



Original Research

Non-English Major EFL Learners' Perceptions of DeepL Use in a General English Course

Asriani Hasibuan^{1*}, Arfian Hikmat Ramdan², Vidya Dwi Amalia Zati³, Elysa Rohayani Hsb⁴,
Mila Nirmala Sari⁵, Rosmidah Hasibuan⁶

¹⁴⁵⁶Universitas Labuhanbatu, Rantauprapat, Indonesia.

²Sekolah Tinggi Kesehatan Dharma Husada, Bandung, Indonesia.

³Universitas Negeri Medan, Indonesia.

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Abstract

The rapid adoption of AI-based machine translation tools such as DeepL in English as a Foreign Language (EFL) learning has outpaced research on how non-English-major students perceive and use them, particularly in General English courses rather than translation-specific ones. This gap is significant, as such learners' attitudes and motives shape how they adopt and critically engage with AI-assisted tools. This study aimed to examine Information Systems students' perceptions of using DeepL in a General English course and to identify the factors influencing these perceptions. A descriptive qualitative design was employed, combining questionnaire and interview data through methodological triangulation. Participants were 14 second-semester Information Systems students at Universitas Labuhanbatu, selected through total purposive sampling. Data were collected using an 18-item five-point Likert questionnaire and a structured interview guide. Findings showed predominantly positive perceptions: five statements were rated "Strongly Agree," five "Agree," three "Neutral," and five negatively worded statements were interpreted as positive when Disagreed with. Interviews revealed that these perceptions were driven by positive attitudes and learning motives, time efficiency under assignment deadlines, and DeepL's perceived accuracy, naturalness, and accessibility relative to other translation tools. These findings suggest that instructors should design tasks promoting critical, reflective use of DeepL rather than prohibiting it, to maximize learning benefits while mitigating overreliance.

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Corresponding Author: Hasibuan, asrianihasibuan@ulb.ac.id

1. Introduction

The rapid advancement of artificial intelligence (AI) has transformed language learning and translation practices in higher education. Among AI-driven tools, machine translation (MT) applications such as DeepL have become increasingly accessible to students, offering fast, context-sensitive, and often natural-sounding translations. In

English as a Foreign Language (EFL) context, these tools are frequently used not only for translation tasks but also to support comprehension, writing, and vocabulary learning. However, despite their growing popularity, students' perceptions of using DeepL specifically in General English courses particularly among non-English-major learners such as those in Information Systems remain underexplored. This gap is significant because students' attitudes and motives shape how they adopt, rely on, and critically engage with AI-assisted tools in their language learning.

Previous research on machine translation in EFL has largely focused on platforms like Google Translate or on translation-specific courses, with fewer studies examining DeepL as a distinct tool in General English contexts. Existing studies suggest that MT can enhance efficiency, reduce anxiety, and support autonomous learning, yet concerns persist about overreliance, accuracy, and the potential erosion of deeper language processing. DeepL, which leverages advanced neural networks to produce more natural and contextually appropriate translations, may address some of these concerns, but empirical evidence regarding how students perceive its use and what factors influence these perceptions remains limited. This is especially true for non-English-major students whose English learning goals, motivations, and technological practices may differ from those of English majors.

Addressing this gap, the present study investigates Information Systems students' perceptions of using DeepL in a General English course and identifies the factors influencing these perceptions. The objective is to understand not only whether students view DeepL positively or negatively, but also why they hold these views and how their attitudes, learning motives, and experiences with the tool interact. Specifically, the study asks: (1) How do Information Systems students perceive the use of DeepL in a General English course? and (2) What factors influence these perceptions? By focusing on a specific learner population and a specific AI tool, this research contributes nuanced insights into the intersection of AI-assisted translation, EFL learning, and discipline-specific language needs.

The significance of this study lies in its potential to inform pedagogical decisions about integrating AI translation tools into General English curricula for non-English majors. As universities increasingly emphasize digital literacy and AI competence, understanding how students experience tools like DeepL can help educators design guidelines that maximize benefits such as efficiency and accuracy while mitigating risks such as uncritical dependence. Moreover, the findings can guide curriculum developers and language instructors in creating task designs that encourage reflective and strategic use of MT, rather than passive reliance.

This paper proceeds by first outlining the methodological approach used to gather and analyze data from questionnaires and structured interviews with second-semester Information Systems students. It then presents the findings on students' perceptions and

the key factors shaping these views, followed by a discussion that situates the results within existing literature on machine translation and EFL learning. Finally, the paper offers implications for teaching, curriculum design, and future research on AI-assisted language learning in higher education.

2. Literature Review

Research on Machine Translation (MT) in English as a Foreign Language (EFL) context has expanded rapidly with the emergence of Neural Machine Translation (NMT) tools such as DeepL. DeepL distinguishes itself from earlier MT platforms through its use of advanced neural networks and high-quality training data, which produce translations that are often more accurate, natural, and contextually appropriate than those generated by other tools. Within EFL education, DeepL is increasingly used not only for translation tasks but also to support vocabulary acquisition, writing development, reading comprehension, and academic text processing (Sunita et al., 2024).

However, despite its growing adoption, empirical studies on students' perceptions of DeepL particularly among non-English-major learners in General English courses remain limited, creating a notable gap in the literature (Cahyani et al., 2025) (Fitroh & Dewi, 2026).

Within the TAM framework, perceived usefulness (PU) reflects how much users believe a technology enhances their performance or productivity, while perceived ease of use (PEoU) refers to the degree to which using a technology requires minimal effort (Davis, 1989). In the context of DeepL, PU captures learners' belief that the tool improves their English writing and translation performance for example, through more accurate output, faster task completion, and vocabulary support. PEoU, by contrast, captures learners' judgment that DeepL is intuitive and requires little effort to operate, including the clarity of its interface and the simplicity of its translation and revision features (Info, 2025). Recent EFL research has begun to apply these constructs to DeepL specifically. A TAM-based study of EFL students' acceptance of DeepL found that frequent users valued it for vocabulary acquisition, translation accuracy, and academic-writing support, whereas infrequent users noted limitations suggesting that PU perceptions vary with usage patterns. Broader work on EFL teachers' acceptance of AI academic tools likewise confirms that PU and PEoU function as the pivotal determinants of adoption in educational settings.

2.1 Students' Perceptions of DeepL in EFL Learning

A consistent finding across recent studies is that EFL students generally hold positive perceptions of DeepL. Quantitative surveys indicate that a large majority of students agree or strongly agree that DeepL helps them understand English texts, complete assignments more efficiently, and improve vocabulary and grammar. For example, one study of 210 students in Indonesia found that 57.35% strongly agreed and 39.71% agreed that DeepL

facilitates text comprehension, with many also viewing its use for assignments as ethically acceptable (Laksana & Komara, 2024). Similarly, a mixed-methods study of 293 Indonesian EFL learners reported high levels of agreement regarding DeepL's usefulness, especially for translating written works, with perceived advantages including accuracy, time-saving, and potential for language skill improvement (Munawwarah, 2024).

Qualitative studies complement these findings by revealing why students perceive DeepL positively. Students frequently cite DeepL's accuracy, natural-sounding output, ease of use, and accessibility across devices as key strengths. In academic writing contexts, final-year English students reported that DeepL helps them understand complex academic terms, accelerates their comprehension of scientific articles, and supports thesis writing. Another study found that students prefer DeepL over Google Translate for academic and formal texts due to its superior translation quality and more appropriate word choices. These perceptions align with evidence that DeepL's NMT architecture captures deeper semantic and contextual nuances than earlier statistical MT systems (Arnita & Rusli, 2025).

2.2 Perceived Benefits of DeepL for Language Learning

Research highlights several specific benefits that shape students' favorable views of DeepL. First, DeepL is perceived to enhance translation accuracy and linguistic quality. Studies report that students achieve higher accuracy in translating descriptive and academic texts when using DeepL, particularly for texts with explicit meanings and straightforward structures. Second, DeepL supports vocabulary learning and writing development. Students note that DeepL exposes them to new vocabulary, alternative expressions, and improved sentence patterns, which they can incorporate into their own writing. Third, DeepL increases efficiency and reduces cognitive load. Students appreciate the time saved in completing translation and writing tasks, which allows them to focus more on content and organization rather than struggling with form (Fitriah & Ardi, 2026). In story-writing and academic writing tasks, DeepL has been shown to improve syntactic and lexical complexity, fluency, and accuracy, with lower-proficiency students benefiting particularly from its scaffolding effect. Lecturers and students alike report that DeepL helps learners avoid grammatical errors, identify areas needing improvement, and develop better writing styles. These benefits contribute to students' motivation and confidence, as many feel more capable of producing acceptable English texts when DeepL is available as a support tool (Liang, 2025).

Despite these advantages, the literature also identifies important concerns and limitations. A recurring theme is the risk of over-reliance and dependency. Several studies warn that excessive use of DeepL without critical reflection can hinder independent language production and deeper engagement with language practice. Students may become accustomed to accepting MT output uncritically, which can limit opportunities

for authentic language processing and skill development. Some students report becoming “addicted” to quick translations, while others actively verify DeepL’s output and use it as a learning tool rather than a shortcut (Translating & Text, 2018).

Another limitation concerns DeepL’s performance with specialized, idiomatic, or culturally nuanced language. Studies note that DeepL struggles with regional languages, idioms, slang, technical terminology, and highly complex sentence structures. In translation tasks involving figurative language or abstract expressions, students’ accuracy declines even when using DeepL, indicating that the tool cannot fully compensate for limited linguistic competence. These findings suggest that positive perceptions do not always align with high translation accuracy, and that students still need strong post-editing skills and linguistic knowledge to ensure quality outcomes (Payungallo et al., 2026).

There is also some conflicting evidence regarding the relationship between perception and actual learning gains. While many students perceive DeepL as helpful for vocabulary, grammar, and writing, a few studies highlight that infrequent or critical users express concerns about formality issues, lack of paraphrasing features, and potential negative impacts on autonomous learning. This indicates that perceptions may vary according to frequency of use, proficiency level, and the specific tasks for which DeepL is employed.

2.3 Factors Influencing Students’ Perceptions

Several factors emerge as key determinants of students’ perceptions of DeepL. First, perceived usefulness and ease of use core constructs of the Technology Acceptance Model (TAM) strongly influence adoption and positive attitudes. Students are more likely to view DeepL favorably when they find it easy to access, intuitive to operate, and effective in producing high-quality translations. Second, learning motives and attitudes play a critical role. Students with strong instrumental motives (e.g., completing assignments efficiently, improving grades) tend to emphasize DeepL’s time-saving and accuracy benefits, whereas those with more integrative or mastery-oriented motives may be more cautious about dependency (Arnita & Rusli, 2025).

Third, prior experience with MT tools shapes comparisons and preferences. Many students explicitly prefer DeepL over Google Translate and other platforms because they perceive its translations as more accurate, natural, and suitable for academic purposes. Fourth, instructional context matters. When lecturers integrate DeepL into coursework as a complementary tool and provide guidance on critical use, students are more likely to develop balanced and reflective perceptions. Conversely, in contexts where MT use is stigmatized or unregulated, students may use DeepL covertly and without pedagogical support, potentially reinforcing uncritical reliance (Liang, 2025)

Although existing research provides valuable insights into EFL students' perceptions of DeepL, several gaps remain. First, most studies focus on English majors or translation-specific courses, with limited attention to non-English-major students in General English contexts. Second, many investigations involve small, homogeneous samples or single-institution case studies, limiting generalizability. Third, while several studies document overall positive perceptions, fewer examine in depth the specific factors such as attitudes, motives, task types, and comparative experiences with other MT tools that shape these perceptions among discipline-specific learner groups.

The present study addresses these gaps by focusing on Information Systems students enrolled in a General English course, a population whose English learning goals, technological practices, and disciplinary needs may differ from those of English majors. By combining questionnaire and interview data, the study not only describes the overall direction of students' perceptions but also explains why students hold these views and how factors such as efficiency, accuracy, accessibility, and learning motives interact to shape their perceptions of DeepL. In doing so, it contributes nuanced, context-specific evidence to the growing body of literature on AI-assisted translation in EFL higher education.

3. Method

3.1 Research Design

This study employed a **descriptive qualitative research design** to investigate Information Systems students' perceptions of using DeepL in a General English course and to identify the factors influencing those perceptions. A qualitative approach was selected because the study sought not only to describe the direction of students' responses but also to understand their attitudes, motives, experiences, and reasons for using DeepL.

The questionnaire provided a descriptive overview of students' perceptions, whereas structured interviews provided more detailed explanations of the factors underlying those perceptions. The two sources of data were compared through methodological triangulation.

3.2 Research Setting and Participants

The study was conducted in the Information Systems Study Program at Universitas Labuhanbatu, Indonesia, during second semester of E class in 2025/2026 academic year. The participants were 14 second-semester students enrolled in a General English course. The target population consisted of second-semester Information Systems students taking the General English course during the research period. Because the accessible sample consisted of 14 students, the study used total purposive sampling. Thus, all 14 students were invited to participate. This sampling procedure was appropriate because the population was small and each eligible student could provide relevant information about the use of DeepL in the course.

3.3 Research Instruments

Two primary instruments were used: a questionnaire and a structured interview guide. Supporting documentation, such as screenshots or other evidence of DeepL use, was also collected when available.

a. Questionnaire

The questionnaire was designed to measure students' perceptions of DeepL use in the General English course. It consisted of 18 statements using a five-point Likert scale: Strongly Disagree, Disagree, Neutral, Agree and Strongly Agree. The questionnaire included positively and negatively worded statements. The items addressed several aspects of students' perceptions, including perceived usefulness; ease of use; confidence in using DeepL; vocabulary and language-learning support; efficiency in completing assignments; satisfaction with translation results; perceived accuracy and naturalness; accessibility; comparison with other translation applications; and concerns about limitations or overreliance.

For negatively worded items, the scores were reverse coded during analysis so that the interpretation remained consistent. A higher adjusted score indicated a more favorable perception of DeepL.

b. Structured Interviews

A structured interview guide was used to explore the factors influencing students' perceptions. The same core questions were asked of all participants to ensure comparability. The questions covered: students' attitudes toward artificial intelligence and DeepL; their motives for using DeepL; their interest in AI-assisted language learning; previous experience with Google Translate or other translation tools; expectations before using DeepL; the role of assignment deadlines and time efficiency; the learning environment in which DeepL was used; recommendations from lecturers or peers; perceived accuracy, naturalness, and accessibility; reasons for preferring DeepL over other translation applications; and concerns about dependence, limitations, and the need to review DeepL's output. . The interviews were conducted in English languages and lasted approximately 5 minutes per participant. With participants' permission, the responses were recorded or documented in written notes. Interview responses

3.4 Data Collection Procedure

First, the researcher obtained permission from the head of the study program to conduct the study. The researcher then explained the purpose, procedures, voluntary nature, and confidentiality arrangements to the participants. Participants were informed

that their responses would be used only for research purposes and that they could withdraw from the study at any time.

Second, the participants completed the questionnaire individually. The questionnaire was distributed in printed form during March 2026. Participants were given adequate time to read each statement and select the response that best represented their perception. The researcher checked the completed questionnaires to ensure that no responses were unintentionally omitted.

Third, structured interviews were conducted with the same 14 participants. The interviews were carried out face-to-face at Universitas Labuhanbatu after the questionnaire had been completed. The interviews focused on explaining the patterns identified in the questionnaire, particularly students' views of DeepL's usefulness, accuracy, naturalness, accessibility, and time-saving potential.

Finally, supporting documentation was collected where possible. This documentation was used to confirm that the participants had experience using DeepL. It functioned as supplementary evidence and was not treated as the primary source for measuring students' perceptions.

3.5 Data Analysis

The questionnaire data were analyzed descriptively. Each response was assigned a score from 1 to 5. Responses to negatively worded items were reverse-coded before the overall pattern was interpreted. The frequency and percentage of responses for each item were calculated using the following formula:

$$P = \frac{f}{N} \times 100$$

where P represents the percentage, f represents the frequency of a particular response, and N represents the total number of participants.

The results were then grouped into interpretive categories based on the response scale. The distribution of responses was used to determine whether students' perceptions were predominantly favorable, neutral, or unfavorable. Because the study involved only 14 participants and was designed as a descriptive qualitative investigation, the questionnaire results were not used to make statistical generalizations about all Information Systems students.

The interview data were analyzed using a thematic procedure. First, the researcher transcribed and reviewed the interview responses. Second, relevant statements were identified and coded. Third, similar codes were grouped into broader categories. Finally, the categories were organized into themes representing the factors influencing students' perceptions of DeepL.

The questionnaire and interview findings were then compared. Consistent findings across the two instruments were used to strengthen the interpretation, while differences were examined as possible evidence of variation between students' general attitudes and their individual experiences.

a. Validity and Reliability

Several procedures were applied to improve the credibility and dependability of the findings. First, the questionnaire and interview questions were aligned with the research objectives and the study's conceptual focus on students' perceptions and influencing factors. The questionnaire and interview guide were reviewed by an expert in English language education to assess item clarity, relevance, and alignment with the research objectives. Based on the expert's recommendations, several items were revised before data collection.

Second, methodological triangulation was used by comparing questionnaire findings with structured interview responses. Documentation of DeepL use was used as additional supporting evidence. This process helped reduce the risk of relying on a single data source.

Third, the researcher used the same questionnaire instructions and interview questions for all participants. This improved procedural consistency. The researcher also maintained an organized record of the raw questionnaire responses, interview transcripts, coding process, and analytical decisions so that the research process could be reviewed and replicated.

Fourth, participant clarification or member checking was used where necessary. Participants could be asked to confirm whether the summarized interpretation of their responses accurately represented their views. Direct quotations included in the article should be checked against the original interview transcripts to ensure accuracy.

For the questionnaire, internal consistency may be assessed using Cronbach's alpha if the journal requires a quantitative reliability statistic. However, because the study used a small sample of 14 participants, the reliability result should be reported cautiously and should not be interpreted as broadly generalizable. The researcher should not report a reliability coefficient unless it has actually been calculated from the collected data.

b. Methodological Assumptions and Limitations

This study was based on several assumptions. First, the participants were assumed to have answered the questionnaire and interview questions honestly. Second, they were assumed to have sufficient experience with DeepL to express an informed perception of its use in the General English course. Third, the study assumed that students' reported experiences were relevant indicators of their perceived usefulness, ease of use, and learning value of DeepL.

The methodology also has limitations. The study involved only 14 students from one Information Systems Study Program; therefore, the findings cannot be generalized to all Information Systems students or university EFL learners. The research examined students' perceptions rather than objectively measuring the quality of their translations or improvement in English proficiency. In addition, self-reported data may be influenced by memory, personal preference, or the desire to provide socially acceptable responses. Finally, the study focused on DeepL in one General English course, so the findings may differ in translation courses, writing courses, or other academic settings.

Despite these limitations, the combination of a Likert-scale questionnaire, structured interviews, and supporting documentation provides a detailed account of how second-semester Information Systems students perceive DeepL and why they use it in General English learning. The methodology also establishes a clear procedure that can be replicated in other institutions or with larger groups of non-English-major EFL learners.

4. Result

4.1 Students' Perceptions of DeepL Use in the General English Course

The questionnaire data showed that students' perceptions of using DeepL in the General English course were predominantly positive. Out of 18 statements, the responses indicated that most students agreed or strongly agreed with positively worded items, while they disagreed or strongly disagreed with negatively worded items.

Table 4.1 Respondent responses through questionnaire

No.	Statement	Percentage	Result	Category
	a. Perceived Usefulness (PU)			
1.	I enjoy using the DeepL app in the Translation II course, especially to accurately translate complex text	90%	Strongly Agree	Positive
2.	I feel confident using the DeepL app to improve my translation skills and expand my vocabulary.	84%	Strongly Agree	Positive
3.	The DeepL app is easy to use to translate various types of texts in the Translation II course.	78%	Agree	Positive
4.	The use of DeepL application helps me to complete translation tasks effectively.	82%	Strongly Agree	Positive
5.	I am confident in using the DeepL app without worrying about accuracy issues.	78%	Agree	Positive
6.	Using DeepL helps me expand my vocabulary in both source and target languages .	82%	Strongly Agree	Positive
7.	I often use the DeepL app with my friends to discuss better translation results.	72%	Agree	Positive
8.	I feel satisfied with the translation results provided by the DeepL application.	78%	Agree	Positive
9.	I do not feel any significant obstacles while using the DeepL application for translation tasks.	80%	Strongly Agree	Positive

No.	Statement	Percentage	Result	Category
	b. Perceived Ease of Use (PEoU)			
10.	DeepL is easier to use compared to similar translation tools.	77%	Agree	Positive
11.	I sometimes worry about the accuracy of translations provided by DeepL.	61%	Disagree	Positive
12.	DeepL has its limitations in helping us with translation tasks.	50%	Neutral	Neutral
13.	I do not fully understand how to use the DeepL application effectively.	74%	Disagree	Positive
14.	I do not have enough experience in using the DeepL app for my translation tasks.	78%	Disagree	Positive
15.	I find it difficult to understand some of the sentences translated by the DeepL app.	58%	Neutral	Neutral
16.	I feel uncomfortable using the DeepL app when discussing translation tasks with my friends.	60%	Disagree	Positive
17.	I often avoid using the DeepL app because I do not trust its accuracy.	64%	Disagree	Positive
18.	I feel that the DeepL app sometimes gives confusing translation results	51%	Neutral	Neutral

As shown in Figure 1, the 18 questionnaire statements were distributed across four perception categories based on the response patterns. Five statements received responses in the “Strongly Agree” category, five statements in the “Agree” category, three statements in the “Neutral” category, and five negatively worded statements were interpreted as positive perceptions when students responded with “Disagree” or “Strongly Disagree.”

c. Overall Response Distribution

The overall response distribution across all 18 statements is presented in Table 1. The pie chart shows that 28% of all responses fell into the “Strongly Agree” category, 28% into the “Agree” category, 16% into the “Neutral” category, and 28% into the “Disagree” category. This distribution indicates that 72% of all responses reflected favorable perceptions of DeepL use in the General English course.

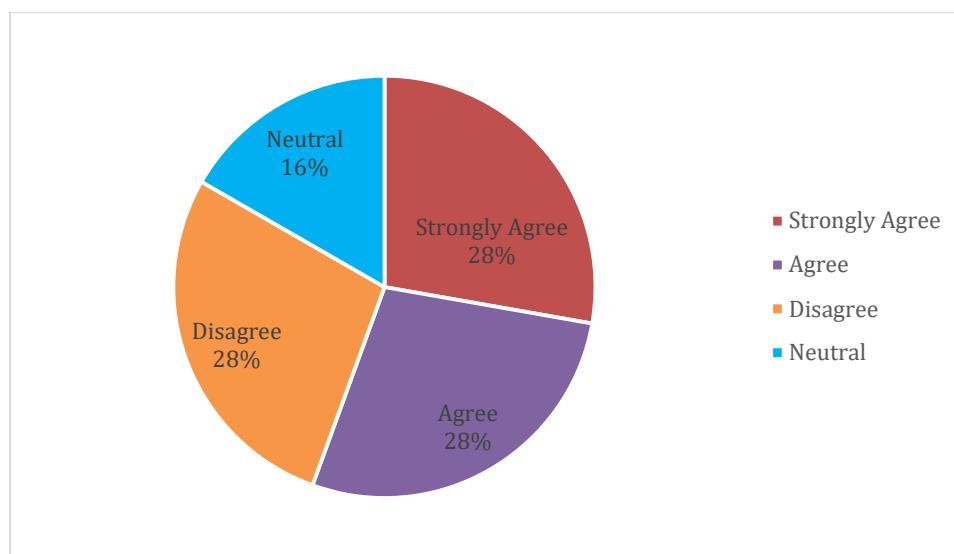


Figure 1. Students' Response from Questionnaire

4.2 Factors Influencing Students' Perceptions of DeepL

The structured interviews revealed several factors that shaped students' perceptions of DeepL. These factors were grouped into four main themes: positive attitudes and motives, time efficiency and task demand, perceived advantages of DeepL over other translation tools, and accessibility.

a. Positive Attitudes and Learning Motives

Most participants expressed positive attitudes toward using AI-based translation tools such as DeepL. They described DeepL as helpful for understanding English texts more quickly and for checking the accuracy of their own translations. Many students reported that their primary motive for using DeepL was to complete General English assignments more effectively and to improve their understanding of vocabulary, sentence structure, and meaning.

Several students stated that they were interested in learning about AI-assisted language tools because they believed these technologies would be important for their future academic and professional lives. A number of participants mentioned that they had previously used other translation applications, such as Google Translate or Microsoft Translator, but chose DeepL because they expected more natural and accurate results.

b. Time Efficiency and Assignment Deadlines

Time efficiency emerged as a prominent factor influencing students' perceptions. Many participants reported that they used DeepL especially when they were under time pressure to complete assignments. They explained that DeepL allowed them to translate

texts faster than doing it manually or using other tools, which helped them meet deadlines without sacrificing too much quality.

Students also noted that DeepL's instant translation feature enabled them to revise and compare multiple versions of a sentence quickly. This process supported their learning by allowing them to see alternative word choices and structures in real time.

c. Perceived Advantages of DeepL: Accuracy, Naturalness, and Accessibility

Participants consistently highlighted DeepL's perceived accuracy and naturalness as key reasons for their positive perceptions. Many students rated DeepL's accuracy highly, with several describing it as "very accurate" or "more accurate than other apps." They pointed out that DeepL produced translations that sounded more natural and contextually appropriate, particularly for academic and formal texts.

Accessibility was another important factor. Students reported that DeepL was easy to access through websites and mobile applications on devices they used frequently, such as smartphones and laptops. They appreciated features such as text translation, document upload, and, in some cases, voice or audio pronunciation support. Several participants mentioned that they chose DeepL over other translation tools because it was both easy to use and widely recommended by friends.

When asked to compare DeepL with other applications, most students stated that they preferred DeepL because its translations were clearer, more fluent, and required less post-editing. Some participants acknowledged that DeepL was not perfect and occasionally struggled with idiomatic expressions or specialized terminology, but they still considered it the most helpful tool available for their General English learning tasks.

5. Discussion

This study addressed two research questions: (1) How do Information Systems students perceive the use of DeepL in a General English course? and (2) What factors influence these perceptions? The findings revealed that students held predominantly positive perceptions of DeepL, with the majority agreeing or strongly agreeing that the tool was useful, easy to use, accurate, and efficient for completing assignments. The interview data further explained that these perceptions were shaped by students' positive attitudes and learning motives, the time efficiency DeepL offered under assignment deadlines, and its perceived advantages in accuracy, naturalness, and accessibility compared with other translation applications. These results extend existing knowledge on machine translation in EFL contexts by focusing specifically on non-English-major learners in a General English course, a population that has received limited attention in prior research.

The prominence of efficiency in students' accounts is not incidental; it reflects their disciplinary background. As Information Systems students, participants are socialized into a field that values optimization, automation, and applied problem-solving, and recent

evidence indicates that disciplinary orientation shapes how students engage with AI. Studies of undergraduate engagement with generative AI report that applied fields consistently show higher levels of knowledge, usage intention, and cognitive-task engagement than pure fields, because their practical orientation drives adoption. Comparative work likewise finds that technology-oriented disciplines are the most frequent and sophisticated users of AI tools, integrating them into complex problem-solving rather than treating them as novelties. Quantitative comparisons across disciplines further show that STEM students report significantly higher perceived usefulness than humanities and social science majors, with disciplinary background operating through perceived usefulness rather than general attitudes alone. Read through this lens, the efficiency-seeking behavior observed here is a disciplinary disposition: these learners evaluate DeepL primarily as a productivity instrument that fits the applied, output-oriented demands of their program (Qu et al., 2024) (Woźny et al., 2026)(Lee & Choi, 2026).

This raises a critical question: does efficiency-oriented use encourage learning or merely task completion? The evidence suggests both outcomes are possible and depend on how the tool is used. On one hand, DeepL demonstrably supports comprehension and vocabulary acquisition, particularly by supplying comprehensible input that lowers the cognitive load of English tasks. On the other hand, the same study warns that when use is excessive and unaccompanied by self-reflection, it becomes a dependency that hinders independent language production. Broader research on machine translation echoes this duality: students acknowledge efficiency gains while conceding that excessive dependence undermines scholarly writing, analytical reasoning, and language development. The risk of dependency is especially pronounced for lower-proficiency, non-English-major learners, who may use translation tools to avoid engaging with English altogether. Notably, a large-scale study found that the effect of flow on excessive translation-software use was substantially stronger for non-English majors (coefficient 0.629) than for English majors (0.299), confirming that academic background moderates' over-reliance. The students in the present study described DeepL in strikingly similar terms to those in prior work as a "time-saving tool" and "reliable helper" while some voiced the same anxiety about becoming dependent on it. Efficiency, then, is pedagogically double-edged: it accelerates task completion, but without structured reflection it can substitute for, rather than support, language learning (Murtisari & Bonar, 2024) (Yang, 2025).

These findings both converge with and extend previous research. The favorable perceptions align with studies of non-English-major and non-English-department learners, who consistently report positive attitudes toward machine translation for its ease of use, speed, and flexibility, and with TAM-based work showing that frequent DeepL users value it for vocabulary acquisition and translation accuracy. Prior work has also found that lower-proficiency non-English majors report higher satisfaction with translation tools than

English majors, which helps explain the strength of the positive perceptions observed here. What this study adds is an explanation of why: by combining questionnaire and interview data, it shows that the efficiency that drives these learners' positive perceptions is rooted in their disciplinary identity as Information Systems students, and that this same orientation simultaneously increases their vulnerability to dependency. This extends the literature from documenting favorable perceptions to theorizing their disciplinary origins and their learning risks, it is a nuance largely absent from descriptive accounts of DeepL acceptance (Date & Information, 2022).

Novelty and Contribution

This study contributes to the literature in several ways. *First*, it focuses on Information Systems students in a General English course, whereas most existing research on DeepL has examined English majors or translation-specific courses. Non-English-major learners may have different language-learning goals, technological practices, and disciplinary needs, making their perceptions of AI translation tools an important but underexplored area. *Second*, the study combines questionnaire and interview data to provide both a descriptive overview of perception patterns and a deeper explanation of the factors underlying those perceptions. This mixed-method approach complements recent phenomenological and TAM-based studies by offering a more nuanced account of why students hold favorable views of DeepL (Thahilal & Hasyb, 2025) (Aqmar et al., 2026). *Third*, the findings highlight the interplay between perceived accuracy, naturalness, accessibility, and time efficiency as mutually reinforcing factors that shape positive perceptions. While previous studies have identified these factors individually, this study demonstrates how they operate together in the context of a General English course for non-English majors. This integrated perspective can inform pedagogical decisions about how to integrate DeepL and similar tools into EFL curricula in ways that maximize benefits while addressing potential risks (Le & Vy, 2025).

Implications for Teaching and Curriculum Design

The findings have several implications for EFL teaching and curriculum design in higher education. First, educators should recognize that students are likely to use AI translation tools such as DeepL regardless of whether their use is formally integrated into coursework. Rather than discouraging or prohibiting such tools, instructors can design tasks that encourage critical and reflective use of DeepL, such as requiring students to compare DeepL's output with their own translations, identify and correct errors, or justify their translation choices. This approach aligns with recent calls for pedagogical guidance that strengthens linguistic awareness, translation competence, and ethical responsibility in AI-assisted translation (Thahilal & Hasyb, 2025). Second, the perceived advantages of DeepL in accuracy and naturalness suggest that the tool can be leveraged to support vocabulary

learning, reading comprehension, and writing development. Instructors can incorporate DeepL into activities that focus on noticing language patterns, comparing alternative translations, and developing post-editing skills. Such activities can help students move beyond passive reliance on MT output toward more active and strategic engagement with the tool (Fathinah et al., 2025). Third, the importance of time efficiency and assignment deadlines highlights the need for clear guidelines on appropriate and ethical use of AI translation tools. Instructors can establish expectations for when and how DeepL may be used, encourage transparency about tool use, and design assessments that value process and reflection as much as final product. This can help mitigate concerns about overreliance while acknowledging the practical realities of students' academic lives.

Limitations

This study has several limitations. First, the sample consisted of only 14 second-semester Information Systems students from one institution, which limits the generalizability of the findings to other populations or contexts. Future research should involve larger and more diverse samples, including students from different disciplines, proficiency levels, and institutional settings. Second, the study relied on self-reported questionnaire and interview data, which may be influenced by social desirability bias or memory limitations. Students may have provided responses they believed were expected or may not have accurately recalled their experiences with DeepL. Future studies could complement self-report data with observational data, translation product analysis, or learning analytics to obtain a more comprehensive picture of how students actually use DeepL and how it affects their learning outcomes. Third, the study focused on perceptions rather than objectively measuring the quality of students' translations or their improvement in English proficiency. While positive perceptions are important, they do not necessarily translate into better language learning outcomes. Experimental or quasi-experimental designs that compare learning outcomes between students who use DeepL and those who do not would provide stronger evidence of the tool's pedagogical value. Finally, the study did not examine long-term patterns of DeepL use or the potential for dependency over time. Some participants acknowledged concerns about overreliance, but the cross-sectional design did not allow for tracking changes in usage patterns or attitudes across semesters. Longitudinal studies would be valuable for understanding how students' relationships with AI translation tools evolve and what factors promote sustainable and critical use.

Suggestions for Future Research

Several avenues for future research emerge from this study. First, researchers could investigate the relationship between frequency of DeepL use and language learning outcomes among non-English-major EFL learners. Recent studies using the Technology Acceptance Model have found that frequent users report more positive experiences and

perceive greater benefits than infrequent users. Extending this line of inquiry to Information Systems students and other non-language majors could yield important insights into how usage patterns shape perceptions and learning. Second, future studies could explore the effectiveness of pedagogical interventions designed to promote critical and reflective use of DeepL. For example, researchers could examine whether explicit instruction on post-editing, error analysis, or ethical use leads to more balanced perceptions and reduced dependency. Experimental designs that compare different instructional approaches would be particularly valuable for identifying best practices. Third, research could examine how DeepL and other AI translation tools are used in discipline-specific English courses, such as English for Information Systems, English for Engineering, or English for Business.

Understanding how students in different fields perceive and use these tools could inform the development of tailored guidelines and resources that address discipline-specific needs and challenges. Fourth, longitudinal studies could track students' use of DeepL across multiple semesters to identify patterns of adoption, adaptation, and potential dependency. Such studies could also examine how changes in tool features, institutional policies, or instructional practices influence students' perceptions and behaviors over time. Finally, future research could expand the scope of inquiry to include other AI-assisted language learning tools, such as grammar checkers, writing assistants, and conversational AI. Comparing students' perceptions and experiences across different types of AI tools could provide a more comprehensive understanding of how learners navigate the expanding ecosystem of AI-supported language learning.

6. Conclusion

This study investigated Information Systems students' perceptions of using DeepL in a General English course and identified the key factors influencing these perceptions. The findings revealed that students held predominantly positive perceptions of DeepL, with the majority agreeing or strongly agreeing that the tool was useful, accurate, natural, accessible, and efficient for completing assignments. The interview data further explained that these perceptions were shaped by students' positive attitudes and learning motives, the time efficiency DeepL provided under assignment deadlines, and its perceived advantages over other translation applications.

These results fill an important gap in the literature on machine translation in EFL contexts. While previous research has largely focused on English majors or translation-specific courses, this study provides empirical evidence on how non-English-major learners in a General English course perceive and use DeepL. By combining questionnaire and interview data, the study not only describes the overall direction of students' perceptions but also explains why students hold these views and how multiple factors interact to shape favorable attitudes toward AI-assisted translation.

The novelty of this research lies in its focus on Information Systems students, a population whose English learning goals, technological practices, and disciplinary needs may differ from those of language majors. The study demonstrates that even in a General English context, students recognize and value DeepL's accuracy, naturalness, and accessibility, and that these perceived benefits are reinforced by practical considerations such as time efficiency and assignment demands. This integrated perspective extends existing knowledge by showing how attitudes, motives, task requirements, and tool characteristics operate together to influence students' perceptions.

The findings have several implications for the broader area of AI-assisted language learning and EFL higher education. First, they suggest that educators should acknowledge the reality of students' use of AI translation tools and design pedagogical interventions that promote critical, reflective, and ethical engagement rather than attempting to prohibit or ignore such tools. Second, the perceived advantages of DeepL in accuracy and naturalness indicate that the tool can be leveraged to support vocabulary learning, reading comprehension, and writing development when integrated thoughtfully into coursework. Third, the importance of time efficiency and accessibility highlights the need for clear institutional and classroom guidelines that balance practical benefits with concerns about overreliance and academic integrity.

Despite its contributions, this study has limitations related to sample size, institutional context, and reliance on self-reported data. Future research should involve larger and more diverse samples, incorporate observational or product-based measures of translation quality, and examine long-term patterns of AI tool use. Nevertheless, the findings provide a valuable foundation for understanding how non-English-major EFL learners perceive and experience DeepL in General English learning. They also offer practical guidance for educators, curriculum designers, and policymakers seeking to integrate AI translation tools into EFL curricula in ways that maximize learning benefits while fostering responsible and critical use.

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