| **RESEARCH ARTICLE**

The Effects of Google-Assisted Translation on Students' Writing Performance

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| **ABSTRACT**

This research evaluated the impact of Google-Assisted Translation (GAT) on the writing performance of Grade 11 Humanities and Social Sciences (HUMSS) students at the University of Cebu at Pardo and Talisay (UCPT) during the 2024–2025 academic year. The study aimed to lay the foundation for a proposed translation manual and to assess whether GAT is a useful mediating instrument for improving student writing. A pre-experimental quantitative research methodology was used with a one-group pre-test/post-test design involving 30 students. A standardized rubric that emphasized organization, vocabulary, coherence, and grammar was used to evaluate writing proficiency. To identify significant differences across variables, weighted means and t-tests were used to analyze the data. The findings demonstrated that students' writing skills were at the starting level before the intervention. After using Google Translate, the post-test score increased, which aligns with the approaching proficiency level. When the computed t-value exceeded the critical value, the increase in performance was statistically significant; thus, the null hypothesis was rejected. Furthermore, neither the pre-test nor the post-test data showed a significant difference between male and female students, suggesting that gender did not affect writing performance. The study found that applying GAT greatly improves academic writing, particularly in grammar and vocabulary. Nevertheless, it is recommended that GAT complement, rather than replace, traditional instruction. The study suggested creating a translation handbook and implementing training courses that emphasize the responsible and critical evaluation of translation technology outputs to ensure ethical and efficient use. It is recommended that future studies focus on the most effective methods for leveraging the advantages of machine translation in language acquisition, on ensuring that educational institutions appropriately include translation technologies in the curriculum, and on having teachers assist students in critically assessing translation outputs.

1. Introduction

In today's global society, language proficiency is an essential skill for learners. The increased availability of online translation tools, particularly Google Translate, has had a tremendous impact on language learning and writing. This study examines the effects of Google-assisted translation on students' writing performance, exploring both its potential benefits and drawbacks. While Google Translate is convenient and accessible, questions remain about its accuracy and potential impact on students' linguistic development (Gestanti et al., 2019). Google Translate (GT) is one of the most widely used online translation resources, compatible with computers, smartphones, and tablet systems, and offers multiple features.

Online tools for translating information across many languages and understanding sentence meaning. Fitria (2021) emphasized machine translation services, featuring more modern and comprehensive capabilities, including Google Translate, Bing Translator, Yandex Translator, and others, across a variety of languages. Google Translate can be a helpful tool for translators in many contexts, from simply verifying word meanings to providing full-text translations (Alsalem, 2019). Teachers are modifying their instructional methods to meet better the demands of 21st-century students who seek to learn through active, student-centred courses that depart from traditional educational concepts. Given that pupils are surrounded by technology almost all the time, learning should be encouraged and combined with modern technology (Oflaz et al., 2022). These online resources have been effectively incorporated into foreign-language instruction. Data-driven learning (DDL) is becoming a reality, as noted by Mirzaeian (2021).

While general studies exist on technology-assisted translation (TAT), a significant gap remains in understanding its effects on Filipino senior high school students' writing proficiency within the unique context of the University of Cebu Pardo and Talisay Campus (UCPT). Research lacks longitudinal studies to determine the lasting impact of TAT on writing proficiency, leaving a gap in understanding whether short-term improvements translate to long-term skill development and writing habits. A crucial gap exists in qualitative research exploring students' experiences and perceptions of using TAT, limiting our understanding of their attitudes, challenges, and strategies when employing these tools. The interaction between TAT and teaching practices remains largely unexplored, leaving a knowledge gap about how different pedagogical approaches can optimize the benefits of TAT and mitigate its potential limitations. Ethical considerations surrounding plagiarism, academic integrity, and over-reliance on technology in relation to TAT are insufficiently addressed in current research, creating a gap in understanding responsible use and promoting genuine learning.

The goal of this research was to find out the effects of Google-assisted translation on students' writing performance at the University of Cebu at Pardo and Talisay Senior High School. The study was chosen because of the growing prominence of Google-assisted translation tools and their potential impact on language learning. As technology advances, it is critical to assess its impact on educational outcomes, particularly in language learning. By focusing on the UCPT's specific setting, this study hopes to reveal insights that can guide teaching practices and curriculum development. The researchers have extensive experience in language education and research approaches.

Theoretical Background

This research assumed that there were various effects of technology-assisted translation on the language used in the senior high school at the University of Cebu, Pardo, and Talisay. This research was anchored on the theory of language by Ludwig Wittgenstein and the sociocultural theory by Lev Vygotsky.

Language Theory. Wittgenstein's theory posits that language enables people to form pictures of the world, which they can then use to communicate with one another. If two or more people can understand one another, it is because they share the same picture of the world. Wittgenstein had come to believe that language did not represent a reality 'out there' but was an instrument or tool woven into human practice. In the Tractatus Logico-Philosophicus, he believed that the meaning of language came from its logical form. His later belief was that language is an elastic, social, and sometimes ambiguous structure that necessarily defies simplistic definition because of its scope and complexity. Language's meaning, he believed, is defined by how it

is used in daily life rather than by any logical structure that underlies it. Ludwig Wittgenstein (1889–1951) was one of the most important philosophers of the twentieth century. Wittgenstein made a significant contribution to conversations on language, logic, and metaphysics, but also ethics, the way that we should live in the world. He published two important books: the Tractatus Logico Philosophicus (1921) and the Philosophical Investigations (1953), for which he is best known. These were significant contributions to twentieth-century philosophy of language.

Wittgenstein famously claimed that "the meaning of a word is its use in the language." This "use theory" emphasizes the role of context, intention, and social conventions in shaping language. He described language as a collection of "language games", each with its own rules and purposes. For example, the language used in a scientific paper is very different from that used in casual conversation, and each requires different skills and understandings. More than 60 years after philosopher Ludwig Wittgenstein's theories on language were published, the artificial intelligence behind Google Translate has provided a practical example of his hypotheses. Patrick Hebron, who works on machine learning in design at Adobe and studied philosophy with Wittgenstein expert Garry Hagberg for his bachelor's degree at Bard College, notes that the networks behind Google Translate are a very literal representation of Wittgenstein's work. Google employees have previously acknowledged that Wittgenstein's theories gave them a breakthrough in improving their translation services. However, somehow, this key connection between philosophy of language and artificial intelligence has long gone under-celebrated and overlooked. This connection represents Wittgenstein's notion of language. In Philosophical Investigations, published posthumously in 1953, the philosopher argued that words have no fixed, standard meanings; instead, their meanings lie in their use. "When investigating meaning, the philosopher must 'look and see ' the variety of uses to which the word is put," notes Stanford Encyclopedia's explanation of Wittgenstein's theory. He also emphasized that words must be understood by their "family resemblance" to other words: "There is no reason to look, as we have done traditionally and dogmatically, for one essential core in which the meaning of a word is located and which is, therefore, common to all uses of that word. We should, instead, travel with the word's uses through "a complicated network of similarities overlapping and criss-crossing", notes the Stanford Encyclopedia. Thus, Google Translate neatly maps onto Wittgenstein's theories.

Sociocultural theory. In the context of social interaction camps, a child's brain development and learning abilities are influenced by interactions with others. Also, it emphasizes the importance of social engagement in learning, rather than isolated discovery. Vygotsky believed that children learn best when guided by someone more experienced, such as a parent or teacher. His concept of scaffolding suggested that learners benefit from support as they acquire new skills and knowledge. When presenting new concepts to students, teachers often notice that some students struggle to grasp the material. Vygotsky's scaffolding theory suggests that students can learn complex information with the assistance of a more knowledgeable person. This support system, known as scaffolding, enables students to reach levels of understanding they could not achieve independently.

In the case of GAT, this theory suggests that digital translation functions as a mediational tool that enhances students' writing proficiency by facilitating access to linguistic resources beyond their immediate capabilities (Lantolf & Thorne, 2020). Research showed that when students use GAT together, they participate in scaffolding activities that support language development and higher-order cognitive involvement. By extending students' zone of proximal development (ZPD), promoters argue that GAT aligns with SCT principles by enabling students to write more complex, syntactically correct compositions than they could on their own. SCT is particularly applicable to this study because it situates GAT within students' academic writing as a mediating factor, highlighting both its ability to improve language development and its tendency to reduce opportunities for interactive learning. Within this theoretical framework, the main issue is whether GAT facilitates superficial textual production or nurture actual linguistic ability, which raises concerns regarding the pedagogical consequences of digital translation in writing education.

Therefore, both Wittgenstein's theory of language and Vygotsky's sociocultural theory are strong theoretical frameworks that support this study, as they emphasize that Google-based translation services can facilitate active student participation. Engaging with translation technology actively involves students in the learning process, promoting their understanding of language structures. Translation tools allow students to interact with peers and teachers, providing a collaborative learning environment that enhances their language comprehension and skills. Both supported the academic tools (GAT) for writing proficiency and the effectiveness of this technology on the students' performance.
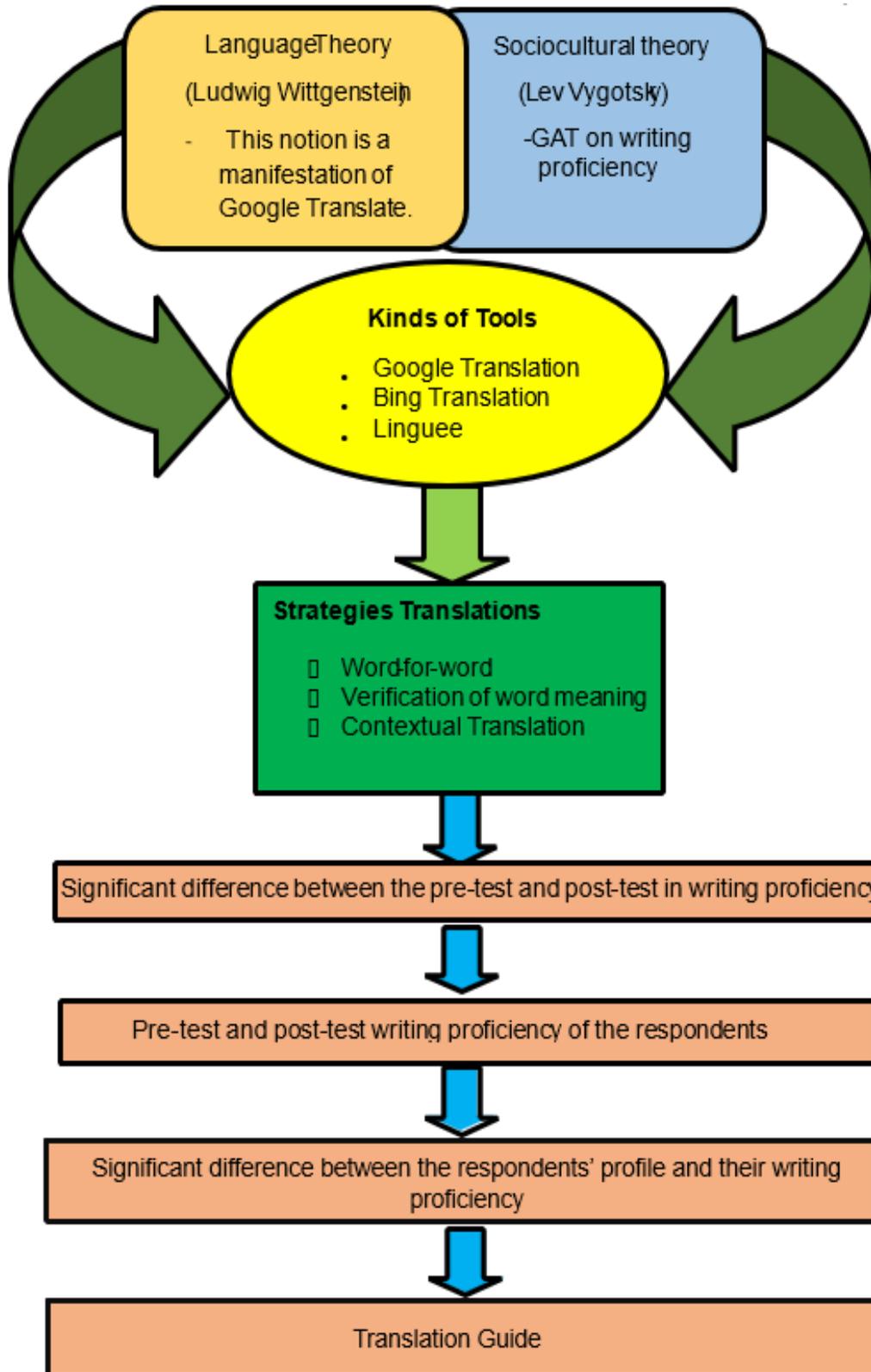
Language Theory
(Ludwig Wittgenstein)

- This notion is a manifestation of Google Translate.

Sociocultural theory
(Lev Vygotsky)

-GAT on writing proficiency

Kinds of Tools

. Google Translation
. Bing Translation
. Linguee

Strategies Translations

☐ Word-for-word
☐ Verification of word meaning
☐ Contextual Translation

Significant difference between the pre-test and post-test in writing proficiency

Pre-test and post-test writing proficiency of the respondents

Significant difference between the respondents' profile and their writing proficiency

Translation Guide

Figure 1. *Theoretical-Conceptual Framework of the study.*

Statement of the Problem

This study determined the effect of google-assisted translation on the writing proficiency of Grade 11 HUMSS students at University of Cebu Pardo and Talisay Campus during the school year 2024–2025 as a basis for translation guide.

Specifically, it answered the following questions:

1. What is the profile of the respondents in terms of:
      1.1 year level, and
      1.2 gender?
2. What is the pre- test and post- test writing proficiency of the Grade 11 HUMSS students?
3. Is there a significant difference between the respondents' profile and their writing proficiency?
4. Is there a significant difference between the pre-test and post- test in writing proficiency?
5. Based on the findings, what translation guidelines can be proposed?

Statement of the Null Hypothesis

The null hypotheses were tested at the 0.05 level of significance:

H_{01}: There is no significant difference between male and female respondents' writing proficiency in the **pre-test.**
H_{02}: There is no significant difference between male and female respondents' writing proficiency in the **post-test.**

2. Literature Review

This chapter presents a variety of correlated principles, concepts, understandings, and ideas, along with a synthesis of conclusions as a review and summary of the literature and studies related to the effects of Google-assisted translation on students' writing performance. These support the present studies in strengthening the intent to address the phenomena.
This section presents the relevant literature that supports the study.

There has been a lot of research done on the use of technology in translation, especially google-assisted translation (GAT) with a view to understanding its advantages, disadvantages, and uses in different fields. Pan (2023) looked at the potential and limitations of CAT when combined with artificial intelligence. Bywood (2020) highlighted technology's impact on audiovisual translation, with a description of its uses, while Kaczmarek and Filhol (2021) investigated how CAT tools may be adapted to assist sign language translation. In the same way, google translate has helped to move forward machine translation with each immediate and text translation. In the context of education, Apostol (2019) advocated integrating free translation tools in training to advance students' technological skills, but Jackman (2021) noted that the complexity of CAT software can be daunting to those who are not familiar with it. Free tools can offer rich learning experiences, proper guidance and support are necessary to assist students in understanding the intricacies of CAT software and getting the most out of its educational value. In health communication, Dew et al. (2018) surveyed the use of machine translation (MT) in clinical practice, commenting on its potential advantages but emphasizing the need for enhanced accuracy and evaluation measures. Thus, development was required to further develop these technologies to guarantee their applicability and efficiency in various translation situations, ranging from learning environments to medical environments. Similarly, Deng and Yu (2022) examined MT's role in language learning, particularly for undergraduate and graduate students. Collectively, these studies pointed out how important technology was to translation and how much more study and real-world application were needed in this field.

Numerous studies have examined how technology can be used to improve language acquisition, particularly in the context of learning English (Ahmadi, 2018). This includes the use of online volunteer translation communities, which can enhance digital, participatory, and information literacy, as well as language skills (Comas-Quinn, 2019). Nevertheless, the technological

translation machine can be complicated, so other students and teachers were unable to concur with how they comfortably utilized it. As indicated by Lee (2021) given that a growing number of studies have confirmed its pedagogical benefits, investigations have also found that language teachers remain skeptical of employing machine translation for a variety of reasons. The complexity of language might be difficult for google-based translation tools to grasp, particularly when there were ethnic references, colloquial idioms, or complicated meanings present. This linguistic intricacy makes it difficult to provide accurate and contextually relevant translations.

On the other hand, the use of google-assisted translation in English language education has been explored in various studies. Tong and Zhang (2019) and Luo (2021) both highlighted the positive impact of computer-assisted translation technology on students' translation ability and English application skills. This helps tribal members with language learning and cultural transition. In addition, through facilitating collaboration as well as sharing information across differences in language, google-assisted translation technologies can aid in the development of crucial intercultural communication skills for the global workforce. It has produced essential skills for modern workers, preserved endangered languages, and increased accessibility and inclusiveness for students of different backgrounds. Lin (2022) further emphasized the benefits of multimedia technology in undergraduate English translation teaching, particularly in improving comprehension and application abilities. The integration of technology in English as a foreign language (EFL) teaching has also been found to be beneficial, with computer-mediated communication, web-based language learning, and mobile-assisted language learning being key areas of focus (Son, 2018). Furthermore, the use of technology in English language classrooms has been shown to strengthen the cognitive, affective, and psychomotor domains of learning (Shaji & Nagaraj, 2020). It's crucial to keep in mind that GAT ought to be applied in addition to conventional translation techniques—not as their substitute. But when used well, technology-assisted translation may be a great tool for improving English language proficiency and setting up learners for success in a multilingual society.

Google-assisted translation (GAT) may broaden learners' vocabulary by introducing them to synonyms and alternate wordings through machine translation (MT) suggestions. Also, GAT tools can assist learners—especially non-native speakers—with recognizing and fixing grammatical problems in their writing. Mannion et al. (2019) found that technology generally improves L2 writing achievement and perceptions, while Karim (2018) reported that technology-assisted mind mapping techniques significantly enhance pre-writing activities and attitudes towards writing. Similarly, Ramamuthie and Abdul (2022) and Al-Wasy (2020) both found that digital tools, including google-assisted translation, improve writing skills and language knowledge, particularly in grammar, vocabulary, spelling, and punctuation. Yang and Su (2022) elucidated the quality of translation instruction will be boosted by combining computer-aided translation technology with digital signal processing as a technical way to process waveform data online and by creating digital models for signal flow. Moreover, Students should be encouraged to evaluate the synonyms and alternate phrasings provided rather than just accepting MT's suggestions. Word choice and connotation are better understood when people actively participate in the vocabulary development process. In general, the literature regarding GAT's effect on writing is changing. Although there is potential for improving certain areas of writing, GAT should be used in connection with regular writing education and intellectual stimulation exercises. These results highlight the beneficial implications of google-assisted translation on writing skills.

Computer-assisted translation effectively combines English learning with professional learning, which can help students with certain English comprehensive ability to quickly translate and adapt to market needs, and provide new ideas for the special-purpose English teaching reform (Tong & Zhang, 2019). This ascertains technologies translation effectively helps the learners to develop language comprehension and writing abilities. As computer assisted translation serve as text proofreading and revising tools, with a focus on identifying spelling and grammar errors in English text. Also, AI-powered rewrite options can help users enhance their English writing by offering appropriate synonyms, removing incorrect words and adopting a preferred writing tone (Fitria, 2021). This assesses learners improve their writing skills, as AI translation offers the target language that we want without changing the original meaning of the text we assert. Also, it indulges student writers in generating more creative ideas as AI translation offers a lot of synonyms. These tools help learners recognize language inaccuracies, identify erroneous patterns, and rephrase sentences for improvement (Kohnke et al., 2023). Also, they offer alterations in sentence structure and synonym replacements, facilitating the preservation of original meanings and mitigating challenges related to word choice and expressions (Zhao et al., 2023). This indicates that technology-assisted language learning (TALL) is an infallible means to develop profound

knowledge and a wide range of language skills (Ahmad, 2016). Therefore, AI translation teaching has a positive promoting effect on improving students' translation level and efficiency. Shadiev and Huang (2021) acknowledged the importance of translation technology usage, revealing its impact on students' perceived competencies and satisfaction with their learning experiences. (Hartwell & Aull, 2023) reported that these resources are becoming more and more well-liked among teachers, students, and authors since they provide a practical and efficient means of enhancing writing abilities.

The impact of google-assisted translation on language sentences is a complex and evolving field. Technology translations have both highlighted the potential of these tools to enhance writing proficiency and improve communications in multiple languages. AI writing tools have been designed to enhance the writing process, from generating topic ideas to providing grammar and style corrections. In 2016, Google launched neural machine translation (NMT), utilizing the neural network to predict the likelihood of phrases, segments, and sentences based on AI technology, which has been proven to provide better accuracy for language translation than SMT (Zhou et al., 2020). However, there are significant concerns over the nature and intent of writing assessments when AI writing tools are used. There is a tendency among some writers to excessively rely on AI tools without maintaining critical awareness (Hartwell & Aull, 2023). AI translations have many challenges in language sentences, such as the grammatical structure of sentences. It also has trouble with words that have multiple meanings, domain mismatches, and not enough training data for lengthy sentences. Also (Barrot, 2023) asserted AI applications fall short in replicating human-like text, as they lack the capacity for profound thinking when it comes to expressing perspectives on a given topic. Google Assisted Language Learning (GALL) is an infallible means to develop profound knowledge and wide range of language skills. It instills in EFL learners an illimitable passion for task-based and skills-oriented learning rather than rote memorization. This study demonstrated that not all students use MT the same way and that MT does not work well for all students. As students' needs and learning histories become divergent in upper-level language classes, educators must consider how to meet student needs at various levels, including those in the same course who are presumed to have roughly the same level of L2 ability.

A few relevant studies are presented in this part to support the present research. Villanueva (2022) highlighted the potential of technology, particularly machine-aided translation and various digital tools, in overcoming language barriers and enhancing language proficiency. Machine translation is a technology that employs software to convert one natural language to another (Calefato et al.,2016). Translation has been regarded as an important language skill for ESL students and is utilized as a solution to mend linguistic obstacles. (Langga & Alico 2020). It enables the learners to help them with their writing abilities by offering a lot of corrections and breaking out the language complications. Also, it enhances students' grammar by supporting students in establishing effective writing methods. However, despite the contributions of technology-assisted translation to the academic writing of students, there are several problems arise. (Langga & Alico 2020) found that the students faced lexical-semantic, cultural, pragmatic, and grammatical problems during translation. The most common translation mistakes were in grammar, notably pluralization, capitalization, inflections, tenses, subject-verb agreement, demonstrative pronoun usage, and fragments. Therefore, students should carefully use the output of the machine translation because there are some problems that the translation couldn't give the accuracy of the meaning conveyed by the students. Learners shouldn't rely alone on the outcomes of technology translation they must articulately do proofreading for them to be effective in writing not just relying alone on the translations. On the other hand, a machine translator merely substitutes words from the source language into the destination language. However, word replacement alone will not provide the required outcomes since it ignores the target language's semantic and syntactic limitations (Casil, 2024).

Another study was conducted by Marticio (2023), who provided a comprehensive analysis of translation techniques in Filipino literature, including borrowing, modulation, transposition, equivalence, and adaptation. This study is helpful in comprehending the difficulties involved in translating between languages. This study demonstrates the nation's potential for google-assisted translation. Fallan (2015) contributed to this field by developing a Filipino-Maranao bi-directional language translator with a text-to-speech synthesizer, catering to the growing Muslim population in the Philippines. Agum (2020) suggested the use of mobile textula, a form of technology-assisted translation, to reawaken marginalized Philippine poetry. Kaufman (2016) introduced the concept of technology-mediated task-based language teaching, which could potentially be applied to the field of translation. When taken as a whole, these studies indicate the value and opportunity of technologically assisted translation in the Filipino context.

Keally Hartwell and Laura Aull had their research on Editorial introduction – AI, corpora, and future directions for writing assessment at the University of Michigan, Ann Arbor, MI United States. During the study, writing assessment methods was crafted

by exploring the integration of AI technologies and corpora analysis. As a result, it paves the way for new approaches in writing assessment by utilizing these cutting-edge technologies to produce assessments of writing proficiency that are more precise, effective, and thorough.

This study and the current study are somewhat comparable to each other, thus that Related study used the designed strategies which is natural language process, machine algorithms and corpus linguistics assist students improve their writing skills and gain a critical understanding of language and AI technologies. However, they different in a way that the present study does not only focus on the limited benefits of the technology translation that have mentioned above but there are more benefits that helps student for their writing such as improve language proficiency, efficiency and accuracy, increased vocabulary acquisition, enhanced writing skills and real-world application.

Another study was conducted by Zhao (2023) at The University of Sheffield, Sheffield, UK. The research examined the digital writing translation as a site to support English as a Foreign Language (EFL) writers. It likely explores how Wordtune improves EFL writers' English writing skills by serving them with suggestions, corrections, and feedback on their writing. The effectiveness of Wordtune in increasing the writing fluency, accuracy, and overall quality of this study involving EFL students. It also examined how Wordtune was used by students in terms of perceptions and how it affects their writing process as well as confidence. The result of this study suggested that the technology- assisted translation is great support of the students on their writing process, as it helps them enhance their sentence structure, efficacy and accuracy and application in a real world.

The current study and the previous one are similar in that they both dealt with technology-assisted translation and AI sites for assessment of writing proficiency. Conversely, they are different studies in the sense that this related study focuses on the significant relationship between technology-assisted translation and writing proficiency.

Previous research findings that have been presented have demonstrated that technology assisted translation benefits are used in the present study were found that utilizing technology-assisted translation in classroom settings focuses more on expertise in writing and sentence structures are more effective in writing process. In the existing literature, there have been studies that have evaluated which approaches, models and strategies significantly impact students' writing performances (Bolhano et al., 2026; Lopres et al., 2023) However, the present study has focused on the impact of technology assisted translation on students' writing proficiency. Cainoy et al., (2026) discovered that the students in this present study locale have challenges in the different areas of English language learning; thus, the findings are solid pieces of evidence to support the present study.

3. Methodology

This section presents the study design, the study flow, the environment, the respondents, the instrument and data-gathering procedures, and the statistical treatment.

Design

This study employed a pre-experimental quantitative design to evaluate how grade 11 senior high school students use Google Translate in their classes. The pre-test and post-test would be used to determine the extent of GAT tool use as perceived by the student respondents. In this design, a single group of SHS students was assessed before and after the intervention.

Flow of the Study

Figure 2 presents the study's flow, covering all research activities. The input considered respondents' profiles, respondents' writing proficiency based on pre-test and post-test, the significant difference between respondents' writing proficiency and their profiles, and the significant difference between post-test and pre-test writing proficiency. Included in the process are the distributions of pre- and post-test prompts, data gathering, statistical analysis, data processing, and data interpretation. The study's findings will serve as the basis for proposing a translation guide.

Environment

This study was conducted at the University of Cebu Pardo and Talisay, a private school in Cebu City, Philippines. UCPT is located at 7RCX+R67, Natalio B. Bacalso Ave, Cebu City, 6000. The school provides a K–12 basic education programme that includes

learners in senior high school and junior high school. The senior high school department holds academic tracks in Accountancy, Business, and Management (ABM); General Academic Strand (GAS); Science, Technology, Engineering, and Mathematics (STEM); Technical Vocational Livelihood Course; Information Communication Technology (ICT); Cookery; and Humanities and Social Sciences (HUMSS). The University of Cebu Pardo and Talisay also offer bachelor's degrees such as Bachelor of Secondary Education, Bachelor of Elementary Education, Bachelor of Science in Nursing, Bachelor of Science in Information Technology, and more.

Respondents

The research sample comprised 30 students studying at the University of Cebu Pardo and Talisay, ensuring a sufficient number for statistical analysis. The senior high school grade 11 HUMSS (Humanities and Social Sciences) students were used as respondents. HUMSS was one of the academic strands offered in the senior high school program. The purposive sampling method was used in the study, in which all identified grade 11 students were included. The respondents were purposely chosen because the researcher believed that purposive sampling would allow them to select participants most relevant to their research question. In addition, the HUMSS strand had more English subjects that required writing. Hence, learners in these sections need to possess the writing skills they were expected to have, such as fluency and reading comprehension. Respondents' collaborative participation can help achieve the study's objectives.

Instrument

This study used a pre-test/post-test design to assess learners' writing skills through machine translation. A pre-test and a post-test were two standardized writing tasks that participants completed. The results were assessed using a uniform rubric that emphasized organization, vocabulary, coherence, and grammar.

Data-gathering Procedure

This presented the different phases in the data-gathering procedure.
A letter of request was delivered to the school principal, requesting permission to use UCPT Senior High School Students as the study location. After the school principal granted permission, a request letter was sent to the senior high school professors of the student respondents, requesting their permission for their students to participate. After permission was granted, arrangements with the respondents for the date of questionnaire administration were made. Data retrieval was performed immediately after the administration.

Treatment of Data

The data from the students' pre- and post-test scores, which were occasionally collected and examined using a T-test, would be used to investigate the effects of the GAT tool in this study. The quantitative data was obtained from pre-test and post-test results in order to examine how Google-Assisted Translation (GAT) affected the writing skills of students. Prior to and following the intervention, these tests were given accordingly. An initial assessment of the students' writing abilities was established by the pre-test, and improvements that occurred following the usage of the GAT tool were evaluated by the post-test.

Scoring Procedure

This study used scaling to categorize the writing proficiency level of the students after the Google-Assisted Translation as an instructional intervention.

To determine and give an interpretation of the respondents' writing proficiency before and after the intervention, the following grading scales were used as per DepEd Order No. 73, S. 2012.

Grading Scale	Level of Performance	Descriptive Rating
90-100	Advanced	Passed
85-89	Proficient	Passed
80-84	Approaching Proficiency	Passed
75-79	Developing	Passed
74 and below	Beginning	Failed

Ethical Considerations

Throughout the investigation, the researchers adhered to these essential ethical standards. Information confidentiality was protected since study participants were chosen with their privacy in consideration.

The research paper and ethical documents were submitted to the UC System Research Ethics Committee at the Banilad Campus, in accordance with university standards. Substantial consultation was undertaken to ensure that the research title, The Effects of Google-Assisted Translation on Students' Writing Performance, was comprehensible and ethically valid. To avoid criticism, the researchers remained impartial during the procedure. Additionally, the participants had signed the permission form after fully comprehending the study's advantages and risks.

4. Results and Discussions

The researchers analyze the collected data. The following information will show the effectiveness of Google Translate on students' writing performance. These data include the profile of the respondents, the pre-test and post-test writing proficiency of the students, the significant difference between the respondents' profile and their writing proficiency, and the significant difference between the pre-test and post-test in writing proficiency. These are presented in a tabular form to ensure an explicit illustration of the results.

Table 1. Profile of the Respondents in terms of Year Level and Gender

Profile	Frequency	Percentage
Gender		
Male	7	24.00%
Female	23	76.00%
Total	30	100.00%
Grade Level		
Grade 11	30	100%
Total	30	100.00%

Table 1 presented the demographic of the respondents it provides important context for understanding the result and relevance of the finding. The majority of the respondents were female it composed of 76%, while male accounted for 24%. The grade level distribution, they are all grade 11 students that were composed of 30 participants and total of 100%.

Table 2.1 The Pre-Test and Post-Test Writing Proficiency of the Respondents

Score Range of the Respondents before the Intervention.

Questions	Transmuted grade	Interpretation
1	70	Beginning
2	70	Beginning
3	71	Beginning
Average	70.33	Beginning

Legend: *Advanced = 90% and above*   *Developing = 75% - 79%*
Proficient = 85% - 89%   *Beginning = 74% down*
Approaching Proficiency = 80% -84%

Table 2.1 shows the respondents' writing competence levels based on their pre-test outcomes. For the three assessed questions, the corresponding transmuted grades were 70, 70, and 71. Based on the interpretation column, each of these results is within the "Beginning" level of proficiency. With an average score of 70.33, the group is evenly distributed across the "Beginning" category (74% and below). This data indicated that the respondents typically demonstrated only a basic or initial level of writing competence prior to the intervention or experiment. This also indicated that, even though the students have a basic grasp of the writing process, they probably have trouble with fundamental skills such as structural coherence, grammatical accuracy, and vocabulary selection.

These findings corroborated those of Chompurach (2021), which revealed that learners still made common writing errors. The "beginning" level of competence found in this study correlated with Chompurach's findings, suggesting related underlying difficulties in students' writing abilities. The pre-test findings indicated that the respondents' writing proficiency may require targeted improvement. The information in Table 2.1 serves as an essential standard for assessing the intervention's efficacy. The extent to which the intervention enhanced the respondents' writing skills will be determined by comparing the pre-test and post-test results.

Table 2.2. Score Range of Respondents after the Intervention.

Questions	Transmuted grade	Interpretation
1	81	Approaching Proficiency
2	80	Approaching Proficiency
3	81	Approaching Proficiency
Average	80.67	Approaching Proficiency

Legend: *Advanced = 90% and above*   *Developing = 75% - 79%*
Proficient = 85% - 89%   *Beginning = 74% down*
Approaching Proficiency = 80% -84%

Table 2.2 presents the respondents' score range on the post-test examination. The study showed that 30 participants' scores improved after using the translation tool as a post-test. The data showed a significant improvement in performance over the pre-test outcomes shown in Table 2.1. The transmuted grades for the three examined questions are 81, 80, and 81, respectively, each associated with the "Approaching Proficiency" level according to the given legend. This finding is confirmed by the average score of 80.67, indicating that, following the intervention, the group as a whole achieved "Approaching Proficiency" in writing. The observed improvement indicated that the intervention, which used Google Translate as a teaching tool, was successful in improving students' written skills. The observed improvements in proficiency resulted from the tool's support in vocabulary acquisition, sentence structure, and grammatical correctness.

This implied that the intervention or teaching method used had a positive impact on students' writing abilities. The students' post-test scores improved, indicating that they performed better after being allowed to use Google-assisted translation as instructional material. This suggests that using Google Translate helps students perform better in their writing.

Ramamuthie and Abdul (2022) and Al-Wasy (2020) both found that digital tools, including Google-assisted translation, improve writing skills and language knowledge, particularly in grammar, vocabulary, spelling, and punctuation. The tool enabled students to self-correct, providing instant feedback on spelling and punctuation; this was demonstrated by the change in average from 70.33 to 80.67. This data proved that the quality of student compositions can be significantly improved by carefully integrating such technologies.

Table 3. Significant Difference between the Respondents' Profile and their Writing Proficiency.

PRE-TEST				
Gender	**Weighted mean**	**Critical t-value (p-value)**	**Computed Value (df)**	**Decision (Remark)**
Male	0.42	2.3060 (p>0.05)	0.2911 (8)	Do not Reject Ho (not significant)
Female	0.44			
POST-TEST				
Gender	**Weighted mean**	**Critical t-value (p-value)**	**Computed Value (df)**	**Decision (Remark)**
Male	0.73	2.0796 (p>0.05)	1.9382 (21)	Do not Reject Ho (not significant)

Table 3 presents an analysis of respondent demographic profiles (gender) in relation to their pre-assessment scores. The table displayed an analysis of the correlation between respondents' gender and writing proficiency, as illustrated by both pre-test and post-test results. The study employed a sample t-test to examine whether there is a statistically significant difference in writing proficiency between male and female respondents. Male respondents had a weighted mean score of 0.42 in the pre-test, whereas female respondents had a slightly higher score of 0.44. With 8 degrees of freedom, the estimated t-value of 0.2911 was significantly less than the critical t-value of 2.3060 (p > 0.05). This indicates that the difference between the respondents' demographic profile and their writing proficiency in the pre-assessment is not significantly related, leading to the decision not to reject the null hypothesis.

After the intervention, male respondents weighted mean score increased to 0.73, while female respondents' increased to 0.68. The computed t-value of 1.9382, with 21 degrees of freedom, was less than the critical t-value of 2.0796 (p > 0.05). Similar to the pre-test results, the post-test also indicated no statistically significant difference in the mean scores of male and female respondents. Consequently, the null hypothesis was not rejected. This implied that there was no statistically significant difference in writing proficiency between male and female respondents, even after the intervention. Gender does not significantly affect students' writing performance in this study.

AI-powered rewrite options can help users enhance their English writing by offering appropriate synonyms, removing incorrect words, and adopting a preferred writing tone (Fitria, 2021). This assesses learners' improvement in their writing skills.

Table 4. Significant Difference between the Pre-test and Post-test in Writing Proficiency.

Test	Weighted Mean (Variance)	Critical (p-value)	Computed Value (df)	Decision (Remarks)
Pre-Test Post-Test	8.76 (8.64) 15.29 (10.91)	2.063 9 (p<0.0 5)	8.5450 (24)	Reject Ho (Significant)

The table shows significant differences in writing proficiency between the pre-test and post-test. Table 4 compared the respondents' writing competence scores from the pre-test and post-test examinations. To assess the intervention's efficacy (Google Translate-assisted translation), the results show that students' writing skills significantly improved after the intervention.

The statistics revealed a substantial improvement in the weighted mean, which went from 8.76 in the pre-test to 15.29 in the post-test. A t-test was applied to ascertain whether the expansion was statistically significant. The computed value of 8.5450 in the outcomes was significantly higher than the required t-value of 2.0639. The null hypothesis was rejected because the computed value exceeds the critical value and the p-value is less than 0.05 (p<0.05).

The null hypothesis was rejected, indicating that the enhancement in student performance was statistically significant and could be directly ascribed to the intervention. The implementation of Google-assisted translation provided students with the language scaffolding needed to address their initial knowledge gaps, as evidenced by the weighted mean's improvement. As observed in previous tables, this transition from "Beginning" to "Approaching Proficiency" demonstrated the groundbreaking benefits of GAT tools in a classroom context. This suggested that the use of Google-assisted translation in the writing process helps the students to improve their writing proficiency.

This positive result is closely related to the work of the researchers Shadiev and Huang (2021), who acknowledged the importance of translation technology and its impact on students' perceived competencies and satisfaction with their learning experiences. This indicates that technology-assisted language learning (TALL) is an infallible means to develop profound knowledge and a wide range of language skills (Ahmad, 2016). Therefore, AI translation instruction has a positive effect on improving students' translation proficiency and efficiency.

5. Conclusion
The integration of Google-assisted translation significantly improved students' academic writing, especially in grammar and vocabulary. GAT aligns with both language and sociocultural learning theories, acting as a mediational tool that extends students' linguistic capabilities. While beneficial, GAT should not replace traditional instruction. Students must be taught to assess translation tools' outputs critically. The success of GAT in this study suggests potential for incorporation in broader language instruction settings.

7. Recommendations

Based on the findings of this study, the following recommendations are made:

The school should support the appropriate inclusion of translation technology into the curriculum, ensuring that it enhances rather than replaces conventional language-learning techniques.

Teachers should use machine translation (MT) as a learning aid rather than as the primary means of completing assignments. Encourage learners to draft their own first, then use Google Translate to double-check their work.

Future researchers should study effective ways to incorporate Google Translate into writing courses, focusing on how to optimize its benefits while mitigating potential drawbacks.

TEACHER AND STUDENT FRIENDLY MANUAL ON INTEGRATING GOOGLE AI TOOLS INTO WRITING INSTRUCTION

Google AI Tools

What GAT Is and How It Works: Google AI Tools (GAT) refer to a range of intelligent applications developed by Google that utilize artificial intelligence and machine learning to assist users in completing tasks more efficiently. Examples include Google Translate, Google Docs, Smart Compose, and Google Bard. These tools are designed to support users in drafting, editing, translating, and enhancing written content.

How It Works:

GAT operates through machine learning models trained on vast datasets. These models identify patterns in text, predict user intent, and generate contextually appropriate suggestions or outputs. For instance, Smart Compose predicts words or phrases while Google Translate converts texts between languages using linguistic data.

Benefits:

GAT enhances writing fluency and coherence, provides grammar corrections and suggestions, assists multilingual students with translation, and serves as a brainstorming and ideation tool.

Limitations:

AI-generated outputs like from GAT may lack depth or context. Tools are prone to errors or factual inaccuracies. Overuse may discourage critical thinking, and it can introduce subtle biases from training data.

Guidelines For Teachers

Integrating GAT into Writing Instruction: Teachers are essential in guiding the responsible and meaningful use of GAT in the classroom. They can set clear expectations, model ethical usage, and help students think critically about the technology.

Tips for Integration:

Introduce GAT as a supportive aid, not a replacement for effort, Encourage students to draft first, then use GAT for revision, Discuss limitations and encourage questioning of AI suggestions, Incorporate reflection activities on how GAT helped or hindered learning.

Sample Lesson Plan Ideas:
Lesson 1: Comparative Translation Activity
- ✓ Students write a paragraph in their native language
- ✓ Use Google Translate to convert to English
- ✓ Compare and discuss translation accuracy and style

Lesson 2: Smart Compose Editing Task
- ✓ Write a short essay in Google Docs using Smart Compose
- ✓ Highlight all AI-suggested text
- ✓ Review and revise to maintain original voice

Lesson 3: AI vs. Human Writing Challenge

- ✓ Students write two essays: one using GAT, one without
- ✓ Peer review both versions
- ✓ Class discussion: "Which sounds more authentic? Why?"

Guidelines For Students

GAT tools can improve the writing process, but only when used ethically and critically. Students should use them as assistants not as substitutes for their own thinking.

Best Practices for Students:

- ✓ Begin with your own ideas before using GAT tools
- ✓ Use GAT for grammar help, vocabulary, or translations
- ✓ Always review and edit GAT outputs don't accept blindly
- ✓ Avoid submitting work that is mostly or entirely AI-generated
- ✓ Ask your teacher if unsure about what' s acceptable

Reflection Prompts:

- ✓ What parts of this draft were influenced by GAT?
- ✓ Did I understand and learn from the suggestions?
- ✓ How did this tool improve my writing, if at all?

Ethical Use of Translation Tools

GAT and translation tools offer great help, but they come with responsibilities. Students and teachers must be aware of academic integrity, originality, and plagiarism. Avoid over-reliance; using GAT too much can prevent skill development. Encourage students to draft manually and use AI only as an aid in the revision stage. Understand Plagiarism: Even if text is AI-generated, copying and submitting it as one's own work is plagiarism.

Sample Activities and Assessments

Activity 1: Writing Prompt + GAT Support

- ✓ Prompt: "Describe a time you overcame a challenge."
- ✓ Students write a first draft with GAT support
- ✓ Highlight AI-generated parts
- ✓ Reflection: "What did I revise or keep? Why?"

Activity 2: Peer Review with GAT Focus

- ✓ Exchange essays written with GAT
- ✓ Peers provide feedback specifically on AI-generated suggestions
- ✓ Class discussion: "How helpful or accurate was the AI?"

Activity 3: Reflection Essay

- ✓ Prompt: "How did GAT help or hinder your writing?"
- ✓ Students evaluate how GAT influenced their process, mindset, and output
- ✓ Rubric includes insight, honesty, and understanding of tool limitations

Activity 4: AI Translation Accuracy

- ✓ Translate a paragraph from English to another language and back
- ✓ Identify and correct meaning shifts or errors
- ✓ Group discussion: "What does this tell us about machine translation limits?"

Conflicts of Interest: The authors declare no conflict of interest.
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