



Does Google Translate enhance English writing skills? A mixed methods study of essay quantity and quality in Vietnamese higher education

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Abstract

This study examines the impact of Google Translate (GT) on the quantity and quality of essays written by Vietnamese students in academic settings. As GT use becomes increasingly common among L2 writers, its role in English essay tasks warrants closer investigation. Using a mixed methods design, 30 English majors from a public university in Southern Vietnam wrote two timed essays (250 words), one with GT assistance and one without, using a shared prompt unrelated to regular coursework. The writing processes were recorded using screen-recording technology, and follow-up interviews were conducted to explore student attitudes towards the use of Google Translate in essay writing and the factors influencing their utilization of the tool. A paired-samples *t*-test showed no statistically significant difference between the two essays in terms of word count or error frequency. Qualitative data revealed diverse attitudes towards the GT use, shaped by enactive mastery experience, vicarious experience, verbal persuasion, and physiological or affective states. These findings contribute to our understanding of the impact and students' perceptions of using Google Translate in the writing process.

Keywords: *Attitudes; essay writing; Google Translate; influencing factors; writing quantity, writing quality.*

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Introduction

English is widely recognized as the global language of communication (Hoang, 2020). In Vietnam, it is compulsory from grade 3 to 12 under Prime Minister's Decisions 1400 and 2080 and the national English curriculum (Bộ Giáo dục và Đào tạo, 2018). At universities, students must master Listening, Speaking, Reading, and Writing—with writing being especially critical for academic tasks like essays. Yet, writing is challenging due to required subskills such as vocabulary selection and essay coherence (Mantasiah, 2020).

Vietnamese candidates consistently score lowest in Writing and Speaking in exams like IELTS, with 2024–2025 band scores at 6.5 (Listening), 6.4 (Reading), 6.1 (Writing), and 5.6 (Speaking) (Test taker performance, 2024). At the study's university, English majors must reach a 6.5 overall IELTS score before graduating, contributing to stress and test anxiety. Consequently, students increasingly use tools like machine translation to support writing development (Faradiba & Aini, 2024; Ismail et al., 2013; Kruk & Kałużna, 2024; Li et al., 2024; Rahman & Unsiah, 2025; Santosa et al., 2024).

Machine translation tools simplify learning by enabling direct translation from L1 to English (Aliliche & Yakoubi, 2020). Among these tools, Google Translate (GT) is the most used due to its speed, accessibility across devices, and intuitive interface (Garcia & Pena, 2011; Wirantaka & Fijanah, 2021). However, GT's limitations surface in academic contexts where writing quality and quantity matter (Chung & Ahn, 2022).

Previous studies assessing GT's impact have relied primarily on holistic scoring (Abraham, 2009; Garcia & Pena, 2011; O'Neill, 2019). While these studies have contributed useful insights, their focus on overall writing quality rather than specific linguistic features limits their diagnostic value for classroom instruction, where detailed feedback is of utmost importance.

Despite growing interest, few studies explore GT's impact using metrics like error frequency or user behavior, especially in higher education settings with graduation-linked writing requirements. Addressing this limitation, this study adopts an error analysis approach to measure the improvement in students' writing with the assistance of GT, helping them identify areas that need further development. Additionally, the study investigates learners' attitudes towards GT usage and explores the factors influencing their decisions to use the tool.

Literature review

Theoretical frameworks

The study employed the Tri-component Attitude Model (Pickens, 2005), Bandura's theory of self-efficacy (1977), and literature on machine translation in language learning (e.g., Aliliche & Yakoubi, 2020; Fredholm, 2014; Garcia & Pena, 2011; Kol et al., 2018; Tsai, 2019) to examine students' attitudes towards GT, factors influencing its use in essays, and its impact on writing quantity and quality.

The Tri-Component Attitude Model describes attitudes through three dimensions: behavior (frequency of GT use), cognition (beliefs about GT's benefits), and affect (emotional responses toward GT) (See Figure 1).

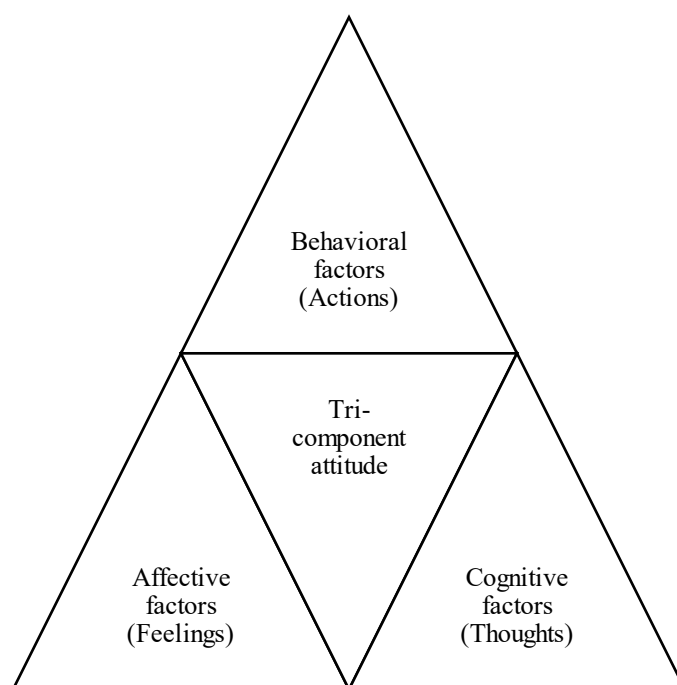


Figure 1. *The Tri-Component Attitude Model (Pickens, 2005).*

Bandura's theory of self-efficacy refers to individuals' belief in their capacity to perform tasks, such as using GT in academic writing. Four key sources shape self-efficacy: mastery experience, vicarious experience, verbal persuasion, and physiological or affective states (Bandura, 1977; Pintrich, 1999). These factors inform students' motivation and use of GT, as shown in Figure 2 and Table 1 (Appendix A).

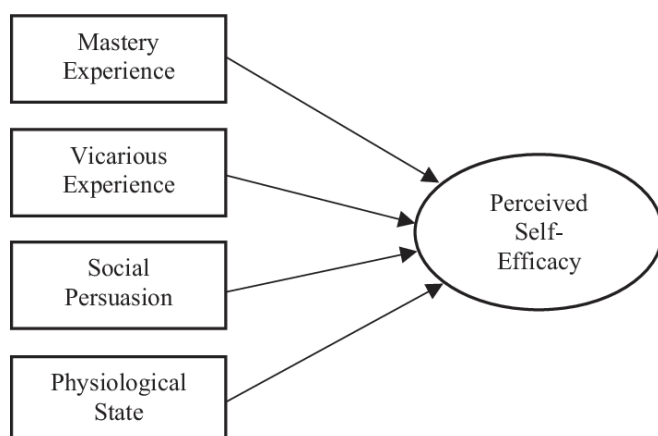


Figure 2. Bandura's (1977) Model of the Sources of Self-efficacy.

In addition to these behavioral, affective, cognitive lenses, and sources of self-efficacy, it is essential to situate GT within the broader context of machine translation in higher education settings, where technological tools are increasingly used to scaffold writing development.

Machine translation

Machine translation involves using software-based translation between languages (Liu & Zhang, 2015). Among these tools, GT is widely used and provides support across various languages (Bahri & Mahadi, 2016). Despite its utility, GT faces limitations such as grammatical errors when translating longer texts and incomplete linguistic coverage, which can disadvantage learners from underrepresented language groups (Hampshire & Salvia, 2010; Bozorgian & Azadmanesh, 2015). Notably, in 2024, GT expanded to include 110 new languages—such as Afar, Cantonese, Manx, Nko, Tamazight, and Tok Pisin—marking progress toward linguistic inclusivity (Caswell, 2024).

Google Translate in essay writing process.

GT is frequently used by students during essays, but opinions about its effectiveness vary. While some experts express skepticism and discourage its use due to inconsistencies (Clifford et al., 2013; Davis, 2006), others cite benefits such as increased writing confidence, lexical support, and informational access (Sukkhwan, 2014; Valijärvi & Tarsoly, 2012). Classroom integration yields mixed outcomes: Kol et al. (2018) observed growth in writing quantity but no corresponding improvement in scores, underscoring the complex interplay between GT usage, proficiency, text length, and students' attitudes (Aliliche & Yakoubi, 2020; Garcia & Pena, 2011; Tsai, 2019).

The role of Google Translate in writing.

GT can serve as a scaffolding tool, aiding beginners in writing and allowing for better and longer texts (Garcia & Pena, 2011). However, it should not replace human translation (Turovsky, 2016). Aliliche and Yakoubi (2020), in their study of Algerian English majors, found that students use GT to address vocabulary gaps and time pressure. However, many voiced frustrations over lack of contextual precision and recurrent errors. Most participants saw GT as a time-saving tool with limited writing support, advocating for cautious use and emphasizing the need for post-editing proficiency. The study focused primarily on student perceptions, and while it did not include teacher perspectives, it highlighted the pedagogical implications of student overreliance on machine translation in academic writing.

These findings reveal a tension: while GT facilitates aspects of writing fluency, it often fails to support depth and accuracy. The literature highlights the pedagogical risks of student overreliance and invites deeper inquiry into GT's impact on writing performance.

Writing quantity and writing quality

Writing is a vital form of communication that goes beyond mere formatting and organization (Zamel, 1982). It has evolved into a widespread mode of communication, thereby reflecting an individual's unique thought process (Coulmas, 2013; Sadiku, 2015). Unlike spoken languages, writing is a learned technology that requires consistent training and experience (Grabe & Kaplan, 2014). However, academic writing poses significant challenges for many students, who often struggle with limited background knowledge, restricted vocabulary, grammatical inaccuracies, difficulties in organizing ideas, and spelling issues (Dang et al., 2020). Consequently, they often rely on machine translation tools like GT to aid them in vocabulary selection and idea arrangement, which can be detrimental to their writing development (Clifford et al., 2013; Ngoc, 2016).

Writing quantity.

Writing quantity refers to the total number of words or syllables produced within a specific timeframe, often measured by word count or idea units (Dujsik, 2008; Li, 1990; Shafiee et al., 2015; Yaghi, 1994). In this study, writing quantity is operationalized as the number of words per essay. For Vietnamese students, limited vocabulary and difficulty articulating ideas may suppress output; GT can provide lexical scaffolding that encourages longer texts.

Writing quality.

Writing quality includes elements such as spelling, grammar, organization, coherence, cohesion, rhetorical structure, lexical analysis, creative language use, and lexical variety

(Breland & Jones, 1984; Grobe, 1981; Louis, 2013; McNamara et al., 2010). It can be evaluated through reader-based measures (considering overall characteristics) or text-based measures (error counts) (Spencer & Fitzgerald, 1993; Veal & Hudson, 1983). GT may support surface-level corrections, but its effect on deeper rhetorical and linguistic skills remains contested. A number of studies have examined the impact of GT on student writing, yielding mixed findings in terms of output quantity, linguistic accuracy, and learner perceptions.

Several studies have suggested that GT can enhance both the quantity and perceived quality of learner's writing. For instance, Garcia and Pena (2011) found that online translators, including GT, acted as scaffolding tools for beginner Spanish learners, increasing both output length and confidence. Tsai (2019) likewise reported that GT-assisted texts among Chinese EFL students were longer and had fewer grammar and spelling errors than self-written texts. However, both studies focus on beginner or intermediate learners, and Tsai's design presupposes linear L1-to-L2 transfer, limiting generalizability to academic L2 composition contexts.

While the studies above highlight GT's potential benefits, other research has reported that the tool increases text quantity but does not necessarily enhance overall quality. For example, Kol et al. (2018) showed that while GT significantly increased word count among Israeli students, it had no measurable effect on writing scores. Moreover, the use of handheld dictionaries in the control task complicates interpretation of GT's unique contribution.

In contrast to the previously mentioned findings, several studies have reported mixed or inconsistent effects of GT on learners' writing performance. Aliliche and Yakoubi (2020)'s study found minor improvements in spelling and article use but reported no gains in grammar or vocabulary. Similarly, Fredholm (2014) concluded that GT did not significantly affect writing quality in L2 classrooms.

While these studies offer valuable insights, most rely on holistic scoring, reader perception, or focus on beginning language learners. Few studies apply error-based analysis to advanced EFL essays or examine how students' attitudes and self-efficacy shape GT use. For instance, Abraham (2009) examined how Spanish learners collaboratively identified translation errors but did not analyze specific grammar or vocabulary issues. Garcia and Pena (2011) compared compositions written with and without GT, focusing on word count and perceived quality. O'Neill (2019) assessed 1,113 essays under five conditions (e.g., with/without online dictionary/translation training) using a 30-point rubric on content and language quality. Though holistic scoring aids consistency, it lacks diagnostic value for classroom instruction, where detailed feedback is key. To address these limitations, this study aims to examine the impact of GT on students' essay quantity and quality, explore their attitudes towards GT use and the reasons influencing its adoption. The research questions guiding the study are as follows:

RQ1: Does GT influence the quantity and quality of essays among English major students?

RQ2: What are the attitudes of English major students towards GT use in essay writing?

RQ3: What are the reasons influencing the English major students' use of GT?

Materials and method

This study employed an explanatory sequential mixed methods design to examine the influence of GT on essay quantity and quality, as well as students' attitudes and reasons for using GT. Quantitative results informed the qualitative phase, enabling deeper contextual interpretation (Creswell & Clark, 2017). Combining both data types strengthened the validity and reliability of the results.

Participants

Thirty undergraduate English majors from a public university in Southern Vietnam voluntarily participated in this study. Participants were recruited through departmental emails and word-of-mouth and were not randomly assigned, as the study employed a within-subject design. Participants were informed of the study's purpose, anonymity, and withdrawal rights. Each participant completed both GT-assisted and non-assisted writing tasks. All students had completed Writing 4—the final writing course in their program—and were familiar with Google Translate, particularly its reverse translation function.

Of the 30 participants, 21 were female, aged 21–22. English proficiency was self-assessed according to CEFR levels, with most reporting upper-intermediate (B2) proficiency, and a smaller portion identifying as intermediate (B1) or advanced (C1). Detailed demographic information is provided in Table 2 (Appendix B).

Data sources

Collated data came from the writing tasks, observation, Grammarly, and interview. Both quantitative and qualitative data were obtained to gain a comprehensive and nuanced understanding of students' GT use in writing essays.

The writing tasks.

Each student wrote two 250-word argumentative essays on the same topic: one GT-assisted, one self-written. Groups alternated task order, with a one-week interval between sessions to counter fatigue and familiarity. Each essay was timed for 40 minutes, consistent with IELTS Task 2 standards (Cambridge University Press & Assessment, 2025).

Observation.

Participants' writing behaviors were observed through screen-recorded sessions using QuickTime Player, which captured both on-screen activity and facial expressions during the GT-assisted writing task. This approach was to enhance the quality of data collection in the online environment, helping to ensure the integrity of the assessment process (e.g., by preventing cheating or unauthorized assistance).

Additionally, we conducted a detailed analysis of participants' facial expressions and their interactions with the computer (e.g., utilizing GT for synonym generation, conducting searches for meaning, and monitoring any pauses in their work). These observations were further validated during individual interview sessions with each participant.

Grammarly.

Grammarly was used post-task to detect surface-level errors (grammar, mechanics, and word choice). Students did not receive Grammarly feedback during writing. The tool's efficiency facilitated comparison between essays (Figure 3). Higher-order traits like content and structure were excluded. To enhance reliability, all Grammarly-generated outputs were manually reviewed using the adapted Keshavarz (2012) error analysis framework. This allowed for correction of potential false positives or omissions produced by the software and ensured alignment between automated results and human judgement.

The screenshot displays the Grammarly interface for an "Untitled document". The main text area contains a paragraph about school uniforms with several words underlined in red, indicating errors. The right sidebar shows a "Correctness" section with 29 alerts, a "Spelling" section with a suggestion for "identity" (replacing "identify"), and a "Word counts" section showing 229 words. The sidebar also includes a "Goals" section with an "Overall score" of 33 and a "Style guide" section with a "Plagiarism" check.

Correctness 29 alerts

- and - Add a comma
- middle - Add an article
- middle class - Add a hyphen
- upper class - Add a hyphen
- , - Add the word(s)

SPELLING

identify → identity Error detected

The word **identify** doesn't seem to fit this context. Consider replacing it with a different one.

Learn more

- especial - Correct article usage
- especial - Correct your spelling
- characteristic - Fix the agreement mistake

Word counts

229 words

33 Overall score

Goals Academic: APA

All suggestions

Correctness 29 alerts

Clarity A bit unclear

Engagement A bit bland

Delivery Slightly off

Style guide All good

Plagiarism

Figure 3. Example of Original Report from Grammarly Software.

Semi-structured interview.

All participants completed 15–30-minute phone interviews, conducted by one researcher for consistency. Interviews were audio-recorded, transcribed, and guided by a protocol adapted from Tursina et al. (2021) and Tjora (2012), which included English-Vietnamese translation support. Students reviewed clips from their GT sessions to support reflection. Interviews were thematically analyzed and triangulated with quantitative data.

Data analysis

Quantitative data were analyzed using SPSS 29 with descriptive statistics and paired samples *t*-tests. Writing quality was assessed via text-based error analysis—categorizing grammar, structure, and cohesion issues. Higher-order features like organization and creativity were excluded due to the study’s scope, allowing for a focused comparison between GT-assisted and non-GT-assisted tasks.

Qualitative data were coded using Saldaña’s (2016) Codes-to-Theory Model (Figure 4). Initial codes reflected Bandura’s self-efficacy sources and Pickens’ tri-component attitude model, with emergent themes added inductively. The final codebook condensed the categories into efficacy themes and attitude components (See Appendix D). The sequential mixed methods design shaped the coding process by allowing themes from the quantitative findings - such as changes in writing performance – to inform the categorization of qualitative codes. Interview responses were analyzed with attention to patterns that could help explain statistical trends, such as varying GT usage among proficiency levels.

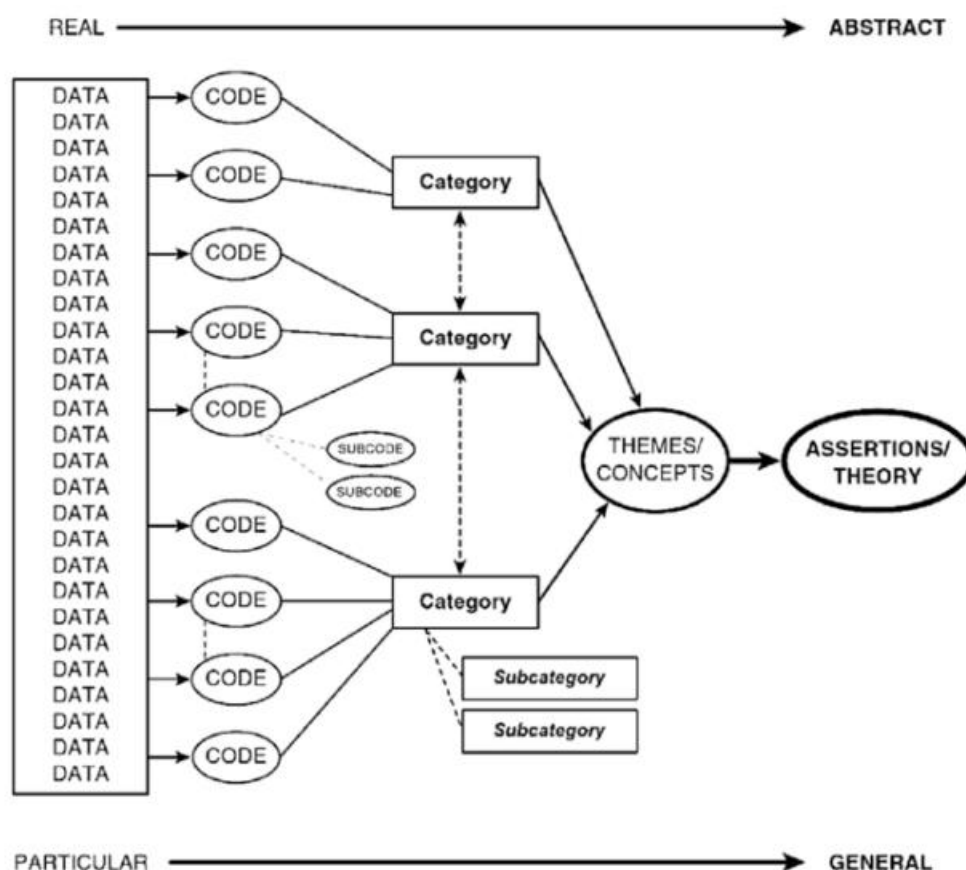


Figure 4. *A Streamlined Codes-to-Theory Model for Qualitative Inquiry.*

Results

This study addressed three research questions: (1) To what extent does GT affect the quantity and quality of essays written by English major students? (2) What are the attitudes of English major students towards using GT in essay writing? (3) What factors influence the use of GT among English major students? The study yielded three main findings that provide insights into these research questions.

GT's insignificant influence on the quantity and quality of essays

Prior to examining GT's influence, the researchers investigated whether the writing task order affected the writing quantity and quality of students' essays by conducting a paired-samples *t*-test on two groups: the first group received GT after the self-written task, while the second group received GT before the self-written task. The results of the paired *t*-test showed that the task order did not significantly influence writing quantity or quality ($p > .05$).

Subsequently, two additional paired-samples *t*-tests were performed to assess GT influence on writing quantity and quality. Regarding writing quantity, the self-written (SW) task had a mean word count of 259.30 (*SD* = 42.79) while the GT task had a mean word count of 262.53 (*SD* = 51.21). A paired-samples *t*-test was conducted to compare the means of the two groups, $t(29) = 0.44, p > .05$, which means there was no statistically significant difference between the SW task and GT task mean word counts.

Concerning writing quality, the SW task had a mean error of 14.00 (*SD* = 1.52) while the GT task had a mean error of 14.70 (*SD* = 1.85). A paired-samples *t*-test was conducted to compare the means of the two groups, $t(29) = 0.42, p > .05$, which means no statistically significant difference was found between the SW task and GT task mean errors. The results from both paired-samples *t*-tests supported the null hypothesis, suggesting that GT had no influence on writing quantity and quality.

To further examine the nature of writing quality, error types were analyzed using a modified version of Keshavarz's (2012) error analysis model. While Keshavarz's original framework classified surface-level errors as substitution, omission, addition, and permutation, in this study the categories were adapted to align with the operationalized dimensions of writing quality, namely grammar, structure, and cohesion. Specifically, addition and omission were treated as indicators of grammatical accuracy, permutation reflected syntactic and structural errors, and substitution captured cohesion-related issues that interfered with lexical consistency. This study focused exclusively on production-based errors. Errors were identified directly from final essays and verified through screen recordings to ensure they occurred during the drafting process rather than subsequent revision.

The analysis revealed that substitutions error accounted for the highest percentage with 51% followed by omission at (27%), addition (19%), and permutation (3%) (See Figure 5). These distributions indicate that lexical and cohesive inaccuracies were the most frequent problem areas among the participants. For example, substitution errors were exemplified by sentences such as "Pragmatics is different from sociolinguistics," in which the preposition "with" should have been replaced with "from." Similarly, omission errors appeared in "I am study English now," where the missing "-ing" inflection disrupted grammatical accuracy.

FREQUENCY OF ERRORS IN TASK 1

■ Omission ■ Addition ■ Substitution ■ Permutation

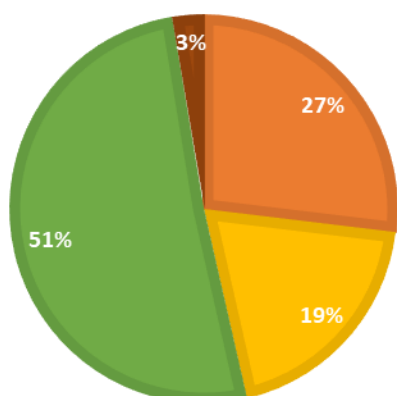


Figure 5. *Frequency of Errors in Task 1 (SW task).*

Likewise, in the GT version, substitution and omission errors were observed as the most frequent, accounting for 51% and 30% respectively (See Figure 6). The results suggest that the predominant error in students' essay was substitution, while permutation errors were the least commonly made.

Collectively, these findings indicate that while GT did not significantly improve students' written performance quantitatively or qualitatively, it did not introduce additional errors either. This suggest that GT's influence on writing output among English majors were largely neutral, neither enhancing nor worsening core aspects of writing quality, including grammar, structure, and cohesion.

FREQUENCY OF ERRORS IN TASK 2

■ Omission ■ Addition ■ Substitution ■ Permutation

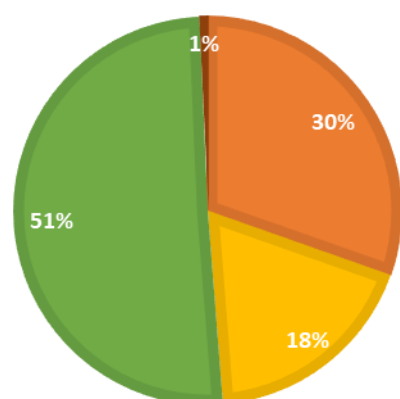


Figure 6. *Frequency of Errors in Task 2 (GT task).*

Students' attitudes towards GT use

Behavioral attitude.

Interview data revealed that more than 85% of the participants used GT on a word level, primarily for checking the meaning of unknown words, spelling, and searching for synonyms and antonyms. To provide specific examples, the study revealed that 26 out of 30 respondents utilized GT to clarify the meanings of unfamiliar words. Additionally, 17 participants used GT to verify the spelling of words, while 13 respondents relied on it to search for synonyms and antonyms. In terms of collocations, five participants acknowledged using GT for this purpose, whereas only two respondents utilized GT to check word usage. On a broader discourse level, nine participants employed GT for sentence translation. It is worth noting that due to time constraints, only one participant resorted to GT to translate an entire paragraph. Checking grammar (20% of the participants) and sentence structures (6.7% of the participants) using GT was not common among the participants. Five students also mentioned that they would double-check GT suggestions with other dictionaries (e.g., Cambridge, Oxford, or Macmillan).

Some participants distinguished their use of GT by purpose: GT was used more confidently for everyday or non-English tasks (e.g., French, Korean), while academic essay writing prompted greater caution or reliance on personal writing skills. For Huyen, Phuong, and Hien, using GT for studying English, particularly in writing essays, was not a common practice. Phuong mentioned using GT for "other languages, not English." Similarly, Hien expressed a preference for using it when studying French rather than for translating Vietnamese to English and vice versa.

Participants' behavioral choices appeared to relate to proficiency level more than age or gender. For instance, Duy and Hy (self-identified CEFR levels B2–C1) did not prioritize GT when writing academic essays. Hy explained that he wanted to challenge himself by relying on his existing knowledge, so he did not normally use GT. Similarly, Duy stated that he preferred writing essays on his own and would turn to online dictionaries like Cambridge or Oxford to check meanings or spellings, rather than relying on GT. These individual experiences highlight the diverse perspectives and behaviors towards GT among the participants.

Cognitive attitude.

Participants had mixed opinions about GT's usefulness in writing essays. More than half of the students found GT helpful because it was easy to use, saved time, improved lexical knowledge, and helped avoid spelling mistakes. To illustrate, around 36% of the participants acknowledged that GT contributed to the improvement of their lexical knowledge, nine out of 30 respondents (30%) expressed that GT was beneficial in preventing spelling errors in their essays. Notably, students with lower proficiency levels (e.g., CEFR A2–B1) tended to rate GT's accuracy more favorably than higher-proficiency peers, suggesting that perceived benefits may vary according to writing ability. Furthermore, approximately 26% of the participants believed that GT played

a role in enhancing their vocabulary knowledge. A small percentage (6.7% of the participants) also highlighted the usefulness of GT in assisting with word usage, ensuring grammatical accuracy, and providing high-quality translation output in various languages beyond English.

However, others found GT unhelpful due to its low-quality translation output, potential for technology dependence, and concerns about losing the ability to think critically and recall knowledge. Out of the participants, a significant majority (70%) expressed the belief that GT often provided translations of low quality, characterized by word-by-word translation, out-of-context translation, grammatical errors, and simplistic and informal translations. Interestingly, 40% of the participants raised concerns about the potential for technology dependence when using GT in academic writing. They felt that relying too heavily on GT could hinder their own cognitive engagement in composing even the simplest writing tasks. Furthermore, 6.7% of the students expressed the concern that regular use of GT might facilitate “cheating,” as GT could be accessed anytime and anywhere, including during closed-book exams, providing an opportunity for dishonest behavior among mischievous students.

Some participants believed that GT was neither helpful nor unhelpful, as they considered it unnecessary or believed that the quality of their essays depended on their own efforts. To illustrate, Lam, a fourth-year student, expressed that GT was not a necessary tool for writing essays. He believed that students could produce error-free essays if they proofread their work carefully. According to Lam, if a student made mistakes, it was their own responsibility because GT was simply a tool. He concluded by stating, “And if you do not use it, nothing [*sic*] much changes” and “It is best to write on your own.” Similarly, Lan Anh shared her perspective, stating that GT was useful as a translation tool, but writing an academic essay required more than just translating ideas. She emphasized that the quality of an essay depended on the individual writer’s abilities. On the other hand, Ngoc believed that GT was primarily helpful for communication in daily life.

Affective attitude.

The participants had diverse emotional responses regarding the use of GT in writing essays. Approximately one third of the respondents felt “confident” when utilizing GT. Thao explained, “Of course you feel more confident compared to when you have to write it yourself.” One fifth of the participants expressed a “so-so” feeling, perceiving GT solely as a translation tool that was neither exceptionally good nor bad. Some participants felt “doubtful” about the translations produced by GT, causing uncertainty in their reliance on the tool. Disappointment arose from the poor-quality translation output generated by GT. Interestingly, three students admitted to feeling “guilty” when using GT, as they were English major students expected to write independently, and utilizing GT made them feel like they were cheating. Han, a fourth-year student, felt “worried” about relying too heavily on GT assistance, fearing excessive dependence on the tool. These varied emotional responses shed light on the complex attitudes and concerns associated with the use of GT in essay writing.

Factors influencing GT use

Enactive mastery experience.

The information from the database was gathered using three categories related to enactive mastery experiences: Google Translate experience, Exam, and Practice. These categories helped to capture the participants' experiences and insights regarding their usage of GT and its impact on their writing abilities.

In relation to the first category, the responses revealed that the perceived success or failure of past experiences with GT had an influence on students' use of GT in this study. Some students expressed hesitancy to rely on GT for their future writing assignments due to negative past experiences. For example, Hien stated, "I feel like I can still write without GT, maybe because I have had some not so good experience with GT before, so I do not expect too much while using it." However, Hien balanced the impact of negative experiences by acknowledging that GT still provided some help to some extent. Similarly, Hao and Tai addressed the limitations of GT by making adjustments to the translation output or cross-checking with dictionaries like Oxford or Cambridge. Hao mentioned, "Although sometimes it is not able to give us 100% perfect results... we can adjust with another word after receiving the translation outcome from Google Translate and have the perfect essay eventually *[sic]*." Tai also explained, "Though I still get the general gist, it is still funny *[sic]* when I read the suggested translations sometimes... I have to recheck *[sic]* it with *[sic]* Cambridge or Oxford dictionary to ensure it *[sic]* is correct."

Regarding exams, Hoa and Han felt less confident before approaching writing assignments and sought GT assistance due to their previous poor performance on exams. Hoa expressed, "I was shocked when I received my paper back and the whole essay was crossed out because I wrote too bad *[sic]*... I do not know how to express my idea *[sic]* in English." Similarly, Han stated, "I feel like my vocabularies *[sic]* and grammars *[sic]* are not enough to provide a good essay and score highly in exam."

In contrast, students who had experienced success with writing assignments in the past displayed higher self-efficacy, which explained their decision not to rely on GT for writing. Among the participants, Phuong appeared exceptionally confident about her writing abilities. When being asked to rate her writing proficiency based on the CEFR level, she confidently stated, "C1... I feel confident about writing." This confidence likely stemmed from her previous successful experiences both within and outside of school. Phuong achieved a remarkable score of 8.9 in her Writing 4 course and an overall IELTS score of 8.0. Consequently, she mentioned, "I use GT for other languages, not English" and clarified, "I only use *[sic]* it for this study because it was allowed."

Likewise, perceived success or failure during practice had an impact on students' inclination to use GT. Tram shared her experience, stating, "Actually I spend like hours struggling with writing topics like this but with the help of GT, I think I can complete it in a much quicker way *[sic]*."

Vicarious experience.

The category of vicarious experience encompassed the observation of others, particularly the influence of peers. One participant noted the impact of observing her friends using GT for their writing assignments, which heightened her own motivation to utilize the tool. Thao exemplified this by stating, “Many of my friends at school use GT to help them with their writing assignments, so why not use *[sic]* it?”

Verbal persuasion.

One motivating factor for students to use GT was the encouragement they received from university lecturers. Yen, for example, highlighted that some lecturers at her university actively promote the use of GT as a means to achieve optimal results in their final scores.

Physical or affective states.

The students’ confidence in writing was directly influenced by their writing apprehension, which subsequently contributed to their reliance on GT during the writing process. Ngan, for instance, expressed feeling nervous and fearful of making word choice and grammar errors when practicing writing. In a time-constrained situation, she resorted to using GT to translate an entire paragraph from Vietnamese to English due to a sense of panic, even though it was not an actual test.

Discussion

The present study aimed to investigate three research questions: (1) Does GT impact the quantity and quality of essays among English major students? (2) What are the attitudes of English major students towards the use of GT in essay writing? (3) What factors influence the use of GT among English major students? The following section provides a comprehensive discussion of the research findings pertaining to these three research questions.

First and foremost, the study findings indicate that GT does not have a significant influence on the writing quantity and quality of students’ essays, which aligns with the findings of Fredholm (2014). This contrasts with previous reports that suggested an increase in both writing quantity (Tsai, 2019) and quality (Aliliche & Yakoubi, 2020) with the use of GT. However, the interview results shed light on this discrepancy, revealing that students primarily utilize GT as a dictionary to search for words and synonyms rather than relying on it for checking grammatical accuracy.

Additionally, it is worth noting that the writing task involving GT was conducted one week after the task without GT. It is plausible to assume that the one-week timeframe may not have been sufficient for GT to have a discernible effect on students' essays. Although improvements in vocabulary and spelling may positively influence writing outcomes, our error analysis showed that the most frequent issues such as substitution and omission were grammatical in nature. These errors are more likely to compromise clarity, coherence, and syntactic accuracy, which are essential to academic essay quality. Given our participants' context – English majors in a Vietnamese higher education setting, grammar challenges and L1 transfer effects (e.g., direct translation from Vietnamese to English) were common. These structural issues were not reliably addressed by GT, especially when the tool was used primarily at the word level. Hence, grammatical accuracy was prioritized in our assessment as a more sensitive indicator of writing performance.

Secondly, the findings align meaningfully with Pickens' (2005) tri-component attitude model. Behaviorally, students relied on GT to look up words or synonyms – reflecting its function as a word-level tool. Cognitively, they viewed GT as efficient but unreliable at correcting grammar (Jin & Deifell, 2013), especially for longer texts, which influenced their selective use (Rensburg et al., 2012). Affective responses ranged from confidence and convenience to guilt and skepticism, reflecting the emotional tension between tool reliance and perceived academic integrity.

Furthermore, when it comes to essay writing, students expressed a preference for consulting dictionaries over relying on GT, whether in the form of hard-copy or digital versions. This preference is rooted in the belief that traditional dictionaries are compiled by language experts and considered authoritative, while GT, driven by artificial intelligence, has faced criticism for its grammatical inaccuracies (Koehn, 2009). Interestingly, students who achieved high scores in Writing 4 exhibited less frequent use of GT for learning English but instead utilized it for other foreign language courses, such as Chinese or French, which are part of their program of study. This suggests that writing proficiency wields a certain influence on shaping students' attitudes towards GT.

Regarding cognitive attitude, the majority of students, irrespective of their proficiency levels, acknowledge that GT has both benefits and drawbacks in the context of essay writing. They generally agree on the quickness of translation and its convenience, highlighting its time-saving and accessible nature, which aligns with the findings of Aliliche and Yakoubi (2020). Interestingly, students with lower proficiency levels tend to rate the application higher in terms of accuracy compared to their counterparts with higher proficiency levels. This finding can be attributed to the fact that less proficient writers may not be as aware of the accuracy issues since they themselves require assistance with English writing.

Concerning affective attitude, the majority of respondents exhibit increased confidence when using GT, as it serves as a writing assistant when needed. This finding aligns with previous literature, specifically Sukkhwan (2014). Some participants express a neutral feeling towards the application, perceiving GT as merely a machine that cannot surpass human intelligence.

Additionally, a sense of guilt is observed among students, as they believe that excessive reliance on GT can be seen as a form of cheating. One plausible interpretation of these findings is that the participants in this study are English language majors, and relying too heavily on GT may undermine their ability to write independently.

Thirdly, Bandura's (1977) self-efficacy theory further explains students' strategic use of GT. Past success encouraged repeated use, while writing anxiety led lower-proficiency students to rely on GT more frequently. Although prior studies reported teacher resistance (Clifford et al., 2013; Davis, 2006; White & Heidrich, 2013), our findings show that teacher endorsement boosted student motivation. Overall, self-efficacy shaped students' confidence and GT engagement.

The study is subject to several potential limitations. Firstly, the small sample size limits the statistical power of inferential analysis. Future research could involve larger and more diverse participant groups, including non-English majors, multilingual learners, or international students, to investigate how GT use varies across disciplines and linguistic backgrounds. Studies could also explore the role of digital literacy and GT training in shaping usage behavior.

Another limitation involves the use of identical writing prompts across both tasks, which may have introduced recall bias. Participants could have remembered content from the first test, potentially increasing performance or masking the effects of GT use. Additionally, the short one-week interval between tasks may not have allowed students enough time to internalize tool-based learning strategies. To address both issues, future research should adopt a longitudinal design with varied but comparable prompts, allowing for repeated exposure to GT and a more accurate assessment of its influence on writing development over time.

Moreover, owing to certain constraints, our quantitative analysis was limited to word count and the number of errors within participants' essays, in conjunction with the qualitative analysis. In future research endeavors, there is room to expand the scope by incorporating additional quantitative and qualitative measures, such as analyzing word-level attributes, grammatical structures, lexical density, or incorporating assessments from raters to gain a more comprehensive understanding of participants' writing performance, both with and without the use of Google Translate. Finally, participant proficiency levels were self-reported and not directly controlled. Although the study's design mitigates variability, proficiency differences may have affected writing performance and GT engagement.

Based on the findings, we also recommend that tools like GT be refined for academic writing support. Specifically, GT could benefit from enhancements that allow learners to toggle between simplified and formal language registers, flag grammatical inconsistencies, and offer context-sensitive feedback on usage patterns. For learners who are less inclined to use GT – often due to perceived inaccuracies or limited awareness of its functions, integrating a brief guided walkthrough or examples for academic writing tasks may improve usability and trust.

Conclusion

This study has provided valuable insights into the use of GT in academic writing and its impact on students' attitudes and writing performance. The study reveals that GT had no statistically significant impact on the quantity and quality of students' essays. This indicates that English major students are not overly dependent on GT for writing. It is essential for educators and curriculum designers to recognize that integrating technology like GT into language learning may not compromise students' writing abilities. Instead, there is a need to strike a balance between leveraging technology as a supportive tool and nurturing independent writing skills.

Moreover, the study sheds light on the diverse attitudes students hold towards GT, influenced by factors such as their proficiency level and confidence in using the tool. Educators should acknowledge this diversity and tailor their guidance to meet individual student needs. Engaging students in discussions regarding the responsible and appropriate use of technology in academic work is vital.

Additionally, the research underscores the significant impact of students' past experiences, peer influence, teacher encouragement, and emotional states on their GT usage. Educators should acknowledge the importance of these factors and explore ways to assist students in navigating their experiences with GT more effectively. Providing guidance on when and how to use GT and offering strategies to manage writing anxiety can prove to be beneficial.

In summary, this study contributes to the ongoing discourse on the integration of technology in language learning, particularly in the context of English writing. It underscores the intricate and multifaceted nature of students' attitudes and experiences with GT. These findings can serve as a valuable framework for future research endeavors aimed at effectively incorporating technology tools into language learning and writing instruction. As the field continues to evolve, further research should consider the potential implications and limitations of AI technology, such as GT, in language learning contexts, and explore additional factors that may influence students' GT usage to gain a comprehensive understanding of its impact.

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Appendices

Appendix A

Table 1. *The Sources of Mathematics Self-efficacy with Examples (Usher & Pajares, 2009).*

Source	Description	Sample items
Enactive mastery experience	The interpreted result of personal previous attainments. “Success builds a robust belief in one’s efficacy. Failures undermine it, especially in earlier phases of self-development” (Bandura, 1999, p. 181).	I have always been successful with math.
		Even when I study very hard, I do poorly in math.
Vicarious experience	Observation of similar others performing the same task. “If people see others like themselves succeed by sustained effort, they come to believe that they, too, have the capacity to succeed” (Bandura, 1999, p. 181).	When I see how my math teacher solves a problem, I can picture myself solving the problem in the same way.
		Seeing kids do better than me in math push me to do better.
Verbal persuasion	Encouragement from important people, such as parents, teachers, and friends. “If people are persuaded that they have what it takes to succeed, they exert more effort and are more perseverant than if they harbor self-doubts and dwell on personal deficiencies when problems arise” (Bandura, 1999, p. 181).	My math teachers have told me that I am good at learning math.
		Adults in my family have told me what a good math student I am.
Physiological state	Students interpret their physiological arousal as an indicator of personal efficacy. “They read their tension, anxiety and depression as signs of personal deficiency” (Bandura, 1999, p. 181).	Just being in math class makes me feel stressed and nervous.
		I get depressed when I think about learning math.

*Appendix B***Table 2.** *Participants' Demographic Information.*

Characteristics		n	%
Age			
	21	9	30%
	22	21	70%
Gender			
	Female	21	70%
	Male	9	30%
Student status			
	Junior	9	30%
	Senior	21	70%
Final Writing 4 course grade			
	6.0-6.9	1	3.3%
	7.0-7.9	18	60%
	8.0-8.9	11	36.7%
Self-assessment of English proficiency level (based on CEFR)			
	A2	1	3.3%
	B1	9	30%
	B2	17	56.7%
	C1	3	10%

Appendix C

The writing prompt.

Some people believe that students should come in uniforms, while others believe it is not necessary to do so. What is your opinion?

You should write at least 250 words within 40 minutes.

Appendix D**Table 3.** *Finalized Codebook.*

Codes	Definitions
Enactive mastery experience	Self-efficacy information derived from performance of the given task
Google Translate experience	Previous experiences with GT that was perceived to be successful or unsuccessful
Exam	Previous experiences in exam that was perceived to be successful or unsuccessful
Practice	Previous experiences in practice that was perceived to be successful or unsuccessful
Vicarious experience	Self-efficacy information derived from observation
Observation of others	Observations of others' success or failure with using GT
Verbal persuasion	Self-efficacy information derived from social influence and appraisal
Encouragement	Encouragement from important people to use GT
Physiological or affective state	Self-efficacy information derived from physical and emotional and states
Writing apprehension	Writing anxiety that inhibits performance
Behavioral attitude	A behavior or an action towards the use of GT in essay writing
Cognitive attitude	A belief or thought about the use of GT in essay writing
Affective attitude	An emotional reaction or feeling towards the use of GT in essay writing