

## **CHAPTER III**

### **METHODOLOGY**

This chapter presents the place and time of research, research design, population and sample, instruments of collecting data, data analysis, reliability and trustworthiness.

#### **3.1 Place and Time of Research**

This research will be conducted at State Islamic University of North Sumatera. Jl. William Iskandar Ps. V, Medan Estate, Percut Sei Tuan Sub-district, Deli Serdang Regency, North Sumatera, Indonesia. One of the reasons for choosing a university in North Sumatera as the research location is because UINSU students' are also EFL students. Certainly, the problem to be investigated relates to error in writing often faced by EFL students. Therefore, the similarity of subjects with the other research shows there are writing error on EFL students is the reason this research conducted at one of the universities in North Sumatera.

#### **3.2 Research Design**

The research design for this study is mix method with explanatory sequential. Creswell (2015) defines mixed methods as a strategy that aims to provide a deeper understanding of the subject being studied by gathering, analyzing, and integrating numerical or quantitative and qualitative data in a single study. In order to address the formulation of study, which incorporates both quantitative and qualitative data, mixed methods application is crucial. Researchers may contrast many cases, find answers to difficult occurrences, and conduct thorough analyses of both quantitative and qualitative data using mixed methods. As a result, the information gathered using these two methods not only enhances the comprehension of the research topic but also clarifies and expands upon it.

The explanatory sequential method is a research approach that begins with the collection and analysis of quantitative data first. After the quantitative phase is complete, the results obtained are explained and expanded using qualitative data. In other words, the quantitative data obtained provides an initial description of the phenomenon under study, and these results are then developed and clarified through

qualitative data analysis. This method is called explanatory sequential because it follows a systematic order: a quantitative phase is conducted first to identify significant patterns or findings, followed by a qualitative phase to provide in-depth explanations and richer context to the quantitative findings. In this way, this approach allows the researcher to gain a more comprehensive understanding of the research problem through the integration of results from both types of data (Creswell, 2015).

### **3.3 Population and Sample**

In this study, the term "population" refers to a group of people who share certain characteristics relevant to the objectives of the study. A population, in the definition of Creswell (2015), is a group of people who share particular characteristics that make individuals suitable topics for study. The population in this study consists college students for whom English is not their native tongue, also known as EFL (English as a Foreign Language) students. Whole State Islamic University of North Sumatra's second semester English Education Department students will be the population of this study. There are four classes for a total of 135 students in the second semester.

One of the groups in the population that is the target of research and to be used as a generalization to the population is referred to as a sample (Creswell, 2015). The sample in this study is expected to accurately represent the population. To determine the sample, cluster random sampling technique was used. According to Awar (2004), cluster random sampling refers to the randomization of groups, not individual subjects. In this study, the technique was used to select one of the classes or groups that would represent the study population. After applying the cluster random sampling technique, one class from the second semester English Education Study Program at the State Islamic University of North Sumatra was selected. The class selected as the research sample consisted of 27 EFL students.

### **3.4 Technique of Collecting Data**

According to Creswell (2014), there are various data collection methods that have certain limitations in research. These methods include collecting information through observation, interviews (both unstructured and semi-structured interviews),

visual materials, and documents. In addition, researcher must also develop procedures for recording information obtained during the data collection process. In this study, the students will give a writing task, interview with asking the permission with participant first and there is no evidence of coercion or data falsification, as follows:

### 3.4.1 Writing Task

Writing tasks are employed in the text revision process to detect and evaluate the writing's quality in order to determine the quality of the texts produced by the students. In this study, analytic scoring was used to evaluate students' writing tasks. One method of evaluating writing texts is analytic scoring. This assessment involves assigning separate scores to each component of the work based on the aspects being assessed. According to Bruce (2000), aspects usually assessed in essay writing include grammar, organization of ideas, vocabulary, and mechanics.

**Table 1 Rubric Assesment Writing**

No.	Grammar	Organization of Ideas	Vocabulary	Mechanic	Total Score	Final Score
1.	5	5	5	5	20	100
2.	1	3	4	4	12	60

$$\text{Final Score} = \frac{\text{Score Obtained}}{\text{Maximum Number of Scores}} \times 100$$

$$\text{Final Score} = \frac{20}{20} \times 100 = 100$$

In this study, students write report texts through the following five steps: (1) Watching four-minute TED video on the topic of “4 Tips to Future-Proof Your Career” using Indonesian subtitles to understand the content of the video, (2) Writing a minimum of one paragraph in Indonesian, (3) Translating the Indonesian writing into English independently without using DeepL Translator (initial English version), (4) Translate their Indonesian writing into English using DeepL Translator (DeepL Translator version), and (5) Revise their English translation by comparing

it with the version produced by DeepL Translator (final version with the help of DeepL Translator).

### **3.4.2 Interview**

One method of collecting data involves conducting oral question and answer sessions with respondents, or data sources. This method can be utilized used directly or indirectly and is known as an interview technique. An interview, according to Berger in Kriyantono (2020), is a conversation between a researcher (who is looking for information) and an informant (who has knowledge about the subject of the study). Four English Education Study Program second semester students who had using DeepL Translator for text editing were interviewed for this study. These respondents were some of the individuals sampled in the quantitative research. The interview questions focused on the advantages and disadvantages of DeepL Translator during the revision process, as well as how the students received the translations from DeepL Translator, including how to correct text errors and the reasons behind text changes during revision. Through these interviews, the researcher was able to gain an in-depth understanding of students' use of DeepL Translator as a tool in the text revision process.

## **3.5 Data Analysis**

### **3.5.1 Descriptive Analysis**

Descriptive analysis is the initial step in the quantitative data analysis. Gaining a comprehensive understanding of the data including quantity, minimum and maximum values, mean, and standard deviation for quantitative data is the aim of descriptive analysis. William (2006) states that the purpose of descriptive statistics is to give an in-depth, comprehensible description of the data. Data processing and statistical computing were carried out using the SPSS version 29 (Statistical Program for Social Science) tool.

### **3.5.2 Paired Sample T-Test**

The paired t-test is a statistical method used to compare the means of two related measurements on a single sample group. It is suitable for using two sets of data from the same subject or a pair measured at two different times or conditions. The process involves calculating the difference between the two measurements for

each subject, and then testing whether the mean of this difference is statistically significant (i.e., whether there is a significant difference between the two measured times or conditions). The paired T test is a method used when the researcher wants to assess the effectiveness of the treatment, which means that there is an average difference from before treatment and after treatment (Widiyanto, 2013). In this study, the paired T test was used to determine the significant difference in two student scores, the initial score without using DeepL Translator and the final score after using DeepL Translator during revision. SPSS version 29 was used in paired T test in this study.

### 3.5.3 Hypotesis Test

After quantitative data analysis is carried out, the next step is to evaluate the results of the analysis to determine conclusions based on hypothesis statistics. According to Sekaran (2016), hypothesis testing is a type of analysis used to assess the relationship between variables.

The criteria for making decisions based on hypothesis statistics are as follows:

- If the significance value  $> 0.05$ , then the Null Hypothesis ( $H_0$ ) is accepted or the Alternative Hypothesis ( $H_a$ ) is rejected.
- If the significance value  $< 0.05$ , the Null Hypothesis ( $H_0$ ) is rejected or the Alternative Hypothesis ( $H_a$ ) is accepted.

In the context of this study, the hypotheses proposed are:

- Alternative Hypothesis ( $H_a$ ): There is a significant influence between the variables tested.
- Null Hypothesis ( $H_0$ ): There is no significant influence between the variables tested.

The researcher uses the above criteria to decide whether there is enough statistical evidence to reject  $H_0$  and accept  $H_a$ , or vice versa. This helps in drawing valid conclusions based on the quantitative data analysis that has been conducted.

### 3.5.4 Interactive Analysis

The researcher used Miles and Huberman's interactive analysis model to analyze the qualitative data. The interactive analysis of Miles and Huberman

consists of four steps, namely data collection, data reduction, data display and drawing conclusions. The explanation of the four steps is as follows:

#### 1. Data collection

First, the interview data is grouped according to the research problem, then further analyzed if there is a lack of information from the interview data.

#### 2. Data Reduction

Second, interview data was focused, classified, directed, and organized with the aim of reaching and validating the final research conclusions (Miles & Huberman, 2005, as cited in Harsono, 2008). This process was ongoing throughout the research. The output of data reduction is a summary of field notes, including preliminary notes, expansion, and addition of information. Steps in reducing data include selecting important information, summarizing, coding data, identifying major themes, and grouping into specific categories. Data that is deemed irrelevant or does not support the research can be removed from the analysis. Thus, data reduction not only eliminates irrelevant information, but also produces a deeper and more focused understanding of the phenomenon under study.

#### 3. Data Display

Third, interview data can be explored to reveal information related to the research through data display. According to Miles and Huberman (2007), data display helps in identifying relevant possibilities for conclusions or further actions. Data display can be in the form of narratives or sentences, graphs, tables, pictures, or schemes (Sutopo, as cited in Harsono, 2008). In the context of this research, data display is represented in the form of narratives or sentences. By using narratives or sentences, the information presented in the data display will be detailed, complete, and clear. This makes it easier for researchers to understand and explore the interview results in depth, as well as identify important information that is relevant for research analysis and conclusions.

#### 4. Drawing Conclusions

Finally, drawing conclusion is an integral part of a broader set of processes in research (Miles and Huberman, 2007). This process involves continuous validation of the conclusions drawn throughout the research. According to Harsono (2008), researchers extract conclusions by organizing field notes, identifying patterns, statements, configurations, causal relationships, and propositions that emerge from the data. In the context of this research, drawing conclusions involves not only matching the findings with existing theory, but also integrating the field findings directly. This ensures that the conclusions drawn are not only in line with the theory that has been formulated, but also reflect the reality observed in the field. The conclusions generated from this research are intended to provide a clear picture of the research focus and ensure that the results are relevant and meaningful to our understanding of the phenomenon under study.

#### 3.6 Trustworthiness

Member checking is a strategy used by researcher to increase the trustworthiness and accuracy of data in qualitative research (Creswell & Miller, 2000). According to Creswell (2005), the stages in member checking involve the following steps:

1. The researcher invites one or more participants who have provided information in the study to check the accuracy of the report that has been made.
2. In the member checking process, participants are given the opportunity to provide information back to the researcher either through a written report or through an interview.
3. The researcher confirmed with the participants on aspects of the research, such as the completeness and accuracy of the descriptions, the appropriateness of the themes identified, and the fairness and representativeness of the interpretations that had been made.

By using this member checking strategy, researcher can ensure that the data obtained truly reflects the views and experiences of participants, thereby increasing the validity and trustworthiness of qualitative research results.



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