>
</tr>
<tr>
<td>16-25</td>
<td>Poor</td>
</tr>
<tr>
<td>0-15</td>
<td>Very poor</td>
</tr>
</tbody>
</table>

(Nurgiyantoro, 1988)

4. Calculating the scores with Pearson’s Product Moment Correlation Coefficient formula

5. Finding out whether or not the $H_A$ (Alternative Hypothesis) and $H_0$ (Null Hypothesis) is accepted in this research.

6. Drawing conclusion.
That is all the research procedure conducted by the researcher. They include, research design, population and sample, research instrument, data collection, and data analysis. To know the result of analysis, the researcher present it in the next chapter. Next, chapter four is finding and discussion. In that chapter researcher will expose the finding obtained from this research and discuss it in line with the previous study, conclusion of the theory, etc.