

## CHAPTER IV

### RESEARCH FINDING AND DISCUSSION

This chapter presents the research findings and discussion. As this research uses mixed methods, there are two types of data, namely numerical data and qualitative data. The numerical data findings include descriptive analysis and paired sample t-test, the results of which include hypothesis testing. Qualitative data findings come from interviews that are analyzed through interactive analysis.

#### 4.1 Research Finding

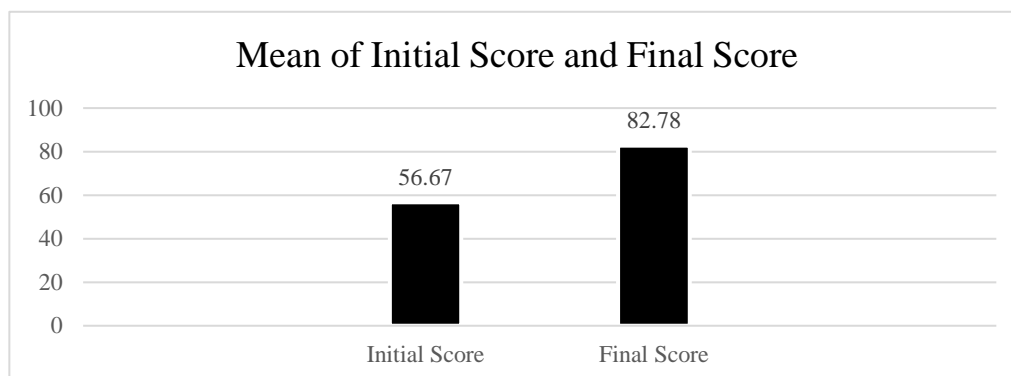
Based on the methodology of this study, there are two types of findings, namely numerical data and qualitative data. Numerical data includes the comparison between students' initial and final scores after using DeepL Translator in the text revision process. Meanwhile, the qualitative data revealed students' opinions and perceptions regarding their experiences when using DeepL Translator for text revision, which provided in-depth insights into the effectiveness and acceptability of this tool from the users' perspective.

##### 4.1.1 Descriptive Analysis

The study presents data from a report writing test, highlighting the initial scores before using the DeepL Translator and the final scores after revising the writing with the help of DeepL Translator. The initial scores reflect the students' writing abilities without utilizing DeepL Translator, while the final scores demonstrate the improvement in writing quality after utilizing DeepL Translator for revisions.

**Table 2 Descriptive Analysis**

<b>Descriptive Analysis</b>					
	N	Minimum	Maximum	Mean	Std. Deviation
InitialScore	27	40	70	56,67	7,338
FinalScore	27	70	95	82,78	6,554
Valid N (listwise)	27				



*Figure 4 Mean of Initial and Final Score*

Based on the data illustrated in the figure, the sample for both the initial and final scores consisted of 27 students. Initially, the students' scores on the report writing test varied widely, with the lowest score being 40. This initial score highlights the varying levels of writing proficiency among the students without utilizing DeepL Translator. However, after revising their writing using the translation results from DeepL Translator, there was an improvement.

The lowest score in the final score increased to 70, showing a significant improvement in the students' writing quality. This rise in the minimum score highlights the effectiveness of using DeepL Translator. Additionally, the highest score in the initial writing test was 70, while in the final, it increased to 95. This indicates that not only did the lowest score improve, but the highest score also saw a substantial increase.

The mean score of students on the report writing test was 56.67 initially. After making revisions with the help of DeepL Translator, the mean score increased to 82.78. Therefore, it can be concluded that second-semester English students at Universitas Islam Negeri Sumatera Utara experienced a significant increase in their report writing test scores after using DeepL Translator for revisions. This improvement reflects the effectiveness of using the translation tool to help students improve the quality of their writing.

#### **4.1.2 Data Analysis**

In analyzing the quantitative data, the researcher followed three main steps. First, a normality test was conducted to check if the data followed a normal distribution, which is necessary before conducting a paired T-test. Second, the

paired T-test was used to compare two sets of data from the same sample group and determine if there was a significant difference between them. Finally, the results of the paired T-test were interpreted using statistical hypothesis testing to draw conclusions from the research findings.

#### 4.1.2.1 Normality

The normality test is a crucial step before conducting a paired t-test. Its purpose is to check if the data follows a normal distribution. This is essential because the paired t-test relies on the assumption that the differences between paired data points are normally distributed. To determine if data meets this criterion, we examine the significance value (Sig). If  $\text{Sig} > 0.05$ , the data is normally distributed. Conversely, if  $\text{Sig} < 0.05$ , the data is not normally distributed, and alternative methods might be more suitable. Ensuring data meets this assumption is important as it affects the accuracy and reliability of the paired t-test results.

In this study, a normality test was conducted on the initial and final scores to decide if the paired t-test could be performed. The study involved one group of 27 students. The Shapiro-Wilk test was used to check if the data followed a normal distribution, which is suitable for small sample.

**Table 3 Tests of Normality**

		Tests of Normality		
		Shapiro-Wilk		
		Statistic	df	Sig.
ScoreWriting	InitialScore	,946	27	,172
	FinalScore	,928	27	,063

##### a. Lilliefors Significance Correction

Based on the Shapiro-Wilk test results in the figure, the significance value (Sig) for the initial score is 0.172, indicating that the initial score follows a normal distribution since it is greater than 0.05. Similarly, the final score has a significance value of 0.063, also greater than 0.05, indicating that the final score is normally distributed. Therefore, the Shapiro-Wilk test results show that both the initial and

final scores are normally distributed. Hence, we can proceed with the paired t-test to analyze if there is a significant difference between the students' initial scores and final scores after using DeepL Translator to revise their writing.

#### 4.1.2.2 Paired T test

After confirming that the data followed a normal distribution through a normality test, a paired t-test was conducted using SPSS version 29. This aimed to determine whether there was a significant difference between the initial and final scores of revised student writing by comparing the translation results from DeepL Translator. The significance level for this study was at 5% (0.05).

**Table 4 Paired Samples Statistics**

Paired Samples Statistics					
Pair 1		Mean	N	Std. Deviation	Std. Error Mean
		InitialScore	56,67	27	7,338
	FinalScore	82,78	27	6,554	1,261

**Table 5  
Paired Samples Test**

	Paired Differences					t	df	Significance	
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				One-Sided p	Two-Sided p
				Lower	Upper				
InitialScore - FinalScore	-26,111	5,064	,975	-28,114	-24,108	-26,794	26	<,001	<,001

Based on the table, it's evident that there's a significant difference between the initial and final scores. The paired samples statistics show that the average initial score is 56.67, compared to 82.78 for the final score of the student writing test. The initial score has a standard deviation of 7.338, while the final score has a standard deviation of 6.554.

#### 4.1.2.3 Statistical Hypothesis

To determine the results of the study, researchers used a statistical hypothesis with the following criteria:

- a.  $H_a$  is accepted if Sig. (2-tailed)  $5\% < (0.05)$
- b.  $H_o$  is accepted if Sig. (2-tailed)  $5\% > (0.05)$

Based on the paired t-test of the initial score and the final score of the writing test, the significance value =  $< 0.001 <$  from 0.05. Therefore, the alternative hypothesis ( $H_a$ ) is accepted, which means that DeepL Translator has a positive impact as a student writing revision tool.

#### 4.1.2.4 Advantages of DeepL Translator

After using DeepL Translator during the revision process, students discovered several advantages. These advantages significantly impacted the quality of their final writing, often resulting in texts with few or no errors. Below are the advantages that students experienced while revising with the help of DeepL Translator.

##### 4.1.2.4.1 Natural Translation Results

DeepL Translator provides very natural translations. It captures the nuances and original meaning of the text, resulting in high-quality translations that feel like they were done by a human. The translations are not only accurate, but also use appropriate language and style, making them sound like native speakers. Compared to other translation tools, DeepL is better at fitting the language style to the context. Because of this, DeepL's style is often better than other translation tools. When translating text, it is important to choose a translator who is accurate and produces a natural translation, as this has a significant impact on the quality of the translated text. One of the main advantages of a translation that feels genuine is its ability to minimize misunderstandings of the meaning conveyed. With a proper translation, the reader is able to capture the true meaning of the text, so that the intended message is not lost or misinterpreted. In addition, a natural translation helps create a better connection between the reader and the content of the text, making the reading experience more enjoyable and informative. Thus, accuracy and naturalness

in translation are essential to ensure that interlanguage communication takes place effectively.

*“I think the advantage of deepl is that the translation is more natural and able to capture the context of the sentence well when compared to some other MT”*  
(R1:AANP)

Other respondents also stated that DeepL Translator produces natural translations. This high quality of translation is one of the main factors that makes the results feel smoother and easier to understand. In addition, its ability to retain the original nuances and context of the text makes DeepL Translator an excellent choice. With its advanced features, the tool is able to reduce errors and ambiguities, allowing readers to capture meaning more accurately. Therefore, DeepL Translator is worth considering as an effective solution for translating texts, whether for academic, professional or everyday purposes.

*“Very high translation quality as it produces natural translations”*(R4:CG)

DeepL offers significant assistance to students throughout the writing process. One of the main reasons many people choose DeepL is the naturalness of its translations. Users can trust that the translated text will flow smoothly and sound authentic. This quality not only makes the text easier to read but also ensures that it closely reflects the original language's meaning and style. As a result, DeepL helps maintain the integrity of the source text while producing translations that are clear and faithful. Overall, the natural quality of DeepL's translations makes it a reliable tool for anyone looking to enhance their writing.

#### **4.1.2.4.2 Realizing Potential Errors**

Students identified potential errors in the original version of their texts after comparing them with the translations produced by DeepL. This comparison highlighted important differences in areas such as grammar, vocabulary, organization of ideas, and mechanics. These differences pointed out possible mistakes and weaknesses in the original text. By looking at the original text alongside the DeepL translation, students were able to spot and correct their writing errors, which ultimately helped improve the overall quality of their work.

*“Be aware of errors, for example if my version of the text differs from the text at DeepL”*(R2:RM)

Other respondents also stated that by comparing the DeepL Translator output during the revision process, they could realize any errors in the original text. The difference between the text written without the help of DeepL and the translated text encourages students to be more critical in revising. They will consider which version is better between the two. After finding the more appropriate version, they will replace it in their final text. Thus, the final text produced will be much better than the initial text.

*“So I know which one is wrong in the text I made myself”*(R3:NFSI)

DeepL Translator has great potential for improving the quality of students' writing by helping them identify potential errors. Students can compare their own versions with the translations or revisions provided by DeepL, allowing them to understand the differences between correct and incorrect language use. Additionally, by observing the improvements made, students can expand their vocabulary and enhance their sentence structure. This process promotes continuous learning and overall development of writing skills, which is highly beneficial for their academic growth.

#### **4.1.2.4.3 Easy to Use**

The features of DeepL Translator are user-friendly and straightforward, making it accessible to users of all levels. Its interface is understandable, allowing for easy navigation, so even those without technical expertise can use the tool effectively. Furthermore, the smooth integration of multiple languages and fast response times enhance the overall user experience, ensuring that translating text is efficient and hassle-free.

*“No, DeepL is very easy to use”*(R2:RM)

Other respondents also stated the same, indicating that using DeepL Translator to translate text is very easy. No technical difficulties are experienced when using DeepL Translator, as the process is very simple. This makes it easy for students to translate texts quickly and effectively. With its easy-to-use features, students simply need to type or paste text into the provided boxes, and the translation results will

appear automatically. This streamlined process enables students to work faster and more efficiently without having to navigate a complicated system.

*“No, because using deepl is easy, just enter the text, and the results are immediately available”*(R3:NFSI)

With its simple use, DeepL Translator is accessible to all levels of users, including students, lecturers, and professionals. It can significantly improve students' effectiveness in translating texts. Moreover, DeepL Translator offers a wide range of language options, automatic language detection, and the ability to save and edit translations. These additional features help students to concentrate more on the content being translated, reducing the time and effort spent on the translation process itself. This makes DeepL Translator a valuable tool for anyone needing accurate and quick translations.

#### **4.1.2.4.4 DeepL Translator Influences Students' Writing Strategies**

##### **4.1.2.4.4.1 Double Checking**

Double-checking by comparing the original version of the text with the DeepL Translator version helps students recognize the differences between the two versions. These differences can identify potential errors in the original text. By doing this process, students can improve their original text, enhancing the quality and accuracy of their writing. If they are unsure about the translation, DeepL Translator becomes their go-to source for improving their writing. Additionally, students use other resources, such as the internet, to confirm the translations provided by DeepL Translator. This comprehensive approach ensures that students achieve a higher level of accuracy and quality in their translations, making their writing more effective and reliable.

*“I will accept the translation if after I double-check with the DeepL version, the result is similar to my version and feels good when read. However, if there are any differences, I will double-check with another translation tool”*(R2:RM)

Other respondents also mentioned that when comparing, they re-read both the text they wrote and the DeepL version. If the DeepL version is accurate, they will accept the translation; however, if it is incorrect, they will reject it.



*“When I compare my version with DeepL's, if after I reread DeepL's version it seems good and clear, I will accept it”*(R3:NFSI)

As the respondents mentioned, during the revision process, they check the translations in other sources for similarities or differences to improve accuracy. This helps ensure that the final text is of better quality and free from errors. Therefore, students compare the differences between the initial version of the text and the DeepL translation using other sources, such as different translation apps. They use various translation tools to determine which version has the best quality and accuracy for the revised text or final version. By doing so, their revised text or final version achieves a high level of accuracy and clarity, minimizing or even eliminating writing errors. This thorough approach helps students produce well-written and reliable translations.

*“Yes, to see comparisons and to find other vocabulary that is more suitable or appropriate”*(R1:AANP)

*“Yes, I also use other sources such as Google Translate”*(R3:NFSI)

DeepL is a valuable tool for students in their writing process. It helps them identify errors such as grammar, vocabulary, and punctuation in their initial drafts. By using DeepL, students can improve their writing and ensure their texts are clearer and more polished. This enhances the overall quality of their writing and helps them avoid common mistakes.

#### **4.2.2.2 Using Their Previous Knowledge**

When students compare their writing with the translation from DeepL Translator, they apply their own knowledge and insights during the revision process. For instance, when they notice discrepancies between the original text and the DeepL translation, they carefully evaluate each difference. If they determine that the DeepL translation is inaccurate or incorrect, they stick with their original version of the text. This approach ensures that their final writing reflects accuracy and clarity.

*“I will accept if the results are the same when checked in other sources. Otherwise, I will decline and keep using my version of the text without replacing it”*(R1:AANP)

As another respondent said, they can integrate alternatives from the DeepL translation into their revised text. They can also combine ideas from the original text with the translated version to create better harmony.

*“In comparison, if I feel that the DeepL version is correct, I will accept it. However, if I feel that there is some ambiguity, I will reject it and stick with my original version. So there is a combination of the original text version and the deepL version in the final text”*(R4:CG)

Students don't merely accept DeepL Translator's results; they also using their own knowledge and skills to critically improve and enrich their revised text. By combining automated feedback with their deep understanding, they achieve better writing outcomes. This process involves thorough analysis, critical evaluation, and the application of their language expertise, all contributing to enhancing the overall quality of their writing.

#### **4.1.2.5 Disadvantages of DeepL Translator**

One drawback students encounter when using DeepL during the revision process is that, despite its design to mimic human neural work, it remains artificial intelligence and not a real human. Therefore, there are inevitable shortcomings associated with its use. Here are some of the limitations students have noted after using DeepL Translator during their writing revision process.

##### **4.1.2.5.1 Unable to Translate Specialized Terms**

Although DeepL has significant positive benefits, it also has limitations as an artificial intelligence application. While DeepL is efficient at capturing language nuances and context, its translations may not always be completely accurate in highly specialized or technical contexts. This is because, unlike its human creators, DeepL lacks the comprehensive understanding and expertise necessary for such specific domains.

*” This lack of deepL is just like any other MT, for texts that are highly technical, specific, or use specialized terminology, DeepL may lack accuracy or not recognize certain terms well”*(R1:AANP)

To support the previous statement, another respondent also highlighted the same issue. DeepL Translator's weakness lies in its inability to accurately translate specialized or specific texts.

*“A disadvantage of deepl during revision is its limitation in specialized or specific language”*(R2:RM)

Additionally, DeepL might not always fully understand certain cultural references or idioms, which can lead to translations that aren't entirely accurate. Its effectiveness also depends on the data it has been trained on; if specific phrases or situations are not included in that data, the resulting translation may not be the best. This means that while DeepL is a valuable and powerful tool for translation, users should take the time to review and adjust the translations to ensure they are accurate and appropriate for their specific needs. Doing so will help make sure the final result fits the intended meaning and context better.

#### **4.2 Discussion**

This study revealed several findings based on both numerical and qualitative data. The numerical data showed a significant difference between the initial and final scores. Students demonstrated improvement in their final scores after revising their writing with the help of DeepL Translator. According to Tsai (2019), students improved their second language writing skills when using machine translation compared to their self-written essays. There was a noticeable difference between the initial scores and the scores after using DeepL for revisions. Additionally, O'Neill (2019) noted that students trained in Neural Machine Translation (NMT) tended to show greater improvement than those who did not receive such training. This suggests that using NMT in writing can have a significantly positive effect compared to not using this technology.

According to Lee's (2019) research, results from second language (L2) writing tests showed significant improvements in vocabulary, grammar, and expression after using machine translation (MT). This indicates that revising texts by comparing the initial version with the MT version has a positive impact on students' writing skills. The use of MT not only enhanced the technical aspects of writing but also helped enrich students' expressions and overall language

understanding. Therefore, MT can be an effective tool for improving the quality of academic writing and communication in foreign languages.

Supported by qualitative analysis from interviews with students who used DeepL Translator during the revision process, the results showed a positive impact on the quality of their writing. This improvement is partly due to DeepL's ability to provide natural translations. According to Fitria (2023), DeepL stands out from other translation tools by producing more accurate and natural results. James (2023) noted that DeepL uses artificial intelligence (AI) and neural networks to deliver precise and reliable translations. In addition to offering natural translations, DeepL also helps students identify potential errors in their writing. This aligns with Bernardini's (2016) view that machine translation can raise students' awareness of various language aspects, such as patterns, connections between form and meaning, word choices, and collocation patterns. Overall, DeepL Translator positively affects the quality of student writing. Furthermore, DeepL is user-friendly; users simply need to type or paste their text, and DeepL will automatically provide the translation. As Sidiq and Syafryadin (2024) said that DeepL Translator as an installation device is easy to use in translating text.

DeepL Translator influences students' writing strategies. When students compare their writing with the results from DeepL, they notice differences between the two texts, which motivates them to improve their work. First, they double-check their text by comparing the original version with the DeepL version. To ensure accuracy, they often consult other sources to verify whether the DeepL translation is correct. As noted by Lee (2019), machine translation (MT) may not always provide the best results, but it gives students an alternative that encourages them to think about word choice and double-check their grammar and expressions. Second, they rely on their own knowledge when editing the original text. They assess whether the original version is correct and, when comparing it with the DeepL version, confirm which of the two is more accurate. Lee (2019) emphasizes that instead of simply adopting the MT results, students critically and strategically choose alternatives based on their prior knowledge, sometimes combining their original text with the DeepL version to create a better sentence.

While DeepL Translator has a positive impact on writing quality, users should also be aware of its drawbacks. DeepL is an artificial intelligence tool that can make mistakes in translations. One of its limitations is its difficulty in translating specialized terms. According to Duran's research (2024), machine translation often falls short compared to human translation in understanding audience needs and conveying cultural nuances. Although DeepL can translate texts based on the context it has, it sometimes struggles to capture specific details and subtleties that a human translator would.



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