CHAPTER III
RESEARCH METHOD

Following chapter two, this chapter will discuss some points relating to research procedures and how to find the information needed in the research. These are; the research design, the population and sample, the research instrument, the validity and reliability, the data collection, and the data analysis. Each section will be discussed in detail below.

3.1 Research Design

Creswell (2009) defines that research design as a plan and procedure in conducting a research that includes decision from broad assumption to detailed method of collecting and analyzing data. This plan involve several decisions such as; the investigation procedure, the specific method of collection, the analysis and interpretation. The selection of research design is based on the nature of the research problem or issues discussed, the issues developed in the community and personal experience of the researcher.

There are three approaches of research design based on Creswell (2009) they are; quantitative, qualitative, and mixed method. In this research, the researcher used quantitative approach. Creswell (2009) asserted that quantitative research is the research design where the researcher tests the theory objectively. Researcher examines the relationship between variables that can be measured. The measured data is a number that can be analyzed using statistical procedure. Research using a quantitative approach has assumptions about testing theories deductively. Besides, it is able to generalize and replicate finding.
In this study, the researcher used correlational study because the objective of this study is to investigate how the correlation between students’ speaking and writing achievement at the seventh semester students of University of Muhammadiyah Malang. By knowing the how, it is expected that this study will show the level or degree of the correlation. Creswell (2009) explains that correlational research is a statistical test to determine trend or pattern of two or more variables for the two data sets that vary consistently. It can be concluded that correlational study is a study to know the magnitude of correlation between two or more variables. There are two variables use in this research which are; students’ speaking achievement and students’ writing achievement. Both variables are evidenced by the students’ scores of speaking and writing through the transcript.

3.2 Population and Sample

According to Sugiyono (2014), population is generalization region consisting of the object / subject that has certain characteristic and quality. The subjects of this study are 20 students of English Language Education Department of University of Muhammadiyah Malang at the seventh semester. The researcher decided to investigates this study in this subject because the seventh semester students have taken courses in speaking and writing 1,2,3,4.

Sugiyono (2014) defines that sample is part of the population that the number and characteristics of the population used as research material. In other words, sample is a part of the population used as research material. In this study, the researcher uses cluster random sampling technique. Sugiyono (2014) explains that cluster random sampling is a sampling technique in which researcher takes
sample randomly selected because the source data that will be used as research subjects is very spacious, for example, as many as one village with about 100-500 residents. Therefore, this study used cluster random sampling technique because the population of students of English Language Education Department at the seventh semester of University of Muhammadiyah Malang is very large, they are 201 students. Therefore, researcher decided to take 20 students from 2 small classes.

3.3 Research Instrument

Sugiyono (2014) claimed that a research instrument is a tool used to measure the value of the variables examined in a study for the purpose of obtaining accurate quantitative data. It can be understood that a research instrument is a tool used by researcher to obtain the necessary data by using the appropriate instrument with the research topic and the required data. In this study, the researcher used document as the research instrument to collect the data.

Sukandarrumidi (2012) explains that documentation is a technique in research data collection which addressed to the research subjects. It can be regarded as data collection technique. According to Sukandarrumidi (2012), a document is divided into two kinds, namely; primary document (a document in which a person writes a story or story of himself) and secondary document (an event or story of someone who is told to someone else who then the story is written).

According to Moleong (2011), documents are written materials that can be used as research material. However, the existence of this document is solely not for research purposes but exists because of its function as an archive or proof. It is
different from the record which is a written statement prepared for testing purposes. In the meantime, Zuriah (2005) asserted that document is data collection technique through written relic such as; archives, books on theories, opinions, propositions or laws.

As stated by Moleong (2011) document is divided into 2 types namely; a personal document and official document. Personal document is an event or experience of someone who is written as diaries, personal letters, and autobiographies. Whereas, the official document is a report of an important event or discussion written by a person in an official situation such as the result of a meeting report of institution, the score of a student’s subject, the decision of the office leader and so on. Such types of official documents include internal official documents. On the other hand, external official documents are information materials produced by a social institution such as magazines and bulletins. Therefore, referring to the explanation above, this study used secondary document or internal official document. The document of students’ speaking and writing scores used in data collection is the transcript.

3.4 Validity and Reliability

Sugiyono (2014) explains that validity is the similarity of data between the actual data that occurs on the object under study and the data collected by the researcher. In other words, validity is an accuracy, similarity, and correctness of data from the result of research. Sugiyono (2014) claimed that the valid instrument means that measuring instrument used to collect the data is valid. Valid means that instrument can be used to measure what should be measured.
Meanwhile, Nazir (1983) claimed that reliability is the degree of precision or accuracy of a measurement or measuring instrument. Measuring instruments can be said to be reliable or have a high reliability if the gauge is stable, predictable and dependable.

Researcher believes that the document used as a tool for collecting data in this research are valid as well as reliable to this study because the data on the students speaking and writing scores are written or decided by the lecturers of the course in which they are experts in those courses. In addition, the lecturers give the score based on the capability of the students. Thus, it can be said that document used in this research is the valid and reliable research instrument.

3.5 Data Collection

Data collection is very important because it determines the validity and accuracy in summarizing the answer from the research question. The steps in the data collection process will be explained as follows:

1. Researcher asked the captain of the class to inform her/his classmates that someone will be conducted a research in their class.
2. Researcher asked permission to the captain of the class.
3. Researcher asked all students to give a copy of their transcript which has the scores of the speaking and writing courses from 1 to 4. This information is conveyed through the captain of the class.
4. Researcher made a table of scores.
5. Researcher discussed with the lecturer to analyzed document about the scores of speaking and writing test.
6. Researcher calculated data of students’ speaking and writing scores by using SPSS (Statistical Package for Social Science).

7. Researcher analyzed and concluded results of data.

### 3.6 Data Analysis

After all the data were collected, the researcher analyzed all data which contain of scores of speaking and writing subjects. To calculate the correlational coefficient, researcher used formula of Pearson Product Moment (Pearson $r$). Based on Hartono (2004), Product Moment Correlation technique is used when the data is homogeneous, continuous and linear regression. In accordance with that statement, researcher decided to use Product Moment Correlational technique because speaking and writing scores is continuous data. Several steps involved in data analysis are as follows:

1. Researcher made a calculation table looking for correlation coefficients between two variables.

2. Researcher calculated the degree of correlation by using Pearson correlation coefficient. The formula for the correlation coefficient is written as below:

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

   Explanation:

   - $r_{xy}$ : Pearson correlation coefficient
   - $\sum XY$ : The amount of product a score of $x$ and $y$
   - $\sum X$ : Number of scores $x$
   - $\sum Y$ : Number of scores $y$
The researcher found the r value of correlation coefficient, then it could be resulted that those two variables have positive or negative association. Researcher can interpret the results of data processing based on the following table.

<table>
<thead>
<tr>
<th>The amount of product moment “r”</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00 - 0.200</td>
<td>The correlation between variable x with variable y is very weak or low so it is considered there is no correlation</td>
</tr>
<tr>
<td>0.200 - 0.400</td>
<td>The correlation is weak or low</td>
</tr>
<tr>
<td>0.400 - 0.700</td>
<td>The correlation is moderate or sufficient</td>
</tr>
<tr>
<td>0.700 - 0.900</td>
<td>The correlation is strong or high</td>
</tr>
<tr>
<td>0.900 - 1.000</td>
<td>The correlation is very strong or very high</td>
</tr>
</tbody>
</table>

(Adopted from Statistik untuk Penelitian, 2004)

4. The researcher made a decision or summary of the results of data calculation. At this stage we will know whether the relationship between students’ speaking and writing achievement is strong or weak.

Several discussion points related to the steps in the data retrieval process have been discussed in this chapter, those are; research design, population and samples, research instrument, validity and reliability, data collection, and data analysis. In further chapter, researcher will present the outcome of data analysis which including research findings and discussion.