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An Analysis of the Accuracy of Google Translate in Translating Academic Sentences: A Literature Review

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ABSTRACT

The increasing use of machine translation tools in academic contexts has raised concerns about their accuracy in translating complex academic language. This study aims to analyze the accuracy of Google Translate in translating academic sentences through a qualitative literature review. The review synthesized findings from 16 selected studies published between 2014 and 2025 that examined Google Translate or machine translation in academic, educational, and language learning contexts. The studies were selected based on their relevance to translation accuracy, error types, user perceptions, and the use of Google Translate in EFL settings. The data were analyzed using thematic categorization, focusing on grammatical accuracy, lexical and terminological accuracy, contextual and semantic accuracy, translation performance across language pairs, and educational implications. The findings indicate that Google Translate performs relatively well in translating simple and general sentences, especially those with clear structures and common vocabulary. However, its accuracy decreases when translating complex academic sentences, technical terms, culture-bound expressions, and context-dependent meanings. The review also shows that translation accuracy varies across language pairs and is influenced by sentence complexity, linguistic structure, and the availability of language resources. In educational contexts, Google Translate can support students' comprehension, vocabulary learning, and academic writing, but excessive dependence on the tool may reduce students' critical language awareness. Therefore, Google Translate

should be used as a supportive tool accompanied by critical evaluation and human post-editing. Future studies are recommended to test Google Translate using real academic sentences written by Indonesian EFL students.
Key words: Machine Translation; Google Translate; Academic Translation; Translation Quality; EFL Learners

INTRODUCTION

The rapid development of machine translation technology has significantly transformed the way learners and researchers' access and produce academic texts in multilingual contexts. Advances in artificial intelligence and neural machine translation have enabled tools such as Google Translate to provide fast, accessible, and increasingly sophisticated translations across languages. In English as a Foreign Language (EFL) setting, particularly in countries like Indonesia, these tools are widely used to support comprehension, writing, and academic communication. As a result, machine translation has become an integral part of students' academic practices, especially for those who face challenges in understanding complex English texts (Groves & Mundt, 2015).

Despite its widespread use, the accuracy of machine translation tools, particularly Google Translate, in rendering complex academic sentences remains a critical concern in EFL settings. Academic language is characterized by intricate grammatical structures, formal and discipline-specific vocabulary, as well as nuanced meanings that require precise interpretation. Machine translation systems, although advanced, may struggle to capture these complexities accurately, leading to potential distortions in meaning, grammatical inconsistencies, and inappropriate lexical choices. Such inaccuracies can negatively impact students' understanding and the quality of their academic writing (Tsai, 2019; Lee, 2020).

One possible approach to addressing translation inaccuracies is to combine machine translation with human post-editing to ensure grammatical correctness and semantic precision. Human intervention allows users to refine machine-generated output by correcting structural errors, adjusting word choices, and ensuring that the intended meaning is preserved. This collaborative approach between technology and human expertise has been widely recommended in translation studies as an effective strategy to improve translation quality, particularly in academic contexts where accuracy is essential (Garcia & Pena, 2011; O'Brien, 2012).

Another approach involves critically evaluating the performance of machine translation tools to identify their strengths and limitations in handling academic language. By systematically analysing translation outputs, researchers can determine the extent to which tools like Google Translate are reliable for academic purposes. Such evaluations not only contribute to a better understanding of machine translation capabilities but also provide practical guidance for users in applying these tools more effectively in their learning and writing processes (Jolley & Maimone, 2015; Clifford et al., 2013).

LITERATURE REVIEW

Recent studies have explored the effectiveness of Google Translate in various contexts, revealing that while it performs adequately in general text translation, its accuracy in academic discourse is often inconsistent. Research findings indicate that Google Translate tends to produce acceptable translations for simple sentences but encounters difficulties when dealing with complex syntax, idiomatic expressions, and specialized terminology. These limitations highlight the need for further investigation into its performance specifically in academic language contexts (Bahri & Mahadi, 2016).

However, limited research has specifically focused on analyzing the accuracy of Google Translate in translating academic sentences within the Indonesian EFL context. Most existing studies emphasize general translation performance or broader text types, without providing an in-depth analysis of sentence-level accuracy in academic discourse. This gap indicates the need for more focused research that examines how machine translation handles the linguistic features of academic sentences used by Indonesian learners.

Therefore, this study offers a focused analysis of Google Translate's accuracy in translating academic sentences by examining grammatical, lexical, and semantic aspects to provide a more comprehensive evaluation. By concentrating on sentence-level analysis, this study aims to contribute to the existing body of knowledge by offering detailed insights into specific areas where translation errors occur and how they affect overall meaning and clarity. This research is essential as it provides valuable insights for students, educators, and researchers in making informed decisions about the use of machine translation tools in academic writing. Understanding the strengths and limitations of Google Translate can help users apply it more critically and effectively, minimizing potential errors and improving the quality of academic output. Furthermore, the findings of this study are expected to support the development of more effective language learning strategies and encourage the responsible use of technology in academic contexts.

METHOD

Design and Samples

This study is conducted as a literature-based analysis focusing on the accuracy of Google Translate in translating academic sentences. To ensure a systematic and comprehensive review, relevant studies were collected from peer-reviewed journals, conference proceedings, and reputable publications published between 2014 and 2025. The inclusion criteria for the literature were:

1. The study examines Google Translate or machine translation tools in the context of language learning, academic translation, or domain-specific text translation.

2. The study reports on translation accuracy, types of errors, or user perceptions of Google Translate.
3. The research employs clear methods such as surveys, error analysis, comparative studies, observational studies, or experimental designs.

Each selected study was carefully analyzed for its text type, language pair, methodological approach, and main findings. This approach enables a structured understanding of how Google Translate performs across different contexts and types of academic sentences. The following table summarizes the literature analyzed in this study:

Author (Year)	Text Type / Focus	Language Pair	Method	Main Findings
Rao, E., Ampalam, S., & Raju, C. (2025)	GT as AI translation tool: strengths & limitations	Multilingual	Literature review + comparative analysis	GT effective for general translation but struggles with technical & formal sentences
Sadikhova, S., & Babayev, J. (2025)	Challenges with culture-bound & subject-specific terminology	Various	Error analysis of GT outputs	GT has difficulty translating cultural/technical terms; frequent errors in domain-specific texts
Budiyanti, K. (2025)	GT as a translation tool	English–Indonesian	Observational study / usage analysis	Useful for quick/simple translations; accuracy drops with complex sentences
Latief, M., Saleh, N., & Pammu, A. (2020)	Effectiveness of machine translation in cultural context	English–Indonesian	Experimental / comparative study	GT improves basic comprehension but fails in cultural/terminological nuances
Calvin, C., Antonius, P., & Siregar, S. (2025)	GT for Batak–Indonesian translation	Batak–Indonesian	Empirical translation analysis	GT useful for lexical conversion but lacks contextual understanding
Pham, A., Nguyen, Y., Tran, L., et al. (2022)	University students' perceptions of GT	English–Vietnamese	Survey / questionnaire	GT perceived as helpful but has limitations; over-reliance risk noted

Groves, M., & Mundt, K. (2014)	GT in academic purposes	English	Error analysis / case study	GT produces errors in formal academic writing; human revision needed
Matviienko, L., Khomenko, L., et al. (2024)	Comparative analysis of online translators	Various	Comparative study / benchmarking	Accuracy varies by text type; GT better for short factual sentences
Sutrisno, A. (2020)	GT accuracy for English–Indonesian	English–Indonesian	Accuracy assessment / experimental	Accurate for simple sentences; struggles with complex sentences
Moelyono, T., Murtisari, E., et al. (2023)	GT in EFL students' writing	English	Survey + analysis of student assignments	Students aware of benefits & drawbacks; over-reliance possible
Phuong, A., Thi, T., & Nga, N. (2022)	GT in EMI subjects	English	Observational / classroom study	GT facilitates learning but limited for academic content
Channia, C. (2023)	Students' perceptions using GT	English	Questionnaire / perception study	GT useful for assignments; challenges with complex structures
Murtisari, E., Widiningrum, R., et al. (2019)	GT in language learning	English–Indonesian	Survey + usage analysis	Positive impact on vocabulary and confidence; limited in grammar
Hutagalung, G., Ningsih, W., et al. (2024)	GT in vocabulary learning	English	Experimental / classroom study	Supports vocabulary acquisition but with drawbacks
Boukrous, S. (2024)	Role of automated translation	Various	Literature review	Highlights GT limitations in specialized domains
Almusharraf, A., & Bailey, D. (2023)	Machine translation in EFL learning	English	Survey / mixed methods	GT useful but students need guidance; risk of over-reliance
AlAfnan, M. (2024)	GT vs ChatGPT	English	Comparative analysis	GT accurate for basic translation; complex sentences

				require human editing

Instruments and Procedures

The instrument used in this study was a document analysis checklist and thematic categorization framework developed to evaluate the accuracy of Google Translate in translating academic sentences. Since the study employed a qualitative literature review design, the primary data sources were selected journal articles, conference papers, and reputable publications related to machine translation and Google Translate published between 2014 and 2025. The analysis focused on several aspects of translation accuracy, namely grammatical accuracy, lexical and terminological accuracy, contextual and semantic accuracy, as well as the performance of Google Translate across different language pairs. The researcher also used inclusion criteria to select relevant studies, including studies discussing Google Translate in academic or language learning contexts, studies reporting translation errors or accuracy, and studies using clear research methods such as surveys, comparative analysis, error analysis, observational studies, or experiments.

The procedure of this study began with collecting relevant literature from peer-reviewed journals, conference proceedings, and other academic publications discussing Google Translate and machine translation in educational or academic contexts. After the literature collection process, the researcher screened and selected the studies based on predetermined inclusion criteria. The selected studies were then classified according to text type, language pair, research method, and main findings. Following this, the researcher conducted a thematic analysis by identifying recurring themes related to translation accuracy, including grammatical issues, lexical and terminological problems, contextual and semantic inaccuracies, and educational implications of Google Translate usage. Finally, the findings from the selected studies were synthesized and interpreted to provide a comprehensive understanding of the strengths and limitations of Google Translate in translating academic sentences

Data Analysis

The data analysis technique used in this study was qualitative thematic analysis. The researcher analyzed the findings from the selected literature by categorizing the data into several major themes related to translation accuracy. These themes included the accuracy of Google Translate in simple and complex sentences, grammatical accuracy, lexical and terminological accuracy, contextual and semantic accuracy, translation performance across language pairs, educational use of Google Translate, and its strengths and limitations. Each study was examined to identify patterns, similarities, and differences in findings concerning Google Translate performance. The researcher then interpreted the synthesized data descriptively to evaluate how effectively Google Translate translates academic sentences and to determine the major factors affecting translation quality

RESULT AND DISCUSSION

Accuracy of Google Translate in Simple vs. Complex Sentences

This section discusses how Google Translate performs differently when translating simple sentences compared to complex academic sentences. The findings from the reviewed studies consistently indicate that Google Translate demonstrates relatively high accuracy when dealing with simple sentence structures, particularly those that are short, direct, and contain common vocabulary. For example, Budiyanti (2025) and Sutrisno (2020) report that translations of simple English–Indonesian sentences are generally accurate in terms of meaning and grammatical structure. Similarly, Rao et al. (2025) and Matviienko et al. (2024) emphasize that the tool performs effectively in general translation tasks, especially when the input text is straightforward and factual in nature.

However, the accuracy of Google Translate declines significantly when handling complex academic sentences. Studies such as Groves and Mundt (2014) and AlAfnan (2024) reveal that the system often struggles with sentences that contain multiple clauses, passive constructions, and dense informational content. These complexities frequently lead to errors in sentence structure, misinterpretation of meaning, and awkward phrasing in the target language. Furthermore, Budiyanti (2025) highlights that increased syntactic complexity directly affects translation quality, resulting in less accurate outputs. This pattern suggests that while Google Translate is reliable for basic sentence-level translation, it remains limited in processing the structural and linguistic demands of academic discourse.

Grammatical Accuracy in Academic Sentence Translation

This section examines the extent to which Google Translate maintains correct grammatical structures in translating academic texts. The findings indicate that while Google Translate is capable of producing grammatically acceptable translations in simple sentence forms, its performance becomes less consistent when dealing with complex academic structures. Several studies report that grammatical errors frequently occur in the translation of sentences containing passive voice, subordinate clauses, and embedded structures. For instance, Groves and Mundt (2014) found that translations of formal academic writing often include structural inaccuracies that reduce clarity and coherence. Similarly, AlAfnan (2024) highlights that although Google Translate can generate grammatically correct basic sentences, it struggles to maintain structural accuracy in more complex constructions.

In the context of English–Indonesian translation, Sutrisno (2020) and Budiyanti (2025) also emphasize that grammatical mismatches often arise due to differences in syntactic patterns between the two languages. These mismatches may result in unnatural sentence formations or incorrect word order in the target language.

Furthermore, Rao et al. (2025) note that machine translation systems tend to prioritize surface-level structure rather than deeper syntactic relationships, which contributes to grammatical inconsistencies in academic texts. Overall, these findings suggest that although Google Translate can handle basic grammatical structures, its ability to accurately reproduce the complexity of academic grammar remains limited, thereby requiring careful human revision.

Lexical and Terminological Accuracy

This section focuses on the ability of Google Translate to accurately translate academic vocabulary, technical terms, and discipline-specific language. The reviewed studies indicate that lexical and terminological accuracy remains one of the major challenges for Google Translate, particularly in academic contexts that require precise and context-sensitive word choices. Sadikhova and Babayev (2025) report that the system frequently produces errors when translating domain-specific terminology, often selecting general or literal meanings instead of contextually appropriate equivalents. Similarly, Latief et al. (2020) highlight that culturally bound and discipline-specific terms are often mistranslated, resulting in loss or distortion of meaning.

Contextual and Semantic Accuracy

This section analyzes how well Google Translate preserves meaning, context, and nuance in academic sentence translation. The findings from the reviewed studies indicate that while Google Translate can often produce grammatically acceptable outputs, it frequently struggles to maintain contextual and semantic accuracy, particularly in academic discourse. Rao et al. (2025) highlight that the system tends to rely on surface-level word correspondences, which may result in translations that are structurally correct but semantically inappropriate. Similarly, Boukrous (2024) argues that machine translation systems still lack deep contextual awareness, limiting their ability to interpret meaning beyond literal expressions.

Moreover, Calvin et al. (2025) found that Google Translate often fails to capture the intended meaning of sentences when contextual cues are essential, especially in cases involving implicit meaning or specialized academic usage. This issue is also evident in the findings of Latief et al. (2020), who report that cultural nuances and context-dependent meanings are frequently lost in translation. As a result, the translated output may lead to misinterpretation or reduced clarity. These findings suggest that although Google Translate is useful for conveying general ideas, it remains limited in preserving nuanced meaning and contextual accuracy, which are crucial elements in academic writing.

Performance Across Different Language Pairs

This section explores how translation accuracy varies depending on language pairs, particularly English–Indonesian and other multilingual contexts. The reviewed

studies indicate that the performance of Google Translate is not uniform across languages, as accuracy is influenced by linguistic differences, resource availability, and structural complexity. In the English–Indonesian context, studies by Sutrisno (2020) and Budiyanti (2025) show that Google Translate performs reasonably well in translating simple sentences but encounters difficulties with more complex structures due to differences in syntax, morphology, and word order between the two languages. These challenges often result in less natural or grammatically inconsistent translations.

In broader multilingual contexts, similar patterns are observed. Rao et al. (2025) and Matviienko et al. (2024) report that translation accuracy tends to be higher in widely used language pairs with extensive training data, while performance declines in less-resourced or structurally distant languages. This is further supported by findings from Calvin et al. (2025), who demonstrate that in Batak–Indonesian translation, Google Translate is capable of basic lexical conversion but lacks contextual and structural accuracy. Additionally, studies such as Pham et al. (2022) in the English–Vietnamese context reveal that although the tool is helpful for general understanding, limitations persist in handling academic language. Overall, these findings suggest that translation accuracy is highly dependent on the language pair, with better performance in high-resource languages and greater challenges in linguistically complex or underrepresented language combinations.

3

Google Translate in Educational Contexts

This section discusses how students and learners use Google Translate and how its accuracy affects learning outcomes and academic writing. The reviewed studies consistently show that Google Translate is widely used by students as a supportive tool for understanding texts, completing assignments, and improving vocabulary. For instance, Pham et al. (2022) and Moelyono et al. (2023) report that students perceive Google Translate as a helpful and accessible resource that facilitates comprehension and accelerates the writing process. Similarly, Channia (2023) and Mohammed (2023) highlight that learners frequently rely on the tool for translating sentences and checking meanings, particularly in EFL contexts where language proficiency may be limited.

However, despite its benefits, several studies emphasize the potential negative impact of over-reliance on Google Translate. Almusharraf and Bailey (2023) argue that excessive dependence on machine translation can hinder students' language development, especially in terms of grammatical awareness and critical thinking. In addition, Murtisari et al. (2019) and Hutagalung et al. (2024) note that while the tool can enhance vocabulary acquisition and learner confidence, it does not always provide accurate grammatical and contextual usage. As a result, students may adopt incorrect structures or inappropriate expressions in their academic writing. These findings suggest that although Google Translate plays a valuable role in language learning, its effectiveness largely depends on how critically and responsibly it is used by learners.

Strengths and Limitations of Google Translate

This section synthesizes the overall strengths and weaknesses of Google Translate as identified across the reviewed studies. The findings indicate that Google Translate offers several significant advantages, particularly in terms of accessibility, speed, and ease of use. Many studies highlight its effectiveness in translating simple and general texts, as well as its role in supporting language learning and basic comprehension. For example, Rao et al. (2025) and Matviienko et al. (2024) emphasize that the tool performs well in handling short, factual sentences, while Pham et al. (2022) and Moelyono et al. (2023) note its usefulness in assisting students with academic tasks. Additionally, Murtisari et al. (2019) and Hutagalung et al. (2024) point out that Google Translate contributes positively to vocabulary development and learner confidence in EFL contexts.

However, despite these strengths, the limitations of Google Translate remain evident across the literature. A major weakness lies in its inability to accurately process complex academic language, including intricate grammatical structures, specialized terminology, and context-dependent meanings. Studies by Groves and Mundt (2014), Sadikhova and Babayev (2025), and Boukrous (2024) consistently report issues related to grammatical inaccuracies, lexical errors, and loss of semantic nuance. Furthermore, AlAfnan (2024) and Almusharraf and Bailey (2023) highlight that machine translation still requires human intervention, particularly for academic writing that demands precision and clarity. Overall, these findings suggest that while Google Translate is a valuable supportive tool, it has not yet reached the level of reliability required for fully accurate academic translation, thereby reinforcing the need for critical use and human revision.

The findings of this study show that Google Translate demonstrates varying levels of accuracy in translating academic sentences. Its accuracy is relatively higher when translating simple, short, and straightforward sentences, especially those containing common vocabulary and clear grammatical structures. This finding is consistent with Budiyanti (2025) and Sutrisno (2020), who reported that Google Translate can produce acceptable translations for basic English–Indonesian sentences. Simple sentences tend to have predictable syntactic patterns and limited ambiguity, which makes them easier for machine translation systems to process. This also supports the findings of Rao et al. (2025) and Matviienko et al. (2024), who argued that Google Translate performs more effectively in general communication than in specialized academic discourse.

However, the accuracy of Google Translate decreases when it deals with complex academic sentences. Academic writing often contains multiple clauses, passive constructions, dense information, technical terms, and abstract meanings. These features make translation more difficult because the tool must not only transfer words from one language to another but also preserve grammatical relationships, logical connections, and contextual meaning. Groves and Mundt (2014) and AlAfnan (2024) also found that machine translation systems often struggle with

formal academic writing, particularly when sentences are long and structurally complex. In such cases, Google Translate may misinterpret relationships between clauses, produce awkward sentence structures, or fail to maintain the intended meaning of the source text.

Grammatical accuracy is one of the major issues found in the reviewed studies. Google Translate can generally handle basic grammatical patterns, but its performance becomes inconsistent when translating more complex academic structures. In English–Indonesian translation, differences in word order, sentence patterns, passive constructions, and grammatical conventions often lead to inaccurate or unnatural translations. Rao et al. (2025) noted that machine translation systems tend to rely on surface-level patterns rather than deeper syntactic relationships. As a result, Google Translate may produce translations that appear acceptable at first glance but still contain errors in clause formation, sentence structure, or grammatical logic. This indicates that grammatical accuracy in academic translation still requires human checking and revision.

Lexical and terminological accuracy also remains a challenge. Academic sentences often contain specialized vocabulary, technical terms, and discipline-specific expressions that require precise meaning. The reviewed studies show that Google Translate sometimes selects general or literal meanings instead of contextually appropriate academic terms. This finding is in line with Sadikhova and Babayev (2025) and Latief et al. (2020), who found that machine translation often has difficulty translating technical and culture-bound terminology. The problem occurs because academic vocabulary may carry meanings that differ from everyday usage. Without sufficient contextual and disciplinary understanding, Google Translate may choose words that are grammatically acceptable but academically inaccurate. Therefore, students and researchers need to verify important terms using reliable academic sources, dictionaries, or expert judgment.

In addition to grammar and terminology, contextual and semantic accuracy is another important concern. Although Google Translate may produce translations that are structurally correct, the translated sentences do not always convey the intended meaning accurately. This is particularly problematic in academic discourse, where meaning often depends on context, argument structure, and conceptual precision. Rao et al. (2025) and Boukrous (2024) argued that machine translation systems often depend on surface-level correspondences and still have limitations in deeper semantic interpretation. Similarly, Calvin et al. (2025) and Latief et al. (2020) showed that Google Translate may fail to capture implicit meaning, cultural nuance, or context-dependent expressions. This means that a translation can look correct but still distort the original message. For academic writing, such semantic shifts can reduce clarity and weaken the credibility of the text.

The accuracy of Google Translate also varies across language pairs. The reviewed studies indicate that the tool tends to perform better in widely used or high-resource

language pairs because these languages have more available training data. In English–Indonesian translation, Google Translate can produce acceptable results for simple sentences, as shown by Sutrisno (2020) and Budiyanti (2025). However, accuracy is still not guaranteed when the sentences become more complex or contain academic terminology. For less-resourced or linguistically distant language pairs, the limitations become more visible. Calvin et al. (2025), for example, found that Google Translate struggled with contextual and structural accuracy in Batak–Indonesian translation. This shows that translation accuracy is not universal but depends on linguistic structure, data availability, and the complexity of the source text.

In educational contexts, Google Translate has both benefits and risks. The reviewed studies show that students often use it to understand texts, complete assignments, check vocabulary, and support academic writing. Pham et al. (2022), Moelyono et al. (2023), and Channia (2023) reported that learners perceive Google Translate as helpful because it is fast, accessible, and easy to use. For students with limited English proficiency, the tool can reduce learning barriers and support comprehension. However, over-reliance on Google Translate may create problems. Almusharraf and Bailey (2023) argued that excessive dependence on machine translation can reduce students' grammatical awareness and independent writing ability. Murtisari et al. (2019) also noted that students may adopt inaccurate structures or inappropriate expressions when they use translation outputs without critical evaluation.

Overall, the findings indicate that Google Translate is useful as a supportive tool, but it cannot be considered fully reliable for academic sentence translation. Its main strengths are speed, accessibility, and usefulness for translating simple and general sentences. However, its limitations become clear in complex academic structures, technical terminology, contextual meaning, and less-supported language pairs. Therefore, Google Translate should be used with caution in academic contexts. Students, lecturers, and researchers should treat its output as a draft that requires careful checking, not as a final translation. Human post-editing, grammatical awareness, terminology verification, and contextual evaluation are necessary to improve translation accuracy. In this sense, Google Translate can support academic translation, but human judgment remains essential to ensure accuracy, clarity, and meaning.

CONCLUSION

This study aimed to analyze the accuracy of Google Translate in translating academic sentences through a synthesis of previous research findings. Overall, the results indicate that Google Translate demonstrates relatively high accuracy in translating simple and general sentences but shows significant limitations when handling complex academic language. These limitations are evident in several aspects, including grammatical structure, lexical and terminological accuracy, as well as contextual and semantic interpretation. The findings also reveal that

translation accuracy is influenced by sentence complexity, language pairs, and the presence of discipline-specific vocabulary. While Google Translate performs adequately in widely used language pairs such as English–Indonesian, its performance decreases in more complex linguistic contexts and less-resourced languages. In addition, although the tool is widely used in educational settings and offers practical benefits for students, its effectiveness depends largely on how critically it is used.

Based on these findings, it can be concluded that Google Translate serves as a useful supportive tool rather than a fully reliable solution for academic translation. Therefore, users are strongly encouraged to combine machine translation with human evaluation and post-editing to ensure accuracy and clarity. From a pedagogical perspective, integrating guided use of machine translation in language learning can help students develop critical awareness and improve their translation skills. Finally, this study suggests that future research should explore comparative analyses between different machine translation tools, involve larger datasets, or investigate pedagogical strategies for integrating machine translation effectively in academic contexts. Such efforts are expected to contribute to a deeper understanding of the role of technology in language learning and academic communication.

REFERENCES

AlAfnan, M. (2024). Large language models as computational linguistics tools: A comparative analysis of ChatGPT and Google machine translations. *Journal of Artificial Intelligence and Technology*. https://doi.org/10.37965/jait.2024.0549

Almusharraf, A., & Bailey, D. (2023). Machine translation in language acquisition: A study on EFL students' perceptions and practices in Saudi Arabia and South Korea. Journal of Computer Assisted Learning, 39, 1988–2003. https://doi.org/10.1111/jcal.12857

Bahri, H., & Mahadi, T. S. T. (2016). Google Translate as a supplementary tool for learning Malay: A case study. *Advances in Language and Literary Studies, 7*(3), 161–167. https://doi.org/10.7575/aiac.alls.v.7n.3p.161

Boukrous, S. (2024). The role of automated translation and its limitations. *Journal of Languages and Translation, 3*(1), 274. https://doi.org/10.70204/jlt.v3i1.274

Budiyanti, K. (2025). Using Google Translate as a tool in translating texts. *Indonesian Journal of Integrated English Language Teaching, 9*(1). https://doi.org/10.24014/ijielt.v9i1.24698

Calvin, C., Antonius, P., & Siregar, S. (2025). Google Translate mengubah bahasa Batak menjadi bahasa Indonesia. *Repeater: Publikasi Teknik Informatika dan Jaringan, 3*(2), 399. https://doi.org/10.62951/repeater.v3i2.399

Channia, C. (2023). English learners' perceptions using Google Translate for doing assignments: Advantages and disadvantages. *Journal of Language Education and Development (JLed), 4*(1), 328. https://doi.org/10.52060/jled.v4i1.328

Clifford, J., Merschel, L., & Munné, J. (2013). Surveying the landscape: What is the role of machine translation in language learning? *Journal of Language Teaching and Research, 4*(5), 1082–1089. https://doi.org/10.4304/jltr.4.5.1082-1089

Garcia, I., & Pena, M. I. (2011). Machine translation-assisted language learning: Writing for beginners. *Computer Assisted Language Learning, 24*(5), 471–487. https://doi.org/10.1080/09588221.2011.582687

Groves, M., & Mundt, K. (2014). Friend or foe? Google Translate in language for academic purposes. *English for Specific Purposes, 37*, 112–121. https://doi.org/10.1016/j.esp.2014.09.001

Hutagalung, G., Ningsih, W., Rohliah, L., & Lestari, P. (2024). Google Translate in vocabulary learning: The positive impact and the drawbacks. *Foremost Journal, 5*(1), 4578. https://doi.org/10.33592/foremost.v5i1.4578

Jolley, J. R., & Maimone, L. (2015). Free online machine translation: Use and perceptions by Spanish students and instructors. *Foreign Language Annals, 48*(4), 663–677. https://doi.org/10.1111/flan.12179

Latief, M., Saleh, N., & Pammu, A. (2020). The effectiveness of machine translation to improve the system of translating language on cultural context. *IOP Conference Series: Earth and Environmental Science, 575*, 012178. https://doi.org/10.1088/1755-1315/575/1/012178

Matviienko, L., Khomenko, L., Denysovets, I., Horodenska, K., Nikolashyna, T., & Pavlova, I. (2024). Comparative analysis of online translators in the machine translation system. *Revista Romaneasca pentru Educatie Multidimensionala, 16*(3), 885. https://doi.org/10.18662/rrem/16.3/885

Moelyono, T., Murtisari, E., Kurniawan, D., & Thren, A. (2023). Google Translate in EFL freshmen's writing assignments: Uses, awareness of benefits and drawbacks, and perceived reliance. *Vision: Journal for Language and Foreign Language Learning, 12*(1), 17446. https://doi.org/10.21580/vjv12i217446

Mohammed, O. (2023). Yemeni students utilization of Google Translate for learning English language: Use, advantages, and disadvantages. *Journal of Social Studies, 29*(4), 2242. https://doi.org/10.20428/jss.v29i4.2242

Murtisari, E., Widiningrum, R., Branata, J., & Susanto, R. (2019). Google Translate in language learning: Indonesian EFL students' attitudes. *The Journal of AsiaTEFL, 16*(3), 14–978. https://doi.org/10.18823/asiatefl.2019.16.3.14.978

O'Brien, S. (2012). Translation as human-computer interaction. *Translation Spaces, 1*(1), 101–122. https://doi.org/10.1075/ts.1.05obr

O'Neill, E. (2019). Online translator use in L2 writing: A case study. *Language Learning & Technology, 23*(2), 1–14.

Pham, A., Nguyen, Y., Tran, L., Huynh, K., Le, N., & Huynh, P. (2022). University students' perceptions on the use of Google Translate: Problems and solutions. *International Journal of Emerging Technologies in Learning, 17*, 79–94. https://doi.org/10.3991/ijet.v17i04.28179

Phuong, A., Thi, T., & Nga, N. (2022). Using Google Translate in teaching and learning activities for English-medium-instruction (EMI) subjects. **, 253–258. https://doi.org/10.15439/2021km40

Rao, E., Ampalam, S., & Raju, C. (2025). Evaluating Google Translate as an AI-powered translation tool: Strengths, limitations, and implications for multilingual communication. *Journal of Information Systems Engineering and Management, 10*(54s), 11044. https://doi.org/10.52783/jisem.v10i54s.11044

Sadikhova, S., & Babayev, J. (2025). Challenges encountered in translation of culture-bound and subject-specific terminology while using Google Translate. *EuroGlobal Journal of Linguistics and Language Education, 2*(3). https://doi.org/10.69760/egjlle.2500203

Sutrisno, A. (2020). The accuracy and shortcomings of Google Translate translating English sentences to Indonesian. *Education Quarterly Reviews, 3*(4). https://doi.org/10.31235/osf.io/dz3e2

Tsai, S. C. (2019). Using Google Translate in EFL contexts: Effects on writing. English Language Teaching, 12(3), 38–49.https://doi.org/10.5539/elt.v12n3p38