THE EFFECTIVENESS OF DEEPL TRANSLATOR IN ENHANCING HIGH SCHOOL STUDENTS' WRITING SKILLS

THESIS

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FACULTY OF TARBIYAH AND TEACHER TRAINING

UNIVERSITAS ISLAM NEGERI MAULANA MALIK IBRAHIM

MALANG

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LEGITIMATION SHEET

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THE EFFECTIVENESS OF DEEPL TRANSLATOR IN ENHANCING HIGH SCHOOL STUDENTS' WRITING SKILLS

THESIS

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13 April, 2026

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To the Dean of Faculty of Education and Teacher Training

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In

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Assalamu'alaikum Wr. Wb.

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Therefore, we believed that thesis of YumnaaTaqiyatul Nabillah has been approved for further approval by the board examiners.

Wassalamu'alaikum Wr. Wb.

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DECLARATION OF AUTHORSHIP

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Declare that:

1. This thesis has never been submitted to any other tertiary education institutionfor any other academic degree.
2. This thesis is the sole work of the author and has not been written in collaboration with any other person, nor does it include, without due acknowledgment, the work of any other person. Should it later be found that this thesis is a product of plagiarism, I am
3. Willing to accept any legal consequences that may be imposed on me.

Malang, 13 April 2026

The Researcher,

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Malang, 13 April 2026
Advisor,

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MOTTO

"Live it down, it's just dunya."

DEDICATION

The author dedicates this thesis with sincere gratitude to the beloved family, for their prayers, support, and unconditional sacrifice and love. This thesis is also dedicated to Dr. Suparmi, M.Pd., who played a meaningful role in the completion of this thesis. The guidance, advice, encouragement, and support provided not only contributed to the completion of this thesis but also profoundly affected the researcher's personal growth. Furthermore, this work is dedicated to the researcher's friends, as their presence, kindness, time, laughter, and tears have made the researcher's academic journey more memorable. Finally, the researcher dedicates this work to herself as a form of appreciation for the ability to persevere, by the grace of Allah SWT, during difficult times; for the perseverance when giving up seemed easier; and for the courage to keep learning and rising to pursuit her dreams even though she knew sleeping was more enjoyable.

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The researcher fully acknowledges that this thesis is far from perfect. Therefore, the researcher greatly appreciates any constructive suggestions and feedback. It is hoped that this thesis will provide benefits and insights to readers, as well as serve as a valuable learning experience for the researcher.

Malang, 12 April 2026

The Researcher,

Yumnaa Taqiyatul Nabillah

LATIN ARABIC AND TRANSLITERATION

Based on the joint decision of the Minister of Religion of the Republic of Indonesia and the Minister of Education and Culture of the Republic of Indonesia Number 158 of 1987 and Number 0543b/U/1987, it has been decided that the Arabic Latin transliteration guidelines used in this thesis are as follows:

A. Words

ا	= a	ز	= z	ق	= q
ب	= b	س	= s	ك	= k
ت	= t	ش	= sy	ل	= l
ث	= ts	ص	= sh	م	= m
ج	= j	ض	= dl	ن	= n
ح	= h	ط	= th	و	= w
خ	= kh	ظ	= zh	ه	= h
د	= d	ع	= ‘	ء	= ’
ذ	= dz	غ	= gh	ي	= y
ر	= r	ف	= f		

B. Long Vocal

Long Vocal (a) = **â**

Long Vocal (i) = **î**

Long Vocal (u) = **û**

C. Dipthong Vocal

أَوْ = **aw**

أَيْ = **ay**

أُوْ = **ŭ**

إِيْ = **î**

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ABSTRACT

Nabillah, Yumnaa Taqiyatul. 2026. The Effectiveness of DeepL Translator in Enhancing High School Students' Writing Skills. Thesis. Department of English Education, Faculty of Tarbiyah and Teacher Training, Universitas Islam Negeri Maulana Malik Ibrahim Malang.

Advisor: Dr. Suparmi, M.Pd.

Keywords: DeepL Translator, high school students, neural machine translation, writing skills

In the era of globalization, English writing skills have become essential for students, yet many high school learners still face difficulties in vocabulary, grammar, and idea organization. The integration of technology, particularly neural machine translation tools such as DeepL Translator, offers potential support in improving students' writing abilities. Therefore, this study aims to examine the effectiveness of DeepL Translator in enhancing high school students' writing skills. This study employed a quantitative method with a quasi-experimental design involving an experimental group and a control group. The sample consisted of 60 tenth-grade students divided equally into two groups. Data were collected through pre-test and post-test writing tasks and analyzed using normality test, homogeneity test, and independent sample t-test. The results showed that the experimental group achieved greater improvement, with the mean score increasing from 72.50 to 81.53, while the control group improved from 71.63 to 77.03. The independent sample t-test revealed a significant difference between the two groups ($p = 0.001 < 0.05$). It can be concluded that DeepL Translator has a significant positive effect on students' writing skills and can be used as an effective tool in writing instruction.

ABSTRAK

Nabillah, Yumnaa Taqiyatul. 2026. *The Effectiveness of DeepL Translator in Enhancing High School Students' Writing Skills*. Skripsi. Jurusan Pendidikan Bahasa Inggris, Fakultas Ilmu Tarbiyah dan Keguruan, Universitas Islam Negeri Maulana Malik Ibrahim Malang.

Dosen Pembimbing: Dr. Suparmi, M.Pd.

Kata Kunci: DeepL Translator, keterampilan menulis, neural machine translation, siswa SMA

Di era globalisasi, keterampilan menulis dalam bahasa Inggris menjadi sangat penting bagi siswa, namun banyak siswa sekolah menengah masih mengalami kesulitan dalam kosakata, tata bahasa, dan pengorganisasian ide. Integrasi teknologi, khususnya alat penerjemahan berbasis neural machine translation seperti DeepL Translator, menawarkan potensi untuk membantu meningkatkan kemampuan menulis siswa. Oleh karena itu, penelitian ini bertujuan untuk mengetahui efektivitas DeepL Translator dalam meningkatkan keterampilan menulis siswa sekolah menengah atas. Penelitian ini menggunakan metode kuantitatif dengan desain quasi-eksperimen yang melibatkan kelompok eksperimen dan kelompok kontrol. Sampel penelitian terdiri dari 60 siswa kelas X yang dibagi secara seimbang ke dalam dua kelompok. Data dikumpulkan melalui pre-test dan post-test serta dianalisis menggunakan uji normalitas, homogenitas, dan independent sample t-test. Hasil penelitian menunjukkan bahwa kelompok eksperimen mengalami peningkatan yang lebih besar, dengan rata-rata nilai meningkat dari 72,50 menjadi 81,53, sedangkan kelompok kontrol meningkat dari 71,63 menjadi 77,03. Hasil uji t menunjukkan adanya perbedaan signifikan antara kedua kelompok ($p = 0{,}001 < 0{,}05$). Dapat disimpulkan bahwa DeepL Translator memberikan pengaruh positif yang signifikan terhadap keterampilan menulis siswa dan dapat digunakan sebagai alat yang efektif dalam pembelajaran menulis.

خلاصة

نابيلة، يُمنى تقيّة. ٢٠٢٦. فعالية مترجم ديب إل ترانسليتور في تحسين مهارات الكتابة لدى طلاب المرحلة الثانوية. بحث تخرّج (سكريبسي). قسم تعليم اللغة الإنجليزية، كلية علوم التربية والتعليم، جامعة مولانا مالك إبراهيم الإسلامية الحكومية مالانغ.

المشْرِفَة : الدكتور سوبارمي، ماجستير في التربية

الكلمات المفتاحية: ديب إل ترانسليتور ، مهارات الكتابة، الترجمة الآلية العصبية، طلاب المرحلة الثانوية

في عصر العولمة، أصبحت مهارة الكتابة باللغة الإنجليزية ذات أهمية كبيرة للطلاب، إلا أن العديد من طلاب المرحلة الثانوية لا يزالون يواجهون صعوبات في المفردات، والقواعد اللغوية، وتنظيم الأفكار. إن دمج التكنولوجيا، ولا سيما أدوات الترجمة المعتمدة على الترجمة الآلية العصبية مثل ديب إل، يقدّم إمكاناتٍ للمساعدة في تحسين مهارات الكتابة لدى الطلاب. لذلك، تهدف هذه الدراسة إلى معرفة مدى فعالية ديب إل في تحسين مهارات الكتابة لدى طلاب المرحلة الثانوية.اعتمدت هذه الدراسة المنهج الكمي بتصميم شبه تجريبي، حيث اشتملت على مجموعة تجريبية وأخرى ضابطة. وتكوّنت عينة الدراسة من 60 طالبًا من الصف العاشر، تم توزيعهم بالتساوي إلى مجموعتين. جُمعت البيانات من خلال الاختبار القبلي والاختبار البعدي، وتم تحليلها باستخدام اختبار الطبيعية، والتجانس، واختبار (t) لعينتين مستقلتين.أظهرت نتائج الدراسة أن المجموعة التجريبية حققت تحسنًا أكبر، حيث ارتفع متوسط الدرجات من 72.50 إلى 81.53، في حين ارتفع متوسط المجموعة الضابطة من 71.63 إلى 77.03. كما أظهر اختبار (t) وجود فروق ذات دلالة إحصائية بين المجموعتين .($p = 0.001 < 0.05$) ويمكن الاستنتاج أن ديب إل له تأثير إيجابي دال إحصائيًا على مهارات الكتابة لدى الطلاب، ويمكن استخدامه كأداة فعالة في تعليم الكتابة.

CHAPTER I

INTRODUCTION

This chapter offers a comprehensive overview of the study, encompassing the study's background, research question, research objective, significance of the research, the scope and limitations. It also provides definitions of the key terms employed in this study.

1.1. Background of The Study

The process of globalization entails that schools play a significant role in equipping their learners with English language skills. According to Husna et al. (2025), the recognition of English as the universal language has played a part in the incorporation of English language skills into the curriculum. As globalization advances at a faster pace, English language proficiency has become critical for all areas of work, ranging from businesses, technology, education, and health care among others (Uktamovna & Amantavna, 2025). Currently, English language is considered a mandatory subject in senior high school. English language proficiency holds a number of benefits to students such as exposure to foreign learning materials, traveling overseas for education, and competitiveness in the job market.

Within the scope of learning the English language, there are four basic skills that must be learned, which are listening, reading, speaking, and writing. Of these, the skill of writing poses a significant problem to students, often considered the most challenging part of the language. The reason for this problem is the importance of writing in education, as mentioned in Surah Al-Alaq verses 4-5:

ٱلَّذِى عَلَّمَ بِٱلْقَلَمِ ٤ عَلَّمَ ٱلْإِنسَٰنَ مَا لَمْ يَعْلَمْ ٥

Meaning: “(The One) who taught (humans) through the pen, teaching humans what they did not know.”

These verses explain that humanity is encouraged to write as a means of seeking knowledge. Allah reminds humans of the virtues of writing and the encouragement to write, as there are great wisdom and benefit in the science of writing, which cannot be achieved except through writing. Knowledge cannot be disseminated except through writing, nor can the laws that bind humanity to always walk the path of truth. The Prophet Muhammad said in a hadith:

قَيِّدُوْا الْعِلْمَ بِالْكِتَابَةِ

Meaning: “Bind knowledge with writing” (HR. At-Thabrani and Hakim from Abdullah bin Amr)

Payung and Sukarno (2025) have asserted that, traditionally, writing has been identified as the basis for learning English. Writing involves skills such as reading, speaking, listening, and writing itself. This is because writing allows students to share their thought without necessarily interacting face to face. As stated by Fitria (2024), the act of writing enables the articulation of students' thoughts and emotions through the use of accurate vocabulary, proper structure, and coherent unity. Writing has also been demonstrated to enhance creativity by allowing students to explore new ideas and concepts, resulting in works that are interesting and captivating.

In an educational landscape that is subject to constant change, writing skills are essential both for academic success and professional development. The capacity to communicate effectively through written language is a critical factor in determining a student's ability to comprehend complex concepts, contribute to academic discussions, and ultimately achieve success in a knowledge-driven economy (Minh, 2024). Proficient writing in English demands not only a solid grasp of grammar and vocabulary, but also the capacity to organize ideas systematically and adapt language style to the demands of the writing context. Common challenges in writing are attributed to limited vocabulary, a deficiency in grammatical understanding, and inadequate practice. Moreover, as mentioned by Hamp-Lyons and Heasley (2006) in Payung and Sukarno (2025), the anticipation of an error being highlighted is often the cause of anxiety in submitting written assignments for assessment.

In the development of education, technology plays a significant role in supporting the students and teachers in facilitating the learning process. In writing, Machine Translation (MT) is a common technology employed to facilitate the learning process. A significant proportion of students turn to web-based translation tools or Neural Machine Translation (NMT) such Google Translate to facilitate their English writing. According to Xu and Wang (2025), language teaching has become more complicated and diversified, leading to an increased need for sophisticated technology. This has made NMT and ChatGPT widely adopted in the field. The implementation of NMT facilitates the translation of vocabulary, words, or sentences that are not familiar to the student in their native language. The efficacy

of NMT as a Computer-Assisted Language Learning (CALL) tool to enhance vocabulary has become a subject of interest among English as a Foreign Language (EFL) students. Numerous students have found NMT effective in acquiring vocabularies (Lo, 2025). While such technology makes life easier in terms of translating words or sentences, it often lacks accuracy and contextuality. As posited by Hasibuan (2025), machine translations are not evaluated based on grammar or semantic nuances. In simpler terms, there are issues with machine translation regarding grammar and semantics, and these issues have an impact on the quality of translation.

With advances in technology, novel translation tools such as DeepL Translator have emerged, which is extolled for its ability in producing more natural and contextually appropriate translations. DeepL Translator employs both Artificial Intelligence (AI) and NMT technology, a sophisticated approach that has been demonstrated to yield more accurate translations than other online translators. A multitude of studies have demonstrated that the utilization of DeepL Translator can facilitate the enhancement of writing skills among students, particularly with regard to vocabulary, grammar, and the clarity of their written expression. Birdsell (2022) has asserted that DeepL has been instrumental in propelling these developments. According to its official website (www.deepl.com), numerous corporations and media outlets have commended the efficacy and precision of DeepL's online translator, highlighting its enhanced shade and accuracy compared to other NMTs. By examining the application of DeepL Translator in the writing process and

analysing the benefits it offers, students can learn from the translated results and independently correct their errors.

However, the implementation of NMT in the learning process requires more attention. There have already been a few studies on how DeepL can be used for learning and how good are its translations. Despite the benefit it offers, NMT can makes the students overly dependent on this technology in the learning process that reduce the authenticity of their expression in writing. As Lee (2023) has noted, in view of the significant increase in the use of MT among students for academic purposes in recent years, language educators must recognize the challenges and opportunities presented by this development in their classrooms. Additionally, Birdsell (2022) found that teachers frequently gave higher ratings to student essays written with the assistance of DeepL than to equivalent texts composed without it, although he emphasized the importance of raising students' awareness in using such tools effectively. Likewise, Payung and Sukarno (2025) reports that DeepL is likely to improve students' writing achievement and suggests integrating technological support with good pedagogical practice to optimize the learning's outcome. These results seem to confirm DeepL's increasing relevance within educational settings, but also the need for supports during its use.

Additionally, Other researchers have conducted studies on DeepL's effectiveness in various fields. Polakova and Klimova (2023) confirmed its usefulness for applied linguistics, although their pilot study lacked a control group and was statistically less strict. Research in more specific contexts, such as medical translation (Sebo & De Lucia, 2024; Takakusagi et al., 2021) and translator training

(Salinas & Burbat, 2023), also showed that although DeepL performs well, its limitations in accuracy and consistency still require careful post-translation editing and human supervision. Comparative studies, such as those conducted by Bunga and Katemba (2024); Gao et al., (2024), further analyzed DeepL alongside Google Translate, but they focused primarily on the quality of translations between languages or genres rather than the direct impact on students' writing skills.

On the other hand, many recent works have investigated how machine translation tools impact the development of student writing. For instance, Tuti et al. (2023) argued that translation tools affect not only the writing process but also the student's academic success, warning about potential negative effects of long-term usage on grammar acquisition, vocabulary improvement, and critical thinking skills. Similar to the aforementioned research, Ismailia (2023) emphasized that there is a need to investigate how machine translation affects different kinds of texts except informative writing. Meanwhile, Kamaluddin et al. (2024) stated that one should not neglect the role of context understanding and adaptation when using translation tools. Furthermore, Agung et al. (2024) also suggested considering the opinion of experienced translators when dealing with cultural aspects of machine translation. However, all these investigations are still merely exploratory.

However, with the growing amount of research conducted in the field, there is still an evident lack of scholarly interest in the use of DeepL in secondary education, specifically in terms of improving writing abilities for EFL high school students. This is because most of the studies carried out so far have focused on university education, translating training programs, and other professional fields.

Therefore, this study aims to fill this gap by investigate the effectiveness of DeepL Translator in enhancing high school students' writing skills.

1.2. Research Question

Based on the background and rationale presented, this study is guided by the following question:

1. How effective is DeepL Translator in enhancing High School Students' writing skills?

1.3. Research Objective

In line with the research question, the researcher formulated the research objective as follow:

1. To examine the effectiveness of DeepL Translator in enhancing High School Students' writing skills.

1.4. Significant of The Research

1.4.1. Theoretical

The purpose of this study was to expand our knowledge in the field of English language learning through an investigation into the use of NMT, specifically DeepL Translator, as a means of improving the students; writing skills. It is expected that through an assessment of its effectiveness, this study contributes to the enhancement of theories currently developed in the fields of second language mastery and technology-assisted learning.

Additionally, the findings provided a theoretical basis for language teaching by introducing the integration of NMT as pedagogical resource that

facilitates students in independent learning and active engagement in writing processes. Finally, the finding served as a basis reference for future studies focused on developing instructional models that integrate digital translation technology to enhance language learning outcomes.

1.4.2. Practical

So, from a pragmatic point of view, this study provided several immediate advantages to a range of interested parties in English language development. The results of this study served as a reference for educators regarding the dissemination of effective teaching methods, such as using technology like DeepL Translator in writing pedagogy. This integration supported developing optimal students' learning potential with keeping their creativity and skills of critically thinking.

For students, the findings highlighted the usefulness of applying DeepL Translator tool to intentionally scaffold writing skill and develop confidence in light of observed improvement of engagement and motivation involved during the language learning process. For educators also, this study shed considerable light on how language learning technology developers in actual practice could determine the merits and boundaries of an existing software so as to benefit future generations of students. This makes it possible to develop: improvements and innovations in order to meet educational needs.

Lastly, institutions may take these results into consideration when writing language programs or courses that include machine translation tools

as they promote a more technological approach to education by adapting their teaching methods in accordance with modern needs. This study proposed an initial basis for research work to be carried out in future work related to AI-based translation tools, where suggestions were widely provided that could be utilized not only in writing but also for other skills such as speaking, listening and reading.

1.5. Scope and Limitation of The Study

The present study investigates the utility of DeepL Translator in enhancing high school students' writing skills. The study was focused on the usage and efficiency of DeepL Translator to help students in their English writings and edits. Participants of this study were high school students using DeepL Translator as an aid within the writing process. The study scope covered assessing the impact of this technology on both students' writing quality, error correction, and general improvement in writing. Despite its detailed focus, some aspects of DeepL Translator have been identified as limitations in the context of this study. For one thing, the sample size was limited to a number of high school students and other educational levels and ages were not considered. Second, the research is limited solely to the use of DeepL Translator, and it does not compare this with other NMT or writing assistance technologies like Google Translate or Grammarly. Third, the output from the DeepL Translator is limited by how complex your text is. In this study, the output of DeepL Translator is not always optimum and users have to make multiple revises and corrections. The use of NMT also posed challenges associated

with contextual or specialized vocabulary, which has been acknowledged as a known limitation.

1.6. Definition of Key Terms

1.6.1. DeepL Translation

A web-based machine translation tool that implied artificial intelligence, specifically neural networks or called Neural Machine Translation (NMT) and deep learning techniques, to provide translations that are considered more accurate and natural than other online translation tools. DeepL is a language-translation software that supports multiple languages and is designed to preserve context and style in the output text.

1.6.2. Effectiveness

In this study, the term “effectiveness” defined as the degree to which the implementation of DeepL Translator contributes to the improvement of students' writing skills. The improvement was measured by the researcher from the students’ writing result from the pre-test and post-test, before and after the integration of the tool in the learning process.

1.6.3. Students’ Writing Skills

Writing skills is the ability to create and convey ideas effectively and coherently in written form, including idea organization, grammar, vocabulary, coherence, and spelling. In this study, writing skills specifically refer to students' potential to compose English texts with higher clarity and accuracy by the help of DeepL Translator.

1.6.4. High School Students

In the context of this study, high school students refer to learners who enrolled in secondary education aged 15-18 in Indonesia, where students develop advanced language skills as part of their curriculum.

CHAPTER II

LITERATURE REVIEW

This chapter provides hypothesis and theories relevant to this study. The theories presented are the definition of writing, writing aspects, challenges in writing English, NMT in language learning, and DeepL Translator. Additionally, previous studies are reviewed to complement the analysis of this study.

2.1. The Definition of Writing

Writing is one of the four fundamental skills in the context of basic language competences along with reading, listening, and speaking. Among these competencies, writing is arguably the most complex to acquire as it requires the integration of several cognitive and linguistic processes (López & Ruiz, 2022). The writing process involves generating ideas, organizing these ideas in a coherent manner, and transcribing them into writing symbols that are both grammatically correct and contextually meaningful. According to Payung and Sukarno (2025), writing is much more than just putting words on a piece of paper; rather, it is multifaceted process that requires a level of proficiency in vocabulary, grammar, syntax, organization, and style. Therefore, writing serves not only as a means of communication, but also an important indicator of overall language proficiency.

In the context of EFL, the act of writing becomes increasingly challenging for students who are required to formulate ideas and thoughts in a language that is not their native tongue (Bingol, 2023). This means that their success depends heavily on their linguistic knowledge and their ability to transfer thoughts from one language system to another. Husna et al. (2025) argue that writing in EFL requires

continuous practice and exposure, because without active engagement, students are less likely to achieve higher levels of proficiency. For secondary school students, especially those preparing for an academic and professional future, writing skills ensure they can participate more actively in global academic and professional discourse.

2.1.1. Writing Aspects

Writing has several aspects that influence students' ability, it indicates a crucial role for the development of high-order thinking skills. As students complete the writing process, they must be engaged in the use of analytic and evaluative strategies to develop both their critical and creative thinking abilities (Rahmat et al., 2020). Additionally, Uktamovna and Amantavna (2025) pointed out that writing assignments challenge students to make choices regarding word selection, sentence construction, and logical flow of ideas, which subsequently improves their ability to reason and to develop their arguments. Therefore, when considering writing, it is essential to view it as both a product of language, but also as a cognitive process that fosters intellectual development.

Another crucial aspect of writing involves its role as a lifelong skill that extend beyond academic requirements. The skills to write such effective text is not only crucial for achievement in academic assessments, such as school exam and university studies, but also for professional communication in various fields, including business, law, and technology. The global relevance of English as a lingua franca highlights the

significance of effective writing instruction in EFL classrooms. Students who develop proficiency in writing skills at an early age are better prepared for competition in a globally connected world, where written communication predominates in professional interactions (Alharthi, 2021).

Writing has multiple components that can be divided into five broad categories. As described by (Ghosh & Sen, 2023), there are content, organization, vocabulary, language use (grammar), and mechanics which include such as spelling, punctuation, and capitalization. Each of these elements requires specific attention. For instance, content helps the reader know what the message in a clear and meaningful way, whereas organization allows the readers to clearly understand the meaning and correct usage. Mechanics contribute to the readability of the writing. All five components of writing contribute to determine the quality of written text (Brown, 2007). For EFL students, these components can be particularly challenging to master because they require consistent practice and support from their teacher.

From a pedagogical perspective, writing is not a skill that is acquired automatically. Rather, it must be taught systematically and practiced consistently (Purnama, 2022). Teachers must create opportunities for students to express themselves through writing, gradually guiding them through the stages of brainstorming, drafting, revising, and editing. This approach helps students understand the processes underlying effective writing and develop independence in producing texts. Therefore,

understanding the definition and aspects of writing is a crucial first step in exploring how technology such as translation tools can support developing this skill (Tuti et al., 2023).

2.1.2. Challenges in Writing English

Writing is considered to be an integral part of language learning; however, it has continued to be one of the most challenging tasks for many EFL learners. This is a dual challenge for students at varying points in their academic journey. One of the most apparent issues is limited vocabulary. When there are not enough words to give life and meaning to their ideas, students boil down what they mean or simply don’t say it at all. As a result, their writing might appear scattered or weak. In many classrooms, students also translate literally, word-for-word from their first language, believing that meaning will transfer neatly across to English. According to Payung and Sukarno (2025), many students translate their works literally from their mother's languages, which deprives the composition of appropriate word choices and clarity. This concern is corroborated by Hamdani and Abid (2025) and Chuquin and Lizaldes (2025), stating that lexical limitations are among the top linguistic problems impeding fluency and complexity in writing.

Grammar is another obstacle that can't be ignored. This makes grammar difficult and, for most students, it appears to be intimidating too. Writing in a language is not simply about generating ideas; Indeed, students must learn how sentences work, but they often struggle with the

fundamentals (tense consistency, sentence structure, subject-verb agreement). These difficulties are to be expected, particularly among the many students who are still grappling with the rules of written language. And what makes matters more complicated is the fear of making a mistake. The problem is compounded by students' anxiety about making errors (Hamp-Lyons & Heasley, 2006). This results in risk-averse behaviour, which inhibits writing fluency and impediments content development. Osman et al. (2025) found that students' fear of making errors can negatively impact their motivation and willingness to fully engage in writing tasks, thereby limiting the development of their writing skills. Common grammatical weaknesses include improper article usage, preposition errors, and verb form inconsistencies. These issues are confirmed by Isma et al. (2023) and Riadil et al. (2023) in their research on EFL students' error patterns.

These are related to vocabulary and grammar, but also to another common difficulty for students: organizing their ideas into a clear piece of writing. It is more than writing correct sentences; it involves connecting the sentences in a meaningful way (Anindita, 2024). To help the reader make sense of what they want us to think, students need some awareness about how their writing is organized. But not all students have much exposure to fine models of writing. Consequently, they might struggle to properly utilize translation cues or cohesive connectives. Agustini et al. (2025) observed that one of the significant issues EFL students face when writing is developing

paragraphs and staying within a topic, which leads to poor quality writings. These problems are symptomatic not just of linguistic gaps, but also of limited experience with (and awareness about) academic conventions and writing strategies. In such situations, the writing can be disjointed even when the sentences themselves are grammatically correct.

In addition, motivational concepts have considerable impact on writing performance. Students typically view writing as intimidating, overwhelming, and not wholly pleasurable since classroom practices often prioritize error correction over creativity and content growth. Writing anxiety and low self-efficacy, as Romrome and Mbato (2022) observed, decrease students' engagement which, in turn, affect writing outcomes negatively. Adventi et al. (2025) also revealed that motivation is highly correlated with persistence and writing outcomes. We find that pedagogical interventions are critical in promoting positive writing experiences and alleviating anxiety.

These difficulties are often exacerbated due to the learning setting. Conventional language learning classes rarely invest enough time and efforts into developing effective writing skills, concentrating primarily on reading and speaking tasks instead (Kim, 2023). As a result, students do not receive enough opportunities to build their writing competence. Furthermore, small group sizes and low instructor availability prevent delivering personalized and thorough feedback, which is crucial to enhance writing skills (Chuquin & Lizaldes, 2025; Tukan, 2024). Without constant

assistance, individuals cannot easily recognize and correct mistakes in their papers, thus slowing down the improvement process.

Given this diversity of obstacles, the introduction of advanced technologies and techniques, such as neural machine translation (NMT), provides promising solutions to many problems. With the help of NMT tools, for instance, DeepL, students will be able to learn new vocabulary, get assistance with grammar, and understand the structure of well-written sentences (Naveen & Trojovský, 2024). Nonetheless, as some scholars note, too much dependence on such technologies prevents the development of independent writing skills. Thus, their implementation in instructional practices must be considered carefully (Lee, 2023; Polakova & Klimova, 2023).

2.2. Neural Machine Translation (NMT) in Language Learning

With the rise of technology, there were numerous changes in learning methods related to writing, for instance. Among the innovations is the development of NMT systems. NMT tools utilize deep learning algorithms that consider the whole sentence along with contextual clues. Thus, they differ significantly from previous rule- and statistic-based machine translation systems (Ganesh et al., 2023). According to Xu and Wang (2025), this characteristic makes NMT tools capable of producing high-quality and contextually accurate translations, which makes them very useful in teaching writing. Neural Machine Translation (NMT) processes an entire sentence as a single processing unit. It has been observed that, in general, NMT frameworks adopt an Encoder-Decoder architecture. The translation process

within this framework is divided into several main stages, the first one is Encoding. In the initial stage, the sequence of words from the source language is transformed into a numerical representation in the form of vectors through the word embedding process. The Encoder then processes these vectors to generate a context vector that comprehensively represents the semantic meaning of the source sentence. The next process is Attention Mechanism. This component addresses the limitations of long sentences by assigning different weights (focus) to each part of the source sentence. In the process of generating words in the target language, the system dynamically "pays attention" to relevant parts of the source text. This ensures that the translation remains contextually accurate. The last is Decoding. The decoder's function is to predict and generate a sequence of words in the target language based on information from the context vector. This process unfolds sequentially, with each generated word providing additional input to determine the subsequent word, thereby gradually constructing a coherent and natural sentence.

Presently, the most advanced NMT implementations are based on the Transformer architecture. The primary benefit of this architecture is rooted in the implementation of Self-Attention, a mechanism that facilitates data processing in a parallel manner, thereby superseding the sequential execution characteristic of RNNs and LSTMs. This enhancement in processing efficiency and the system's capacity to discern long-range dependencies between words are significant advancements. There are several reasons why NMT tools are gaining popularity among language learners. First of all, such applications are extremely convenient since students may face challenges with unknown words and phrases while working

on papers but instead of stopping, they are likely to look up the needed information without interrupting their work. Consequently, NMT systems encourage experimenting with language, making learners feel free in expressing their ideas (Lo, 2025). If people do not fear making mistakes, they are more likely to try something new in writing activities.

Various studies have demonstrated that the application of NMT can contribute to the improvement of the receptivity and productivity of students' language skills. According to Polakova and Klimova (2023), there were significant achievements in learning vocabulary and understanding written texts observed among those students who actively used NMT tools. Naveen and Trojovský (2024) underlined the effectiveness of NMT regarding writing accuracy due to the provision of scaffolding and the reduction of errors. Thus, all of the mentioned aspects show how important NMT is as a pedagogical instrument aimed at improving linguistic competence and encouraging students to write independently rather than only translate their text. However, even with the development of NMT technologies, there still are some problems. There might be grammar mistakes, misuse of idioms and collocations, and usage of culturally-specific words (Hasibuan, 2025). The uncontrolled usage of the aforementioned instruments can encourage students to adopt incorrect language models, especially in case no post-editing and or mediation of teachers occur (Yudianto et al., 2025).

In terms of teaching practices, it is necessary to consider appropriate approaches to introducing NMT to students. First, instructors should develop guidelines that would encourage active participation of learners. Specifically,

educators should encourage independent work and use of NMT as a means of revision and editing. Research showed that such strategies can decrease the tendency of dependent work with automated translations, as well as improve metalinguistic awareness and editing skills (Kirchhoff, 2024). Thus, the role of educators as facilitators becomes essential when dealing with NMT to maximize benefits and minimize its disadvantages. If used appropriately, NMT can become a supplementary instrument encouraging critical thinking and control of language skills (Deonandan, 2025).

2.2.1. DeepL Translator

DeepL translator is considered to be one of the most sophisticated NMT devices today. In particular, according to Birdsell (2022), DeepL translation produces more natural translations than other popular MT programs like Google Translate because this software is capable of analyzing sentences in entirety using an extensive linguistic database that provides the user with a highly contextualized result. Polakova and Klimova (2023) pointed out the potential benefits of using this translation software as a means of supporting language education, suggesting that the reliability of DeepL makes it possible to develop students' writing competencies more efficiently. According to Purnamawati et al. (2025), such features of DeepL as automatic corrections and suggestions of synonyms make it easier for learners to improve their writing by finding alternatives for vocabulary use and writing styles. It is important to note that these features could be especially useful in writing classes where students often encounter

difficulties in generating creative writing that would not require any corrections.

The experimental analysis conducted by Payung and Sukarno (2025) confirmed that high school students who were using DeepL when writing showed significant progress in grammar, lexical, and stylistic aspects compared to those who were not using any technological aids to their writing. Therefore, it could be concluded that DeepL could be used not only for correcting errors but also as a supportive tool in writing classes. However, there is a possibility that over-reliance on DeepL might affect students negatively. In particular, Lee (2023) argued that learners who use DeepL extensively might fail to develop skills necessary for making independent decisions in writing and critical thinking skills.

Besides that, there were also technical problems which made DeepL less efficient. According to Purnamawati et al. (2025), students might struggle to navigate the application or understand the suggestions, or they may not have internet access, all of which may limit how effective DeepL is as a substitute for human translators if these issues are not considered and addressed properly. As a result, teachers are highly responsible for training students not only in terms of teaching writing skills but also utilizing digital tools wisely and effectively. According to Kirchhoff (2024), DeepL works best as an accompaniment to pedagogical strategies that prioritize the editing process, reflection, and active student involvement in learning. With

this approach, DeepL can function as a collaborative tool that supports students' growth as independent writers, not just as a translation tool.

2.3. Previous Study

Over the last few years, there has been increased interest in exploring Machine Translation tools such as DeepL in language education studies. In doing so, several researchers have taken a closer look at the influence of such software from different angles: from students' academic achievements to their translation ability and perception. Even though these studies present important information, they also demonstrate that the effect of such software is more complex than it seems. While some conclusions reveal obvious benefits of using Machine Translation, others emphasize certain disadvantages. Such complexity suggests that the effectiveness of DeepL depends not only on the tool itself but also on the way it is used during classes. For instance, Birdsell (2022) studied the way teachers assessed students' writing in connection with the use of DeepL. As revealed by the researcher, teachers tend to give higher grades to assisted essays compared to unassisted ones. What is more, Birdsell found out that it was possible to recognize neural machine translation in writing. Therefore, it is apparent that DeepL improves vocabulary and grammar, but does not fully represent students' writing skills. It means that teachers need to teach learners to use Machine Translation wisely and critically.

Another study related to using DeepL was carried out by Payung and Sukarno (2025). These researchers conducted an experiment concerning the influence of DeepL on high school students' academic performance. The obtained

results showed improved vocabulary, grammar, and coherence in the case of DeepL users compared to those who did not use the tool. As noted, technological instruments like DeepL play an important role in enhancing writing. However, revision should accompany their use to ensure productive learning.

Numerous studies have also assessed DeepL within the larger context of language learning, not only at the high school level. A pilot observational study was conducted by Polakova and Klimova (2023), concerning the role of DeepL within EFL learning. Despite having promising results, the small sample size and a lack of controls and inferential analyses hindered the extrapolation of their findings. Nonetheless, they succeeded in providing early indications that NMT tools like DeepL could effectively help with language learning once appropriately used. Another study by Salinas and Burbat (2023) examined DeepL and Google Translate as part of a translator training program. The authors found that the students perceived the fluency and quality of output from DeepL. Once again, limitations like small sample size and lack of full data set affected the scope of conclusions. Thus, both studies supported the notion of effectiveness of DeepL as a translation tool while pointing out a lack of relevant empirical studies regarding the application of the tool to learning processes.

Studies in the specialized professional setting showed DeepL to be reliable in translation tasks, albeit with some limitations. For example, in a study by Takakusagi et al. (2021), DeepL proved reliable for translating medical Japanese documents despite issues with technical vocabulary and passive constructions requiring human review. A related paper, conducted by Sebo and De Lucia (2024),

compared performance of several translation services, namely DeepL, Google Translate, and CUBBITT. The authors concluded that DeepL performed better regarding translation fluency and should be subjected to additional research to evaluate its performance across various types of texts and languages.

In relation to educational outcomes, Tuti et al. (2023) considered the effect of using translation tools in students' academic activities. According to the findings, the use of translation tools can increase the level of grammatical correctness and vocabulary proficiency among learners. Nevertheless, the overuse of such tools can weaken the ability of students to write independently and think critically. The authors noted the need to conduct further research, especially focused on the long-term consequences of working with translation tools among EFL writers. Meanwhile, Ismailia (2023) pointed to the importance of expanding the scope of studies, suggesting considering various genres of writing, including narrative and persuasive, in order to get a comprehensive picture of the effect of machine translation tools.

In relation to the quality of translation tools and cross-lingual analysis, different papers have discussed how DeepL compares to other machine translation (MT) systems. For example, Kamaluddin et al. (2024) evaluated both contextual comprehension and accuracy, revealing DeepL's strong adaptability but lack of improvement of cultural and contextual sensitivity. Also, Agung et al. (2024) made a comparison between DeepL and Google Translate in terms of the translation of Indonesian short stories, discovering the superiority of DeepL to Google Translate in naturalness but stressing the necessity for human monitoring of culturally

sensitive texts. In addition, Gao et al. (2024) examined the effectiveness of DeepL, Google Translate, and ChatGPT when translating Chinese classics poetry, stressing the need for constant development of these systems due to their inability to provide linguistic stylistics.

Finally, Bunga and Katemba (2024) explored users' perception when translating texts from foreign languages into English via DeepL and Google Translate. As a result, a greater satisfaction from DeepL was found in relation to its accuracy, appropriateness, and fluency. Nevertheless, the authors recommended conducting future research with increased sample size and demographic diversity. Therefore, DeepL proved to be much more effective than other translation systems in a wide range of technical domains. At the same time, an empirical gap is revealed by the lack of studies on the influence of DeepL on students' ability to write correctly and accurately, especially those attending secondary schools.

Based on the review of previous study, it can be seen that most research has focused on translation quality, user perceptions, or higher educational context. However, while these studies provide important and critical insights, there is still a noticeable gap in research that directly examines the effect of DeepL by secondary school students to enhance their writing proficiency in grammar, vocabulary, and coherence. In addition, only a limited number of studies have used experimental design to measure its effectiveness. Therefore, the objective of this study was to address this gap by investigating the effectiveness of DeepL Translator in enhancing high school students' writing skills.

2.4. Hypothesis of The Study

H_0: There is no significant effect of DeepL Translator in enhancing High School Students' writing skills.

H_1: There is a significant effect of DeepL Translator in enhancing High School Students' writing skills.

CHAPTER III

RESEARCH METHODOLOGY

This chapter elaborates the methodology of this study, which includes research design, subject of the study, data collection technique, research instrument, and data analysis technique.

3.1. Research Design

This study employed a quantitative research methodology and a quasi-experimental design. The main objective was to determine the effectiveness of DeepL Translator in enhancing high school students' writing skills. A quantitative methodology was deemed for this study because it enables researchers to objectively measure and analyze differences between two groups using numerical data and statistical procedures Creswell (2014). According to Sugiyono (2013), quasi-experimental design is particularly well-suited for studies in which the researcher is unable to completely control the allocation of subjects to experimental and control groups, yet seeks to ascertain causal relationships. In this study, there were two groups involved: an experimental group, which received writing instruction with DeepL Translator, and a control group, which received traditional writing instruction.

Each group were administered a pre-test and a post-test. The experimental group received a treatment between the two tests, specifically writing lessons that integrated DeepL Translator. Meanwhile, the control group employed conventional writing practices, relied on the teacher explanations and dictionary use. A comparison of the scores between the two groups showed whether the use of DeepL

Translator had result in a statistically significant improvement in students' writing skills.

The design can be symbolically presented as follows:

Table 3.1 Research Design

Group	Pre-test	Treatment	Post-test
Experimental	X	Y	Z
Control	X	-	Z

Where:

X = Pre-test scores of experimental and control groups, respectively

Y = Treatment (use of DeepL Translator)

Z = Post-test scores of experimental and control groups

3.2. The Subject of The Study

The subjects of this study consisted of two classes of 10th grade students at a high school in Indonesia during the 2025/2026 academic year. The school has a total of ten 10th grade classes, each consisting of approximately 30-36 students. In this study, one class were designated as the experimental group, and the other one served as the control group. Each class consist of 30 students, meaning the total of the sample size are 60 students. The experimental group received writing instruction that included the use of DeepL Translator, while the control group continued with conventional writing lessons relied on the teacher’s explanations and traditional translation tool such as dictionary book.

3.3. Data Collection Technique

The data used for this study were collected through pre-tests and post-tests. These tests were employed to assess students' writing skills before and after the integration of DeepL Translator in the classroom, specifically in the experimental group. The pre-test was conducted for both the experimental and control groups prior to the administration of the treatment. The objective of this evaluation was to determine students' initial writing skills and to ensure that both groups begin from an equivalent level. Students were tasked to create a complete descriptive text with specific topic such as their favorite person.

Following the pre-test, writing instruction that integrated DeepL Translator was taught into the experimental group with three designated learning sessions. During these sessions, students were guided to write, translate, and revise their essays using DeepL under the supervision of the teacher. In contrast, the control group received a conventional instruction without technological support, relying instead on teacher explanations and dictionary use.

Following the conclusion of the treatment period, both groups took a post-test using similar level of difficulty. The students were tasked to write a complete descriptive text with specific topic, such as their favorite place. The purpose of the post-test was to evaluate any improvement in students' writing skills after the treatment. To measure the instrument validity and reliability, the writing tasks and scoring rubrics were reviewed by an English teacher and one university lecturer in English Education Department. A pilot test was also conducted in another class to ensure that the instructions, topics, and time allocation were clear and appropriate.

The time schedule of data collection is explained below:

Table 3.2 Time Schedule of Data Collection

Meeting	**Treatment**	
	Experimental Group	**Control Group**
1	Pre-test.	Pre-test.
2	Explained the basic concepts of descriptive text and introduced DeepL Translator as a supporting learning tool. Students were guided to use DeepL Translator to understand vocabulary and sentence meaning related to descriptive texts in a controlled and limited manner.	Explained the basic concepts of descriptive text using conventional teaching methods. Students learned vocabulary and sentence structures through textbooks and teacher explanations without using any translation applications.
3	Students were asked to write a short descriptive paragraph. DeepL Translator was used to assist students in selecting appropriate vocabulary and	Students wrote a short descriptive paragraph using textbooks and dictionaries as references. The teacher provided feedback on

	improving sentence structure, while the teacher provided guidance and feedback on their writing.	students' writing without involving the use of translation tools.
4	Students wrote a complete descriptive text of approximately 3 paragraphs. DeepL Translator was used as a revision tool to improve vocabulary choice and grammatical accuracy, while the teacher guided students throughout the writing and revision process.	Students wrote a complete descriptive text of approximately 3 paragraphs. The revision process was conducted based on the teacher's corrections and learning materials without the assistance of translation applications.
5	Post-test.	Post-test.

3.4. Research Instrument

The main research instrument that utilized in this study was a writing test, which employed in both the pre-test and post-test. The writing test was made to measure students' writing performance. The test assessed students' proficiency in composing a descriptive text, evaluated their performance across multiple writing

components including content, organization, vocabulary, grammar, and mechanic quality.

3.4.1. Writing Test Description

The writing test required students to make a complete text focusing on descriptive text. The students were allotted a time of 90 minutes to create the text completely. The topics were about the students' favorite person for the pre-test, and the students' favorite place for the post-test. The descriptive genre was used because it was commonly taught in 10th-grade English classes and allowed for the assesment of important writing skills, such as content, organization, vocabulary, grammar, and mechanic quality.

3.4.2. Scoring Rubric

Students' writing performance were evaluated using an analytical scoring rubric adapted from Brown (2007) and Jacobs et al. (1981). The rubric covered five components which presented below:

Table 3.3 Scoring Rubric

Aspect	**Description**	**Score Range**
Content	Relevance and completeness of ideas	1–30
Organization	Logical sequencing and coherence	1–20
Vocabulary	Range and appropriateness of word choice	1–20

Language Use (Grammar)	Accuracy and complexity of sentence structures	1–25
Mechanics	Correct use of punctuation, spelling, and capitalization	1–5
Total	Maximum possible score	100

To ensure reliability, two raters who are the researcher and an English teacher were independently evaluated each essay. After ensuring that their assessments aligned with the existing scoring rubric, they checked for consistency between the raters' scores.

3.4.3. Instrument Validity and Reliability

Instrument validity was determined through expert judgment to ensure that the instruments align with the school curriculum's writing objectives. The researcher consulted with the lecturers from the English Education Department including the thesis advisor and a lecturer who expertise in academic writing. The experts then examined the instrument to ensure that it matched to the targeted learning indicators and writings component. The feedback from the experts was used to revise and improve the instrument until meet the clarity and relevance to the study. Additionally, Pearson Product Moment Correlation was used to measure the validity of the instrument. A significance value (p) < 0.05 was considered valid.

The validity of the instrument was analyzed using the Pearson Product-Moment correlation to see how well each item (C1, O1, V1, G1,

and M1) relates to the overall score (TOTAL_R1). The findings indicate that all items have positive correlations with the total score, and all of them are statistically significant at both the 0.05 and 0.01 levels. Item C1 shows a correlation of 0.520 with a significance value of 0.002, suggesting a moderate yet meaningful relationship. Meanwhile, O1 has a stronger correlation of 0.682 ($p = 0.000$), followed by V1 with 0.662 ($p = 0.000$) and G1 with 0.627 ($p = 0.000$), both of which indicate strong relationships. Among all items, M1 stands out with the highest correlation coefficient of 0.801 ($p = 0.000$), reflecting a very strong association with the total score. Since all correlation values are above the acceptable threshold of 0.30 and the significance values are well below 0.05, it can be inferred that each item performs well in measuring the intended construct. In other words, all items included in the instrument can be considered valid and suitable for use in this study. The table of validity is presented below:

Table 3.4 Result of Validity Test

Correlations

		C1	O1	V1	G1	M1	TOTAL
C1	Pearson Correlation	1	.426*	.070	.067	.106	.520**
	Sig. (2-tailed)		.013	.697	.712	.557	.002
	N	33	33	33	33	33	33
O1	Pearson Correlation	.426*	1	.275	.031	.481**	.682**
	Sig. (2-tailed)	.013		.122	.863	.005	.000
	N	33	33	33	33	33	33
V1	Pearson Correlation	.070	.275	1	.493**	.552**	.662**
	Sig. (2-tailed)	.697	.122		.004	.001	.000
	N	33	33	33	33	33	33
G1	Pearson Correlation	.067	.031	.493**	1	.462**	.627**
	Sig. (2-tailed)	.712	.863	.004		.007	.000
	N	33	33	33	33	33	33
M1	Pearson Correlation	.106	.481**	.552**	.462**	1	.801**
	Sig. (2-tailed)	.557	.005	.001	.007		.000
	N	33	33	33	33	33	33
TOTAL_R1	Pearson Correlation	.520**	.682**	.662**	.627**	.801**	1
	Sig. (2-tailed)	.002	.000	.000	.000	.000	
	N	33	33	33	33	33	33

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Instrument reliability was determined by calculating the result of pilot test that have been evaluated by two raters using SPSS software. Inter-rater reliability is passed when two raters asses the same test. The two results obtained from the raters then calculated to determine the correlation coefficient. After recorded the score from pilot test, the results were compared to determine whether the score is different or has a similarity. A Pearson Product Moment Correlation was used to measure the inter-rater reliability. A significance (p) < 0.05 was considered acceptable, indicating that the instrument was reliable and consistent. The result of the reliability

test showed a value of 0.980 between rater 1 and rater 2 with significance level of 0.000. Therefore, it can be concluded that the instrument is reliable and falls into the very high category. The result of the reliability test is presented below:

Table 3.5 Result of Realibility Test

Correlations

		TOTAL_R1	TOTAL_R2
TOTAL_R1	Pearson Correlation	1	.980**
	Sig. (2-tailed)		.000
	N	33	33
TOTAL_R2	Pearson Correlation	.980**	1
	Sig. (2-tailed)	.000	
	N	33	33

**. Correlation is significant at the 0.01 level (2-tailed).

3.4.4. Interpretation of Scores

Students' total writing scores were categorized into proficiency levels according to the school's minimum passing grade of 75. Students who achieved a score of 75 or above were considered to have passed the test, while those who score below 75 were declared to have failed or required remedial work. These categories were used to interpret students' progress and determine the overall effectiveness of the treatment.

In addition, the scoring was also measured by the scoring rubric adapted from Jacobs et al. (1981) to meet the maximum score of 100 with

the criteria of content, organization, vocabulary, grammar, and mechanics. The interpretations of the score are explained below:

Table 3.6 Interpretation of Scoring Rubric

Aspect	Score	Criteria
Content	27-30	• EXCELLENT TO VERY GOOD: knowledgeable, substantive, through development of thesis, relevant to assigned topic
	22-26	• GOOD TO AVERAGE: some knowledge of subject, adequate range, limited development of thesis, mostly relevant to topic but lacks of detail
	17-21	• FAIR TO POOR: limited knowledge of subject, little substance, inadequate development of topic
	13-16	• VERY POOR: does not show the knowledge of subject, not-substantive, not pertinent or not enough to evaluate
Organization	18-20	• EXCELLENT TO VERY GOOD: fluent expression, ideas clearly stated or supported, succinct, well organized, logical sequencing, cohesive
	14-17	• GOOD TO AVERAGE: somewhat choppy, loosely organized but main ideas stand out, limited support, logical but incomplete sequencing
	10-13	• FAIR TO POOR: non-fluent, ideas confused or

		disconnected, lacks logical sequencing and development
	7-9	• VERY POOR: does not communicate, no organization or not enough to evaluate
Vocabulary	18-20	• EXCELLENT TO VERY GOOD: sophisticated range, effective word or idiom choice and usage, word form mastery, appropriate register
	14-17	• GOOD TO AVERAGE: adequate range, occasional errors of word or idiom form, choice, usage but meaning not obscured
	10-13	• FAIR TO POOR: limited range, frequent errors of word or idiom form, choice, usage, meaning confused or obscured
	7-9	• VERY POOR: essentially translation, little knowledge of English vocabulary, idioms, word form, or not enough to evaluate
Language Use (Grammar)	22-25	• EXCELLENT TO VERY GOOD: effective complex construction, few errors of agreement, tense, number, word order or function, articles, pronouns, prepositions
	18-21	• GOOD TO AVERAGE: effective but simple constructions, minor problem in complex constructions, several error of agreement, tense, number, word order or

		function, articles, pronouns, prepositions but meaning seldom obscured
	11-17	• FAIR TO POOR: major problems in simple or complex constructions, frequent errors of agreement, tense, number, words order or function, articles, pronouns, prepositions, and or fragments, run-ons, deletions, meaning confused or obscured
	5-10	• VERY POOR: virtually no mastery or sentence construction rules, dominated by errors, does not communicate or not enough to evaluate
Mechanics	5	• EXCELLENT TO VERY GOOD: demonstrates mastery of conventions, few errors of spelling, punctuation, capitalization, paragraphing
	4	• GOOD TO AVERAGE: occasional errors of spelling, punctuation, capitalization, paragraphing but meaning not obscured
	3	• FAIR TO POOR: frequent errors of spelling, punctuation, capitalization, paragraphing, meaning confused or obscured
	2	• VERY POOR: no mastery of conventions, dominated by errors of spelling, punctuation, capitalization,

		paragraphing, handwriting illegible or not enough to evaluate

The data obtained from pre-test and post-test were scored based of the scoring rubric above before conducting any analysis.

3.5. Data Analysis Technique

Data analysis in this study focused on students' writing scores obtained from the pre-test and post-test. The pre-test and post-test data were analyzed quantitatively using SPSS 26 software. Several statistical tests were applied to ensure the results interpreted correctly. From this analysis, the hypothesis of the study was able to be concluded.

3.5.1. Normality Test

Before conducting inferential statistical analysis, prerequisite tests were applied to measure whether the data met the assumptions required for parametric testing. To ensure the distribution of the data are indicated normal, a normality test was conducted to ensure data collected from the experimental and control group. The Shapiro–Wilk test was employed to ascertain the normality of the data distribution. A significance value (p) greater than 0.05 indicates that the data is normally distributed.

Hypothesis of Shapiro-Wilk test:

- H_0 (Null Hypothesis): The data is typically distributed normal.
- H_1 (Alternative Hypothesis): The data is typically not distributed normal.

Decision criteria:

- If the p-value $\geq$ (greater than) 0.05, the data is normally distributed
- If the p-value $\leq$ (lower than) 0.05, the data is not normally distributed.

The test was applied to both pre-test and post-test in each experimental and control group. If the assumption of normality met the criteria, the parametric test could be used for the hypothesis testing.

3.5.2. Homogeneity Test

The homogeneity of variance test was applied to examine whether the variances of the experimental and control group are equal. This test was important to ensure that both groups are comparable. The Levene's test for equality of variances was applied to test whether the variances between groups are homogeneous. The p-value greater than 0.05 considered that the data is homogeneous.

Hypothesis of Lavene's test:

- H_0 (Null Hypothesis): The variances of two group are homogenous.
- H_1 (Alternative Hypothesis): The variances of two groups are not homogenous.

Decision criteria:

- If the p-value $\geq$ (greater than) 0.05, the data has homogeneous variances.
- If the p-value $\leq$ (lower than) 0.05, the data has non homogeneous variances.

The test was employed to both experimental and control groups' pre-test and post-test. If the assumption of the Lavene's test met the criteria, the independent sample t-test can be applied to conclude the hypothesis of the study.

3.5.3. Independent Sample t-Test

The independent sample t-test was applied after the assumptions of normality and homogeneity test were fulfilled. This test was conducted after the post-test to compare the mean scores between the experimental and control groups. The objective of this test is to determine if there is a significant difference in writing achievement between experimental and control group. A significance level of $p < 0.05$ indicates that the treatment has a statistically significant effect.

Hypothesis of Independent Sample T-test:

- H_0 (Null Hypothesis): There is no significant difference between students' writing score in experimental and control group.
- H_1 (Alternative Hypothesis): There is a significant difference between students' writing score in experimental and control group.

Decision criteria:

- If the p-value $\geq$ (greater than) 0.05, there is no significant difference between two groups means H_0 is accepted.
- If the p-value $\leq$ (lower than) 0.05, there is a significant difference between two groups means H_0 is rejected.

CHAPTER IV

FINDINGS & DISCUSSION

This chapter elaborates the findings and discussion of the study, including data analysis from pre-test, post-test, normality test, homogeneity test, and independent sample t-test from students' writing performance.

4.1. Research Findings

In this section, the researcher presented the data analysis obtained during the research. The data were collected after the research instruments ware ensured valid and reliable. These instruments were used to measure the students' writing skills from both experimental and control group, before and after the treatment collected through pre-test and post-test. The data in this study was collected at MAN 1 Malang from February 4th until March 5th, 2026.

4.1.1. Data Analysis of Pre-Test

The pre-test was carried out on February 4th, 2026 for experimental group, and on February 5th, 2026 for the control group. The experimental group was the students from X-B, and the control group was the students from X-H where each class consist of 30 students. Both groups were given the same pre-test, which described about students' favorite person without any devices and close book for 90 minutes. This aimed to assess the students' ability to create and organize ideas until become a coherent sentence and proper paragraphs. In addition, this ensured that the result of the writing performance reflect students' writing skills before any treatment given. The result of the experimental class's pre-test is presented below:

Table 4.1 Experimental Class's Pre-Test

No	Initial Name	Pre-Test Score
1	DDF	70
2	NA	73
3	AS	75
4	ILIA	74
5	SIH	75
6	AAS	74
7	LCW	73
8	CAN	79
9	SRP	79
10	ASD	74
11	MFA	74
12	QA	80
13	MR	72
14	MAF	72
15	TI	71
16	ADS	70
17	MZP	65
18	APP	65
19	RS	63
20	ADN	71
21	NRA	66
22	VAB	65
23	ZKA	66
24	DFZ	75
25	MO	79
26	NN	84
27	HQ	79
28	DPP	73
29	AAH	75
30	MA	64
Total		2175
Mean		72.50

The results above showed the score ranging from 63 to 84 with the average score 72.50 from experimental group. This indicated that students

perform a sufficient understanding about descriptive text although have not yet meeting the high level of proficiency. Students who met the minimum score of 75 were just 10 out of 30. Most of the students scored within fairly narrow range, showed that the ability of the students in writing was in the equal area. Additionally, the table below showed the result of the control class's pre-test:

Table 4.2 Control Class's Pre-Test

No	Initial Name	Pre-Test Score
1	SMA	70
2	ZRNA	75
3	KH	80
4	RA	71
5	NSM	80
6	DF	79
7	ADSR	76
8	WKA	75
9	DWF	74
10	JAST	64
11	FMPE	76
12	EG	60
13	SANA	78
14	ZNH	72
15	AX	62
16	FIR	64
17	RSB	70
18	MAN	68
19	REA	63
20	PAR	75
21	NA	77
22	RHM	64
23	KD	74
24	HAS	66
25	NRA	79
26	WT	75
27	NRN	71

28	FAR	74
29	KAH	73
30	FRZ	64
Total		2149
Mean		71.63

The results above showed the score ranging from 60 to 80 with the average score 71.63 for the control group pre-test. This also indicated that students had understand enough about descriptive text but have not yet meeting the high level of proficiency. Students who met the minimum score of 75 were just 12 out of 30. As demonstrated by the data presented above, it can be concluded that the students' writing skill remained at the low proficiency, both in experimental and control group. Moreover, after got the pre-test score from both experimental and control group, the researcher performed a normality test using SPSS 26.

According to the data presented in the table below, the result of pre-test from each group indicated normality, known by the significance value of the Shapiro-Wilk results. The significance value for experimental group was 0.214 and 0.053 for the control group. Both values were higher than the significance level of 0.05 meaning that null hypothesis of normal distribution is accepted. The data of the normality test from the pre-test is presented in the following table:

Table 4.3 Result of Normality Test

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	kelas	Statistic	df	Sig.	Statistic	df	Sig.
pre test	pre test eksperimen	.122	30	.200*	.954	30	.214
	pre test kontrol	.156	30	.060	.931	30	.053

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

In addition, after got the result of the normality test, homogeneity test was also conducted to determine whether the variances are homogenous or not. The table showed the result of homogeneity test from the pre-test. The significance value of Lavene's Test based on mean was 0.341 which higher than the significance level of 0.05. Therefore, the null hypothesis stating that the variances are equal cannot be rejected and the score between the experimental and control group were indicated homogeneous. Therefore, the parametric testing such as independent sample t-test can be conducted after getting the data analysis from the post-test results. The result of homogeneity test is showed by the table below:

Table 4.4 Result of Homogeneity Test

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
pre test	Based on Mean	.923	1	58	.341
	Based on Median	.633	1	58	.430
	Based on Median and with adjusted df	.633	1	57.296	.430
	Based on trimmed mean	.854	1	58	.359

4.1.2. Treatment Process

The treatment process was conducted following the time schedule in the table 3.2. After conducting the pre-test, both groups were given the different treatment. The experimental group was taught with the integration of DeepL Translator in their learning process for three meetings. The method that used for the teaching and learning process was Project Based Learning (PBL). The first meeting after the pre-test is the introduction of the material, which was descriptive text. After introduced the key materials, researcher introduced about DeepL Translator as the assisting tool for their learning process thorough the treatment. The students were asked to try translating a sentence describing about themself in the tool, as well as the researcher showed in the projector in front of the class.

For the second meeting, the students were tasked to make a group then create one paragraph that described about their group mates. From Bahasa Indonesia, the students then tried to make their own version of English then the researcher come one by one to their bench and check about the writing performance of each student from each group. After gave some appreciation, feedback, and minor revision, the students were asked to open the DeepL Translator and typed their written paragraph. The researcher then chose one of the paragraphs to be presented in the projector and showed them how to check their vocabulary, grammar accuracy, and proper adjective that could help them improved their writing performance. After ensuring that the students understood how to use the tool properly with the

guidance and boundaries that have set, students were asked to revise their paragraph independently and discussed it with their group. Therefore, the researcher again came to give a feedback and appreciation to the students, as well as asked them to write and remembering their new vocabulary from the tools.

The last meeting before the post test was creating the students' own descriptive text about themself for about three paragraph and each consist of five to six sentences. The students were asked to write it directly in English without any tools, then asked to translate it into Bahasa Indonesia with the help of DeepL Translator. The researcher then asked the students to come forward and check their writings' performance. After gave an appreciation and feedback, the researcher once again used the DeepL Translator to maximize the students' written text while provided feedback for revision to the students' writing. The researcher also reminded the students to always do double checking in their writing. After got the text from the students one by one and asked them to double check and revision, the researcher provided constructive feedback one more time and explained about the use of DeepL Translator in their writing once again as well. The researcher showed the different of the text that originally translated from Bahasa Indonesia into English word by word just like the students used to be, and the translation provided by DeepL Translator which produce more natural and has a better flow in the writing.

Moreover, the control group was given the same material with the difference of the media. The students were allowed to bring a dictionary and open an online dictionary for those who didn't have the book one. The researcher using the same method PBL to the students from the first meeting after the pre-test until the last meeting before the post-test. A constructive feedback, double checking, and revision were also applied to the students' writing performance to still got the maximum output of the students' writing skills and the comprehensive of the material.

4.1.3. Data Analysis of Post-Test

The post-test was carried out on March 4th, 2026 for experimental group, and on March 5th, 2026 for the control group. The post-test was conducted after the experimental group (X-B) had given a treatment integrating DeepL Translator into the learning process. Meanwhile, the control group (X-H) received a conventional taught using their own dictionary book. For those who did not have a dictionary, the researcher allowed them to open Cambridge Dictionary as a helping tool under supervision and guidance. Each group was given the same post-test, which described about students' favorite place without any helping tools for 90 minutes. This aimed to evaluate the students' writing ability and figured out if there any improvement after the treatment and conventional learning. The result of the post-test from experimental class is presented in the following table:

Table 4.5 Experimental Class's Post-Test

No	Initial Name	Post-Test Score
1	DDF	78
2	NA	80
3	AS	82
4	ILIA	88
5	SIH	90
6	AAS	79
7	LCW	79
8	CAN	87
9	SRP	89
10	ASD	84
11	MFA	80
12	QA	94
13	MR	76
14	MAF	75
15	TI	76
16	ADS	81
17	MZP	78
18	APP	77
19	RS	76
20	ADN	83
21	NRA	76
22	VAB	74
23	ZKA	78
24	DFZ	82
25	MO	86
26	NN	93
27	HQ	87
28	DPP	85
29	AAH	80
30	MA	73
Total		2446
Mean		81.53

The table showed that the post-test score of experimental group increased than the pre-test after the treatment. This improvement can be seen

by the mean, from 72.50 to 81.53. The score also ranging from 73 to 94 which higher than the pre-test. The students who did not meet the minimum score decreased into just two students from 20 in the pre-test. Additionally, this result indicated that students performed better writing after the implementation of DeepL in their learning process. Moreover, the following table below shows the score of the control class's post-test:

Table 4.6 Control Class's Post-Test

No	Initial Name	Post-Test Score
1	SMA	72
2	ZRNA	78
3	KH	82
4	RA	76
5	NSM	86
6	DF	79
7	ADSR	78
8	WKA	78
9	DWF	79
10	JAST	74
11	FMPE	79
12	EG	66
13	SANA	79
14	ZNH	76
15	AX	70
16	FIR	75
17	RSB	74
18	MAN	70
19	REA	79
20	PAR	80
21	NA	80
22	RHM	74
23	KD	68
24	HAS	78
25	NRA	82
26	WT	80
27	NRN	83

28	FAR	80
29	KAH	77
30	FRZ	79
Total		2311
Mean		77.03

The result of the post-test from control group above also indicated slight improvement of students' writing performance. This can be seen by the average score increased from 71.63 to 77.03. The scores ranging from 66 to 86, with students who did not meet the minimum score decreased from 18 to 8. Although the scores increased compared to the pre-test, the improvement appeared relatively lower than the improvement of experimental group. This demonstrated that while the conventional learning contributed to students' writing skills, it did not result into a significant improvement. After having the result of the post-test, the normality test was conducted to ensure whether the post-test data collected from the experimental and control group indicated a normal distribution.

According to the data, the result of post-test from experimental and control group considered normally distributed, known by the significance value of the Shapiro-Wilk results. The significance value for experimental group was 0.149 and for control group was 0.124. Both values were higher than the significance level of 0.05, meaning that null hypothesis of normal distribution cannot be rejected. Below is the table of the normality test result:

Table 4.7 Result of Normality Test

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	kelas	Statistic	df	Sig.	Statistic	df	Sig.
nilai post	post eksperimen	.140	30	.138	.948	30	.149
	post kontrol	.185	30	.010	.945	30	.124

a. Lilliefors Significance Correction

After conducting the normality test, the data analysis continued to the homogeneity testing. The table showed the result of homogeneity test from the post-test. The significance value of Lavene's Test based on mean was 0.125 which higher than the significance level of 0.05. Therefore, the null hypothesis stated that the variances are equal is accepted and the score between the experimental and control group were considered homogeneous. Additionally, after conducting the pre-test, post- test, analyzed the normality and homogeneity, the results were considered met the assumption to proceed the data with parametric testing. The data from the post-test were analysed using independent sample t-test to provide the hypothesis of the study The result of homogeneity test of the post- test is presented on the table below:

Table 4.8 Result of Homogeneity Test

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
nilai post	Based on Mean	2.425	1	58	.125
	Based on Median	1.964	1	58	.166
	Based on Median and with adjusted df	1.964	1	56.912	.167
	Based on trimmed mean	2.341	1	58	.131

4.1.4. Hypothesis Testing

Before conducting hypothesis testing, the data were ensured valid, reliable, normally distributed, and homogenous by the researcher. It also confirmed that from the validity and reliability test, the instruments can be used for the test in the study. Continuously, the result of normality and homogeneity test which greater than the significance value of 0.05 also ensured that the assumption required for parametric testing. The parametric testing that used in this study was independent sample t-test to determine whether there is a significant different between students' writing score in experimental and control group.

Based on the data from independent sample t-test, it revealed that there was a significant difference between the post-test of experimental and control group. This result of significance value was 0.001 which clearly lower than 0.05. The result indicated that the experimental group has a better performance than the control group in their writing skills after the treatment integrating DeepL Translator. Therefore, the alternative hypothesis is accepted where there was a significant effect of DeepL Translator in enhancing high school students' writing skills.

Furthermore, in relation to the objective of this study, the findings provided that the use of DeepL Translator has a positive impact towards students' writing skills. Students in experimental group performed a better improvement compared to the students in control group who did not receive the same treatment. The significant difference between two groups

highlighted the effectiveness of DeepL Translator in the learning process. The result of the parametric testing using independent sample t-test is presented on the table below:

Table 4.9 Result of Independent Sample T-test

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
hasil post test untuk t-test	Equal variances assumed	2.425	.125	3.406	58	.001	4.500	1.321	1.856	7.144
	Equal variances not assumed			3.406	55.223	.001	4.500	1.321	1.853	7.147

4.2. Discussion

The findings of this study revealed that the integration of DeepL Translator in the learning process has a significant effect on students' writing skills. This supported by the result of independent sample t-test, showed a statistically significant difference between experimental and control group. The experimental group who was taught using DeepL Translator as a learning tool, achieved a higher improvement on the post-test score rather than the students from the control group. This indicates that the treatment successfully provided meaningful contribution to students' writing skills. Therefore, it is related to the study conducted by Syathroh et al. (2021) stated that the technology integration such as NMT into language learning plays pivotal role in enhancing students' writing performance.

Before conducting the treatment, both experimental and control group started with similar performance provided by the results of their pre-test and independent sample t-test from pre-test testing which higher than the significance level of 0.05. This similarity indicated that the two groups started from a

comparable baseline, making the difference and comparison more reliable. However, the experimental group provided better improvement after the treatment known by the result of their post-test and independent sample t-test. This difference related to the integration of DeepL Translator during the learning process. This in line with the previous research which was carried out by Payung and Sukarno (2025), that the tool such as DeepL Translator used to help students develop ideas, check grammatical structure, and choose appropriate vocabulary into their writing. As a result, students produce more coherent and accurate writing when compared to the control group that showed less enhancement.

In other hands, the challenges of writing faced by students such as lack of vocabulary, grammar mastery, and inappropriate sentence structure were also seen in some writing, especially from the pre-test. The students often misspelled the words and seemed difficult to construct a complex sentence, resulting a lower score in their writing performance. These issues are confirmed by Isma et al. (2023) and Riadil et al. (2023) in their research on EFL students' error patterns. Anindita (2024) also stated that effective writing requires producing not only grammatically correct sentences, but also creating logical flows and cohesive relationships among paragraphs.

Another challenge such as lack of motivation in writing also influenced writing performance. Students generally perceived writing as a complex, overwhelming, and sometimes dissatisfying, especially when classroom practices emphasized error correction over creativity and content development. Romrome and Mbato (2022) stated that writing anxiety and low self-efficacy reduce students'

engagement, where leads to impact their writing outcomes negatively. Adventi et al. (2025) also found that motivation strongly correlates with persistence and writing success. This finding highlighted the important of pedagogical interventions that foster a positive writing experience and ease anxiety.

In light of these varied challenges, integrating innovative tools and approaches such as integrating NMT tools like DeepL Translator offered a solution. The effectiveness of DeepL Translator can be attributed to its ability in providing instant and contextually appropriate translations. In contradiction with a traditional dictionary, this tool offers sentence-level suggestion that facilitate students' comprehension of how language is used in real context. According to Polakova and Klimova (2023), the feature of DeepL Translator allowed students to learn the patterns of sentence structure rather than just individual words. As a result, students become more aware of the grammatical and sentence structures while writing. Additionally, the integration of such technology has a potential to enhance students' motivation and confidence, as they receive immediate feedback on their work (Lo, 2025). This supportive environment encouraged students to promote risk-taking and active revision in their writing. Eventually, this process contributed in the improvement the students' writing skills.

Furthermore, the findings of this study aligned with previous research highlighting the benefits of NMT in language learning. According to Birdsell (2022), DeepL Translator is capable of producing translations that sounds more natural and contextually appropriate. This advantage appears from how the system processes language, as it analyses entire sentences rather than translating words

individually. Therefore, the meaning of the original text is generally preserved, while the sentence structure feels more natural and closer to the real language use. Rather than struggling with isolated words, students can see how ideas are expressed in complete and meaningful sentences, which can support their understanding of how English works in practice.

In addition, NMT tools like DeepL do not only function as translators but also as learning support during the writing process. They can help students expand their vocabulary, improve grammatical accuracy, and become more familiar with well-structured sentences Naveen and Trojovský (2024). suggested that NMT tools can guide students when they face difficulties in expressing their ideas, making the writing process more manageable. This also supported by Purnamawati et al. (2025), that highlighted features such as automatic correction and synonym suggestions, which allows students to explore and expand different ways of expressing the same idea. In a classroom setting, where students are often expected to produce writing that is accurate and meaningful, these features can play an important role. With this kind of support, students may find it easier to revise and improve their writing, rather than feeling limited by their initial drafts.

Additionally, this study lent further support to these findings by providing empirical evidence from a classroom setting at the high school level. The findings indicated that when applied appropriately, machine translation did not replace learning but supported it. Teacher still played an important role in guiding students on how to implement the tool effectively. Without proper guidance, students may become overly dependent on the tool. This in line with the statement stated by Lee

(2023) in his research. The researcher warned that students who rely too heavily on translation tools may neglect developing critical thinking and creative decision-making skills in writing. They may passively accepted machine translations without reflection or revision, which reduced personal responsibility and opportunities for independent learning. Consequently, a balanced approach is necessary to maximize its benefits.

Moreover, the significant difference between two groups suggested that DeepL Translator can be regarded as an effective instructional aid. However, the effectiveness depends on how it is integrated into the teaching process. According to Purnamawati et al. (2025), students may have trouble navigating the application, understanding the suggestions, or accessing the internet, all of which can reduce DeepL's effectiveness if not addressed properly. In addition, the researchers emphasize that overreliance on these technologies may obstruct the development of independent writing skills. Thus, it is necessary to carefully and balance integrate them within comprehensive instructional frameworks that continue to prioritize critical thinking and creativity (Lee, 2023; Polakova & Klimova, 2023). Therefore, teachers play a crucial role in training students not only in writing skills, but also in the responsible and effective use of digital tools.

Teacher needs to design activities that encourage students to critically evaluate the output of the tool rather than just simply copying it. DeepL tends to be more effective when integrated with teaching strategies that emphazise revision, reflection, and active student involvement (Kirchhoff, 2024). When this approach applied, the tool can function as more than just a translator. It becomes a kind of

support system that helps students gradually develop their own writing ability. At the same time, students can also learn to think more critically, especially when they are encouraged to evaluate whether the output is appropriate or needs improvement. This process can make learning feel more meaningful, as students are actively involved rather than passively accepting the result.

Overall, the discussion showed that DeepL Translator has a significant effect in enhancing high school students' writing skills. The higher performance of the experimental group in the writing test suggested that the use of this tool offered a clear practical benefit in the learning process. It also indicated that technology can make writing activities more engaging and less intimidating for students when used thoughtfully. However, the discussion also highlighted that the effectiveness of such tools depends on how they are used. Without proper guidance, students may rely on too much to the tool and miss the opportunity to develop their own skills. For this reason, it is important to integrate DeepL in a structured and guided way. When used appropriately, it can support students in becoming more independent writers while still get the benefits from technological assistance.

CHAPTER V

CONCLUSION AND SUGGESTION

This chapter provide the conclusion and suggestion related to the study drawn by the researcher in completing this study.

5.1. Conclusion

As the outcome in the previous chapter shows, it can be assumed that DeepL Translator is a supplementary good tool to develop students' written texts. Statistical analysis showed significant difference between experimental group and control group, which means learning using the implementation of DeepL Translator is more effective on student post-test. The outcome indicates that incorporating machine translation tools into the learning process can help towards developing writing skills substantially.

In addition to the statistical results, it was also seen in their descriptive text. Also, the experimental group students scored better in composing their own ideas organized clearly, and using more appropriate words of describing people, objects or places. Their sentences were overall better structured and contained significantly fewer grammatical errors than their control counterparts. This showed that DeepL Translator is not only useful for translating words, but also helps students understand how sentences are constructed in a text. As a result, students looked much more confident in expressing their thoughts in writing. Whereas the outcomes from this study also emphasized how technology ought to be seen as a tool for assistance not replacement. If used properly, DeepL can be a form of scaffolding that enables students to handle common problems with writing, especially problems

that lie in grammar and vocabulary. The effectiveness of the tool largely relies on how it is meant to be used in a classroom sense. Without teacher oversight, however, it is easy for students to lean on the technology and miss learning opportunities to practice their writing.

In conclusion, this study found that DeepL Translator significantly improves high school students' writing skills in writing descriptive text. The difference in writing performance between the experimental and control group clearly demonstrated its potentials as seen from the initial results. So, writing directions can include a machine translation tool and it is not something bad if the appropriate teaching strategies support this use and an instructor supervises their correct usage.

5.2. Suggestion

In light of the results obtained in this study, some recommendations would be given to teachers and students as well as future researchers. The suggested recommendations might become a starting point for practical use and further studies into this topic.

As for a teacher, the findings may assist them in developing lesson plans that involve applying a tool like DeepL Translator to writing classes. The technology may be integrated into descriptive-text practices because it helps generate ideas, yet it is crucial for instructors to develop tasks that encourage evaluating the output of the translator, editing it and making judgments about it. Thus, not only will students have an opportunity to improve their writing skills, but they will also get some critical thinking experience. Moreover, teachers need to provide instructions about proper usage of the technology in class.

If applied appropriately, the technology may prove to be beneficial for students. Namely, they should regard it as assistance instead of a tool that encourages them to be overly dependent on writing independently. Thus, it may be suggested that students pay more attention to checking, editing, and comprehending sentences generated by the tool. Thus, the technology enables students to become familiar with new vocabulary and acquire knowledge about correct sentence structure. A positive attitude towards the technology leads to improved writing results.

Research that follows could extend the scope of research using NMT tools in other contexts or types of text. This study was oriented towards high school descriptive writing, so further studies may consider other genres: narrative writing, argumentative writing or academic writing. Furthermore, a more extensive sample size or longer research duration might yield more encompassing findings. Researchers could also investigate students' perceptions and attitudes regarding the use of such tools to explore greater insight into its effects on the learning process. Lastly, broadening the scope of the study would lead to a more thorough understanding of how technology factors into language education.

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APPENDICES

Appendix I Instrument of Pre-test

PRE-TEST INSTRUMENT

Name :

Class :

Date :

INSTRUCTIONS:

1. Write a complete descriptive text about **your FAVORITE PERSON, for example: your family member or your favorite idol.**
2. Your text should be approximately **three paragraphs; each paragraph should consist of 6-7 sentences**.
3. Pay attention to the structure of descriptive text: **identification and description**.
4. Use the language features of descriptive text: **simple present tense, appropriate adjectives, and adverb of frequency**.

Appendix II Instrument of Post-Test

POST-TEST INSTRUMENT

Name :

Class :

Date :

INSTRUCTIONS:

1. Write a complete descriptive text about **your FAVORITE PLACE, for example: tourism place or a building.**
2. Your text should be approximately **three paragraphs; each paragraph should consist of 6-7 sentences**.
3. Pay attention to the structures of descriptive text: **identification and description**.
4. Use the language features of descriptive text: **simple present tense, appropriate adjectives, and adverb of frequency**.

Appendix III Research Permit Letter

KEMENTERIAN AGAMA REPUBLIK INDONESIA
UNIVERSITAS ISLAM NEGERI MAULANA MALIK IBRAHIM MALANG
FAKULTAS ILMU TARBIYAH DAN KEGURUAN
JalanGajayana 50, Telepon (0341) 552398 Faximile (0341) 552398 Malang
http:// fitk.uln-malang.ac.id. email : fitk@uln_malang.ac.id

Nomor : 704/Un.03.1/TL.01.04/02/2026 12 Februari 2026
Sifat : Penting
Lampiran : -
Hal : **Izin Penelitian**

Kepada

Yth. Kepala MAN 1 Malang

di
Kabupaten Malang

Assalamu'alaikum Wr. Wb.

Dengan hormat, dalam rangka menyelesaikan tugas akhir berupa penyusunan skripsi mahasiswa Fakultas Ilmu Tarbiyah dan Keguruan (FITK) Universitas Islam Negeri Maulana Malik Ibrahim Malang, kami mohon dengan hormat agar mahasiswa berikut:

Nama	:	Yumnaa Taqiyatul Nabillah
NIM	:	220107110014
Jurusan	:	Tadris Bahasa Inggris (TBI)
Semester - Tahun Akademik	:	Genap - 2025/2026
Judul Skripsi	:	**The Effectiveness of DeepL Translator in Enhancing High School Student's Writing Skills**
Lama Penelitian	:	**Februari 2026** sampai dengan **April 2026** (3 bulan)

diberi izin untuk melakukan penelitian di lembaga/instansi yang menjadi wewenang Bapak/Ibu.

Demikian, atas perkenan dan kerjasama Bapak/Ibu yang baik di sampaikan terimakasih.

Wassalamu'alaikum Wr. Wb.

Dekan,

Dr. Muhammad Walid, MA
NIP. 19730823 200003 1 002

Tembusan :
1. Yth. Ketua Program Studi TBI
2. Arsip

Appendix IV Validation Sheet

Validation Sheet

Instrument Validation Sheet of Pre-Test and Post-test for Research Entitled

"The Effectiveness of Deepl Translator in Enhancing High School Students' Writing Skills"

Validator	: Septia Dwi Jayanti, M.Pd
NIP	: 198909122023212051
Expertise	: English Language Teaching Development
Instance	: Maulana Malik Ibrahim State Islamic University of Malang
Validation Date	: January 28, 2026

A. Introduction

This validation was made to obtain an assessment from the validator on the research instrument used in this study. Every comment and suggestion given is very useful to improve the quality of the research instrument. Thank you for your willingness to become a validator instrument in this research.

B. Guidance

1. In this section, asses by ticking (✓) with the following criteria to the columns bellow:

   1: Very poor

   2: Poor

   3: Average

   4: Good

   5: Excellent

2. Please give comments and suggestion in the columns below:

C. Validation Sheet

No	Aspect	Score				
		1	2	3	4	5
1.	Suitability of Instrument with basic competencies					✓
2.	Clarity of instructions contained in the research instrument					✓
3.	The research instrument is relevant with the research objectives					✓
4.	The research instrument can help the research find out students abilities in writing skills					✓
5.	The research instrument is easy to understand					✓

6.	The subject matter has been formulated clearly and unequivocally					✓

D. Suggestion

.....
.....
.....
.....
.....

E. Conclusion

Based on the validation sheet above, it can be concluded that the instruments that have been made is:

Please cross out (abcd) the answer that doesn't match the conclusion you gave.

a. The instrument can be used without revision.

b. The instrument can be used with slight revision.

c. The instrument can be used with many revisions.

d. The instrument can be used.

Malang, 28 Januari 2026

Validator,

Septia Dwi Jayanti, M.Pd

198909122023212051

Validation Sheet

Instrument Validation Sheet of Pre-Test and Post-test for Research Entitled

"The Effectiveness of Deepl Translator in Enhancing High School Students' Writing Skills"

Validator	: Sri Utami, S.Pd
NIP	: 197508052025212007
Expertise	: English Language Teaching Development
Instance	: Maulana Malik Ibrahim State Islamic University of Malang
Validation Date	: January 28 , 2026

F. Introduction

This validation was made to obtain an assessment from the validator on the research instrument used in this study. Every comment and suggestion given is very useful to improve the quality of the research instrument. Thank you for your willingness to become a validator instrument in this research.

G. Guidance

3. In this section, asses by ticking (✓) with the following criteria to the columns bellow:

   1: Very poor

   2: Poor

   3: Average

   4: Good

   5: Excellent

4. Please give comments and suggestion in the columns below:

H. Validation Sheet

No	Aspect	Score				
		1	2	3	4	5
1.	Suitability of Instrument with basic competencies					
2.	Clarity of instructions contained in the research instrument					
3.	The research instrument is relevant with the research objectives					
4.	The research instrument can help the research find out students abilities in writing skills					
5.	The research instrument is easy to understand					

6.	The subject matter has been formulated clearly and unequivocally					

I. Suggestion

.....
.....
.....
.....
.....

J. Conclusion

Based on the validation sheet above, it can be concluded that the instruments that have been made is:

Please cross out (abcd) the answer that doesn't match the conclusion you gave.

e. The instrument can be used without revision.

f. The instrument can be used with slight revision.

g. The instrument can be used with many revisions.

h. The instrument can be used.

Malang, 28 Januari 2026

Validator,

Sri Utami, S.Pd

197508052025212007

Appendix V Letter of Research Completion

KEMENTERIAN AGAMA REPUBLIK INDONESIA
KANTOR KEMENTERIAN AGAMA KABUPATEN MALANG
MADRASAH ALIYAH NEGERI 1
Alamat : Jalan Raya Putatlor Gondanglegi (0341) 879741, Kode Pos 65174
Website : http://www.man1malang.sch.id, Email: infoman1malang@gmail.com

SURAT KETERANGAN
Nomor : 308/Ma.13.35.01/PP.00.6/04/2026

Yang bertanda tangan di bawah ini :

Nama	: Ahmad Musthofa, M.Pd.
NIP	: 197005292006041006
Jabatan	: Kepala Madrasah
Unit Kerja	: MAN 1 Malang

Menerangkan dengan sebenarnya bahwa mahasiswa dengan identitas sebagai berikut :

Nama	: Yumnaa Taqiyatul Nabillah
NIM	: 220107110014
Program Studi	: Tadris Bahasa Inggris (TBI)
Universitas	: Universitas Islam Negeri Maulana Malik Ibrahim Malang

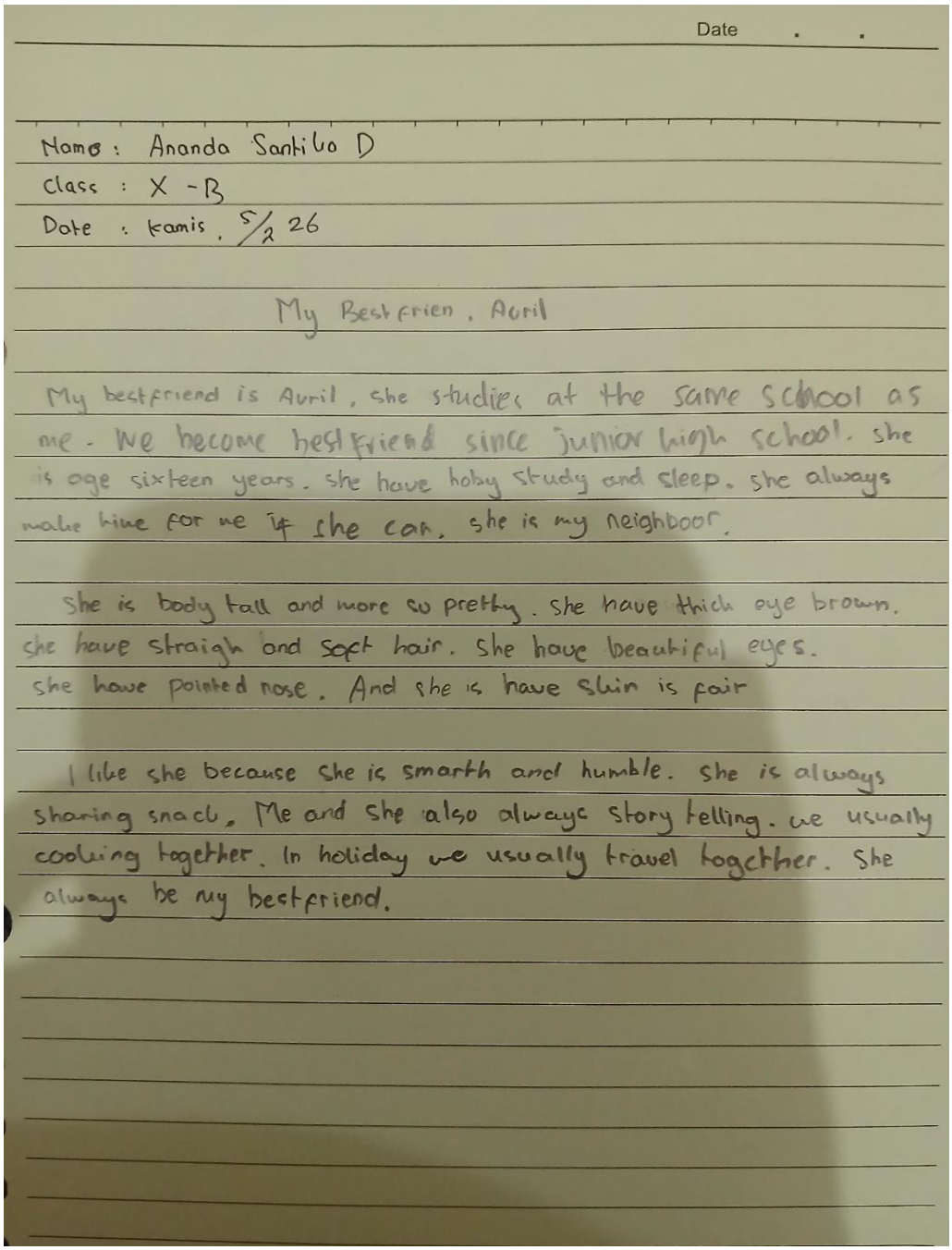
Telah menyelesaikan penelitian skripsi dengan judul : The Effectiveness of DeepL Translator in Enhancing High School Student's Writing Skills di MAN 1 Malang.

Demikian surat keterangan ini dibuat untuk dapat dipergunakan sebagaimana mestinya.

Malang, 17 April 2026
Kepala

Ahmad Musthofa. M.Pd.
NIP. 197005292006041006

Appendix VI Students' Pre-test Text



Date . .

Name : Ananda Santiba D
Class : X - B
Date : kamis, 5/2 26

My Bestfrien, Auril

My bestfriend is Auril, she studies at the same school as me. We become bestfriend since junior high school. she is age sixteen years. she have hoby study and sleep. she always make time for me if she can. she is my neighboor.

She is body tall and more so pretty. she have thick eye brown. she have straigh and soft hair. She have beautiful eyes. she have pointed nose. And she is have skin is fair

I like she because she is smarth and humble. she is always sharing snack. Me and she also always story telling. we usually cooking together. In holiday we usually travel togcther. She always be my bestfriend.

No.

Date . .

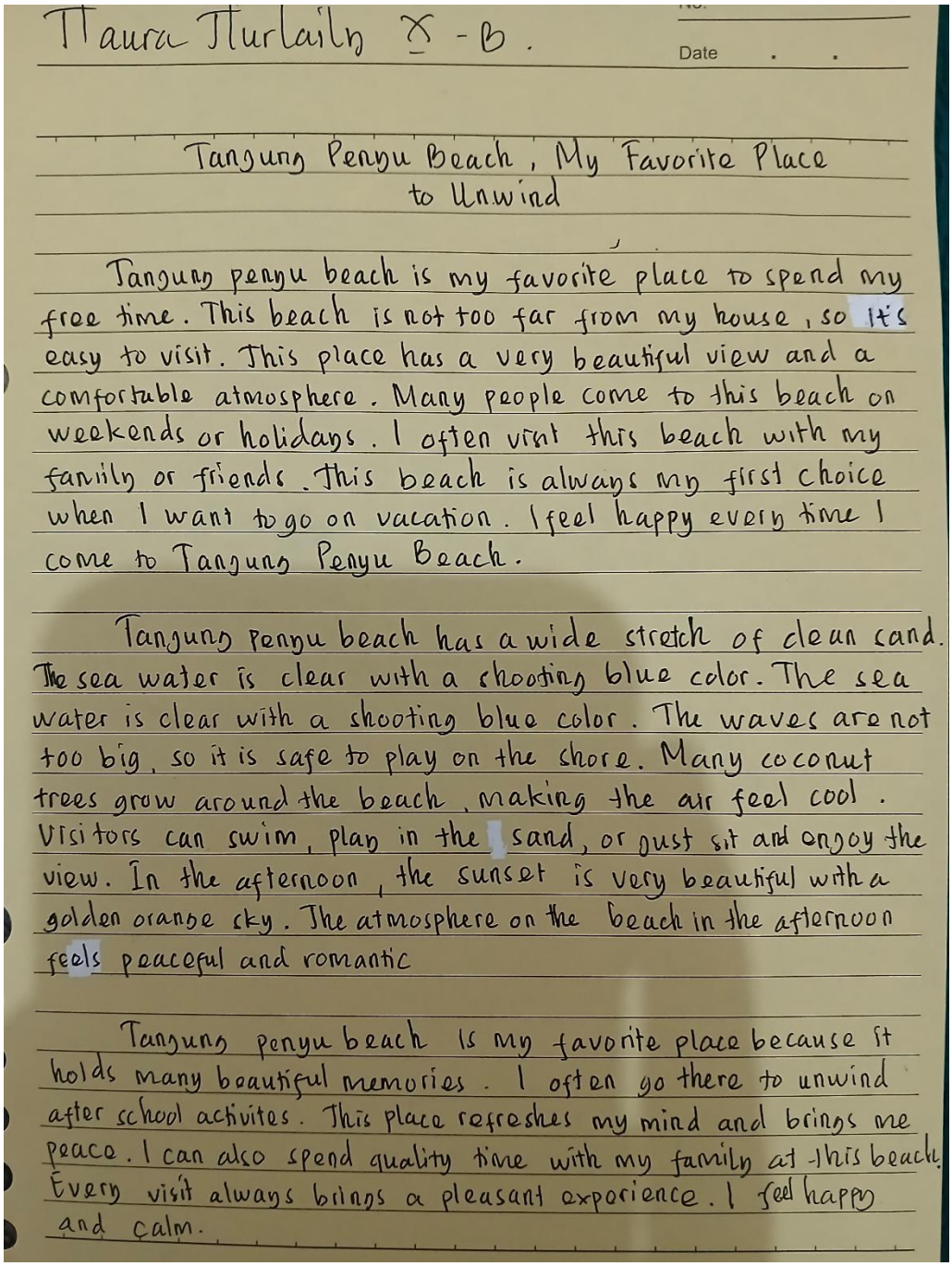
Nama : Nazwa Afrarina
class : X - H.
Date : Bahasa Inggris.

My favorite person is my mother Anna. She is the kindest person I know. She is always there for me when I need help she works as a nurse at the local hospital. Everyone likes her because she is so caring, she often tells me funy stories about her day. She truly My hero

She is a tall woman with short, borwn hair and warm. She uswally wears simple and neat clothes at home she is very harwocking and disciplined. She often wakes ap idrly to pripare breakfast for our famely.

in hare dey life. My mother always taces a cre of us with love she sometimes helps me with my homework when i have di fficalties. I love you soc mach. thank your being my mam

Appendix VII Student Post-test text



Maura Hurlaily X - B.

Date . .

Tangung Penyu Beach, My Favorite Place to Unwind

Tangung penyu beach is my favorite place to spend my free time. This beach is not too far from my house, so it's easy to visit. This place has a very beautiful view and a comfortable atmosphere. Many people come to this beach on weekends or holidays. I often visit this beach with my family or friends. This beach is always my first choice when I want to go on vacation. I feel happy every time I come to Tangung Penyu Beach.

Tangung penyu beach has a wide stretch of clean sand. The sea water is clear with a shooting blue color. The sea water is clear with a shooting blue color. The waves are not too big, so it is safe to play on the shore. Many coconut trees grow around the beach, making the air feel cool. Visitors can swim, play in the sand, or just sit and engoy the view. In the afternoon, the sunset is very beautiful with a golden orange sky. The atmosphere on the beach in the afternoon feels peaceful and romantic

Tangung penyu beach is my favorite place because it holds many beautiful memories. I often go there to unwind after school activites. This place refreshes my mind and brings me peace. I can also spend quality time with my family at this beach. Every visit always brings a pleasant exporience. I feel happy and calm.

Hannan Aftah S.

X - H

No.

Date 05 . 03 . 26

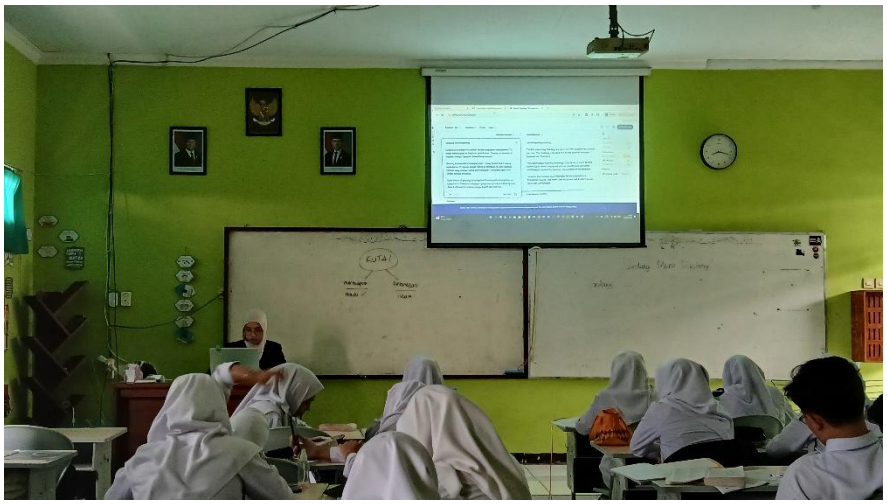
The forest is my favorite place

My favorite place is the forest. the forest is very beautiful and peaceful. there are many tall trees and green plants. the air in the forest feels fresh and cool. I like to walk and enjoy nature there. it makes me feel calm and happy.

In the forest. I can hear the sound of birds and wind. the atmosphere is quiet and relaxing. sometimes I see small animals and colorful butterfilies. the sunlight shines throught the trees. it creates a very beautiful view. I enjoy spending time in the forest.

the forest is a special place for me. it helps me relax and forget my problems. I feel closer to nature when I am there. the forest also teaches us to protect nature. I always feel peacful when visiting it. that is why the forest is my favorite place.

Appendix VIII Documentation



Appendix IX Evidence of Guidance Consultation

KEMENTERIAN AGAMA
UNIVERSITAS ISLAM NEGERI MAULANA MALIK IBRAHIM MALANG
FAKULTAS ILMU TARBIYAH DAN KEGURUAN
Jl. Gajayana 50, Telp. 0341-552398,Fax. 0341-552398 Malang
http://www.fitk.uin-malang.ac.id Email: fitk@uin-malang.ac.id

Bukti Bimbingan Skripsi

Nama : Yumnaa Taqiyatul Nabillah

NIM : 220107110014

Program Studi : Tadris Bahasa Inggris

Judul : The Effectiveness of DeepL Translator in Enhancing High School Students' Writing Skills

Dosen Pembimbing : Dr. Suparmi, M.Pd

NIP : 197704112023212004

No.	Tanggal	Materi Bimbingan	Tanda Tangan
1.	13 Juni 2025	Konsultasi judul proposal skripsi	
2.	11 Agustus 2025	Konsultasi BAB 1	
3.	8 September 2025	Menyerahkan revisi judul dan BAB 1	
4.	2 Oktober 2025	Konsultasi revisi BAB 1 dan bimbingan BAB 2 & BAB 3	
5.	13 Oktober 2025	Menyerahkan revisi BAB 1 dan Bimbingan BAB 2 & 3	
6.	8 April 2026	Bimbingan BAB 4 dan BAB 5	
7.	13 April 2026	Menyerahkan revisi BAB 4 dan BAB 5	

Malang,
Dosen Pembimbing

Dr. Suparmi, M.Pd
NIP. 197704112023212004

Appendix X Curriculum Vitae

Curriculum Vitae

Name	: Yumnaa Taqiyatul Nabillah
Student ID	: 220107110014
Place, Date of Birth	: Malang, 18 March 2004
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