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An investigation into EFL Students' Perceptions of Using Machine Translation in the Translation Process at Faculty of Education - Tripoli, Libya

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Abstract

The growing use of Machine Translation MT tools has greatly shaped translation education, especially in EFL settings. This study investigated the EFL translation students' perceptions of MT use in the translation learning process at the Faculty of Education, University of Tripoli. Using a quantitative descriptive design, data were collected through a 30-item structured questionnaire from 31 senior undergraduate EFL students. The questionnaire aimed to examine students' MT usage, perceived usefulness, and their perceived challenges. The data were analyzed employing descriptive statistical methods. The findings demonstrated frequent use of MT tools, mainly for vocabulary support, general text comprehension, and improving translation efficiency. Furthermore, the findings revealed that EFL students reported their general positive views toward MT as a complementary learning tool rather than a replacement for human translation. In the meantime, it has been noted that EFL students had a high level of awareness of MT limitations, including contextual inaccuracies and their need for post-editing. These findings emphasized the pedagogical value of integrating MT literacy and post-editing training in EFL students' translation curriculum.

Keywords: machine. translation MT, students' perceptions, translation learning process, EFL setting, translation education programs.

دراسة بحثية حول تصورات طالبات اللغة الإنجليزية كلغة أجنبية لاستخدام الترجمة الآلية في عملية الترجمة في كلية التربية - طرابلس، جامعة طرابلس - ليبيا

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الملخص:

لقد أحدث الاستخدام المتزايد لأدوات الترجمة الآلية تأثيرًا كبيرًا على تعليم الترجمة، لا سيما في بيئات تدريس اللغة الإنجليزية كلغة أجنبية. هدفت هذه الدراسة إلى استقصاء تصورات طالبات الترجمة في كلية التربية بجامعة طرابلس حول استخدام الترجمة الآلية في عملية تعلم الترجمة. وباستخدام تصميم وصفي كمي، جُمعت البيانات من خلال استبيان مُهيكل مكون من 30 بندًا وُجِعَ على 31 طالبة من طالبات السنوات المتقدمة في برنامج اللغة الإنجليزية كلغة أجنبية. سعى الاستبيان إلى دراسة استخدام الطالبات للترجمة الآلية، وفائدتها الملموسة، والتحديات التي يواجهونها. حُلِّلت البيانات باستخدام أساليب إحصائية وصفية. أظهرت النتائج استخدامًا متكررًا لأدوات الترجمة الآلية، لا سيما لدعم المفردات، وفهم النصوص بشكل عام، وتحسين كفاءة الترجمة. علاوة على ذلك، كشفت النتائج أن طالبات اللغة الإنجليزية كلغة أجنبية أبدن آراءً إيجابية عامة تجاه الترجمة الآلية باعتبارها أداة تعليمية مُكمِّلة وليست بديلًا عن الترجمة البشرية. في الوقت نفسه، لوحظ أن طالبات اللغة الإنجليزية كلغة أجنبية لديهن مستوى عالٍ من الوعي بقيود الترجمة الآلية، بما في ذلك عدم الدقة في السياق والحاجة إلى التحرير اللاحق. تؤكد هذه النتائج على القيمة التربوية لدمج مهارات الترجمة الآلية والتدريب على التحرير اللاحق في مناهج الترجمة لطالبات اللغة الإنجليزية كلغة أجنبية.

الكلمات المفتاحية: الترجمة الآلية، تصورات الطلاب، عملية تعلم الترجمة، بيئة اللغة الإنجليزية كلغة أجنبية، برامج تعليم.

1. Introduction

The term Machine translation MT refers to computer-based systems that produce translations between natural languages with or without human involvement (Hutchins & Sommers, 1992). In recent years, MT has witnessed significant advances due to the recent developments of artificial intelligence and neural machine translation, which have led to substantially improved translation fluency and accuracy (Koehn, 2020; Olkhovska & Frolova, 2020).

As a result of these technological developments, machine translation MT has attracted growing attention and has been integrated in translation programs in higher education, most commonly at the postgraduate education level or in the final stages of undergraduate study (Arenas & Moorkens, 2019). Nevertheless, concerns continue regarding the appropriateness of MT for undergraduate EFL learners, especially novice translators, who may lack the skills needed to critically assess the MT outputs (Bowker, 2015). As a consequence, MT training is often excluded from the early stages of undergraduate curriculum, and in some academic institutions, EFL students are discouraged or even prohibited from using MT tools in their academic work and assignments.

Despite these ongoing concerns, empirical evidence demonstrating the negative effects of machine translation MT on novice translation students remains limited. Most existing research has largely focused on postgraduate students or undergraduate in their later stages of their programs (Jia et al., 2019; Wang et al., 2021; Zaretskaya et al., 2016), leaving very little known about how EFL students perceive and use MT during the early phases of translator training and education courses.

1.2 Problem Statement

Despite institutional restrictions, many EFL undergraduate students continue to use machine translation tools autonomously. Given their widespread accessibility and improving quality, EFL students are increasingly likely to rely on MT use during the translation learning process, often without formal explicit instruction or pedagogical guidance (Bowker, 2015). Therefore, understanding novice translators' perceptions and experiences about machine translation is essential since their perspectives can provide valuable insights for curriculum designers and materials developers to support the

effective introduction of MT training at earlier stages of translator education (Arenas & Moorkens, 2019).

1.3 Research Questions

1. What are the EFL undergraduate students' perceptions about the use of machine translation MT in the translation learning process?
2. How do EFL undergraduate students perceive the usefulness of machine translation for their grammar, writing, vocabulary, and translation efficiency?
3. What challenges do EFL students experience when using machine translation tools?

1.4 Research Objectives

The main objectives of this study are as follows:

1. To investigate EFL students' perceptions of using machine translation MT in translation classroom instruction.
2. To identify the perceived usefulness of using machine translation MT for English language learning development and translation tasks.
3. To examine EFL undergraduate students' perceptions of the challenges associated with machine translation tools.

2. Literature Review

Recent studies have indicated that developments in artificial intelligence (AI) and machine learning (ML) have significantly reshaped language learning tasks that traditionally relied on human intervention (Zawacki-Richter et al., 2019; Pym, 2023). In this context, machine translation has witnessed rapid progress from rule-based and statistical approaches to neural machine translation NMT systems that have offered significant improvements in fluency, coherence, and contextual accuracy (Koehn, 2020; Olkhovska & Frolova, 2020).

Neural machine translation NMT employs deep learning architectures which are capable of capturing complex linguistic patterns and long-range contextual relationships. Consequently, NMT systems generally outperform earlier MT models regarding accuracy and naturalness, especially for high-resource language pairs (Koehn, 2020). These technological developments have resulted in the widespread use of MT tools, such as Google

Translate and other AI-based applications, both to support tools for professional translators and independent solutions for real-time and written translation in educational and professional settings.

The increasing use of machine translation MT has generated a debate over its pedagogical values while some comprehension studies argue that MT can be and risks within translation education. a valuable learning aid in supporting, efficiency, and reducing cognitive load (Garcia & Peña, 2011; Niño, 2020; Jolley & Maimone, 2015), others warn that the overreliance on MT may impede the development of essential linguistic and analytical skills, especially among novice translators with limited abilities to evaluate MT output effectively and critically (Bowker, 2015; Wang, 2023).

A large body of empirical research on machine translation in translator training has heavily focused on postgraduate students or advanced undergraduate students at an advanced stage of their education programs (Jia et al., 2019; Zaretskaya et al., 2016; Wang et al., 2021). Findings generally indicate that, when supported by pedagogical guidance, MT especially through post-editing tasks can develop learners' analytical thinking and error awareness skills. However, empirical evidence on undergraduate EFL students in the early stages of translator education remains almost limited, leaving their perceptions, practices, and challenges in MT use underexplored.

Recent research studies in MT have highly valued the importance of MT literacy, referring to students' abilities to understand MT systems, identify their limitations, and critically assess and review their outputs (Kenny & Doherty, 2014; Bowker & BuitragoCiro, 2019). From this perspective, MT is viewed not as a technological shortcut but as a pedagogical tool that can support students' critical thinking skills, meta-linguistic awareness, and their professional translation skills when embedded in a structured instruction.

In EFL settings, where learners often have limited linguistic proficiency and limited exposure to authentic language input, MT can play a key role in supporting language comprehension and meaning construction. However, unregulated use of MT, especially outside formal instruction raises some concerns about its long-term effects on language development and translation skills (Clifford et al., 2013; Lee, 2020).

Against this background, the current study addresses a key gap in the literature by investigating undergraduate EFL translation students' perceptions about using MT at the Faculty of Education, University of Tripoli. Focusing on EFL students in the early stages of translator training, this research study offers context-specific empirical evidence to inform ongoing debates on pedagogical integration of translation education in under-researched EFL contexts.

3. Methodology

3.1 Research Design

This research study adopted a quantitative descriptive design to investigate EFL undergraduate students' perceptions, attitudes, and experiences with machine translation MT in the translation learning process. This approach enabled a systematic description of students' views and the identification of prevailing patterns in MT use within an educational setting.

3.2 Participants

The study consisted of 31 EFL undergraduate translation students in their seventh and eighth semesters at the Faculty of Education, University of Tripoli. All the respondents had completed at least one university-level translation course, providing them with adequate translation training and MT experience to offer informed insights about the MT use in translation learning.

3.3 Research Instrument

The study data were obtained via a self-administered structured questionnaire with two main sections.

Section A: It captured participants' background information, including gender, academic level, previous translation course experience, frequency of MT use, and commonly used tools of MT. Section B: It included 25 items on a Likert-scale measuring students' perceptions of using MT, its perceived usefulness for language and translation skills, and perceived challenges and limitations. Students' responses were recorded and ranged from 1 (Strongly Disagree) to 5 (Strongly Agree).

3.4 Data Collection Procedure

The questionnaire instrument was distributed electronically during the academic semester. Students' participation was voluntary and was informed of the purpose of the study. Anonymity and confidentiality were also maintained to ensure honest and unbiased answers.

3.5 Data Analysis

Data were analyzed employing descriptive statistics, including frequencies, percentages, means, and standard deviations, to identify patterns in students' responses and to address the research questions systematically.

3.6 Validity and Reliability of the Instrument

The quality of the questionnaire was ensured through content validity and internal consistency reliability. The content validity was established by carefully reviewing relevant literature on MT use in EFL and translation education. Some items of the questionnaire were adapted from previous empirical research studies on MT and designed to capture the key constructs of MT use, learning support, and perceived usefulness, while ensuring clarity, relevance and appropriateness for undergraduate translation students.

To assess internal consistency, Cronbach's alpha was calculated for the 25 Likert-scale items in Section B, yielding $\alpha = 0.98$. This excellent reliability suggests that the questionnaire items consistently measure students' perceptions of using machine translation, its perceived usefulness, and some associated challenges. Since thresholds above 0.70 are commonly considered acceptable, the instrument demonstrates a high degree of reliability is therefore acceptable for statistical analysis and interpretation.

4. Results

4.1 EFL Students' Use of machine translation MT in the translation learning process (N = 31).

Table 1.

Items	Statements	Means	S.D
1	I frequently use MT tools during the translation learning process	3.87	0.76
2	I use MT to understand unfamiliar English words	4.29	0.82
3	I use MT to understand the general meaning (gist) of a text	4.00	1.10
4	I use MT to understand the full meaning of a source text	3.48	1.26
5	I use MT mainly to complete academic translation assignments	3.45	1.18
6	MT is an essential tool for me in learning translation	3.89	1.02

As illustrated in Table 1, EFL undergraduate students indicated their frequent and purposeful use of MT, especially with vocabulary comprehension accounting for ($M = 4.29$), and understanding the general meaning of texts with ($M = 4.00$). These high mean scores suggest that MT is considered as a valuable learning aid, while moderate standard deviations indicate some variation levels in students' reliance on these MT tools.

4.2 Perceived usefulness of MT for language learning and translation efficiency.

Table 2

Items	Statements	Means	S.D
7	MT helps me learn new English vocabulary	4.13	0.81
8	MT helps me understand English grammar structures	3.16	1.21
9	MT helps improve my academic writing	3.56	1.15
10	MT helps me translate texts more efficiently	3.94	0.89
11	MT saves time and effort during translation tasks	4.00	1.00
12	MT is faster than translating texts without assistance	4.32	0.65
13	MT is a useful support tool in translation classes	4.03	0.84

Table 2 above illustrates that EFL students generally have positive attitudes regarding MT usefulness, especially with MT speed and efficiency during translation ($M = 4.32$), time-saving benefits of MT ($M = 4.00$) and assist in vocabulary learning with ($M = 4.13$). In contrast, participants' perceptions of MT grammar support were more moderate ($M = 3.16$), indicating their awareness of its limitations in experiencing complex grammatical structures.

4.3 Perceived challenges, risks, and pedagogical attitudes toward MT.

Table 3

Items	Statements	Means	S.D
14	MT sometimes produces grammatically incorrect translations	3.65	1.02
15	MT sometimes provides inaccurate word meanings	3.71	1.04
16	MT does not always consider context appropriately	3.74	1.00
17	MT translations often require revision and post-editing	3.84	1.00
18	Reviewing and editing MT output requires time and effort	3.45	1.18
19	Excessive use of MT may reduce my independent learning	4.00	0.83
20	Using MT too often makes me less dependent on dictionaries and grammar books	3.61	1.12
21	Overreliance on MT may negatively affect my translation skills	3.68	0.98
22	MT should be used under the guidance of translation instructors	3.87	0.99
23	MT should be integrated into translation courses in a controlled and guided manner	4.26	0.68
24	Overall, I have a positive attitude toward using MT	4.10	0.79
25	I would recommend MT tools to other EFL students	4.17	0.79

As can be seen in table 3 above, although EFL students generally had positive attitudes of MT use, they also showed their awareness of MT limitations and challenges associated with its use. As many participants noted that MT can often produce grammatical inaccuracies in translations, give inaccurate word meanings, and fail to fully account for context nuances.

What is more is that EFL students' concerns regarding their overreliance on MT were also apparent as many participants noted that frequent use of MT may hinder independent learning, negatively weaken their translation skills, and reduce their reliance on traditional resources like dictionaries and grammar books. Table 3 above reveals strong awareness of MT limitations, especially in contextual accuracy and the need for post-editing. Overreliance received a high mean score ($M = 4.00$) reflecting critical engagement with MT, while support for guided incorporation of MT into translation courses was even higher ($M = 4.26$), reinforcing its pedagogical importance.

1: Students' use of MT in the translation learning process

Figure 1 below shows EFL students' frequency and purposes of MT use in translation learning. The highest mean scores correspond to using MT for understanding unfamiliar words and understanding the overall meaning of texts, indicating that MT is mainly used as a comprehension and support tool during translation tasks and activities.

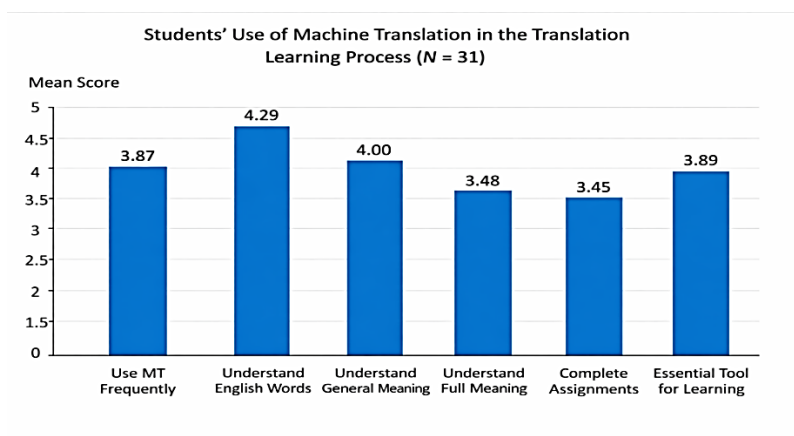


Figure 1: Students' use of MT in the Translation Learning Process (N = 31)

2: Perceived usefulness of MT for language learning and translation efficiency

As shown in Figure 2 below, EFL students strongly agreed the usefulness of MT for improving translation efficiency, saving time, and speeding up the translation process. Vocabulary learning also achieved high ratings, while students' perceptions of MT effectiveness in supporting grammar learning were moderate in comparison.

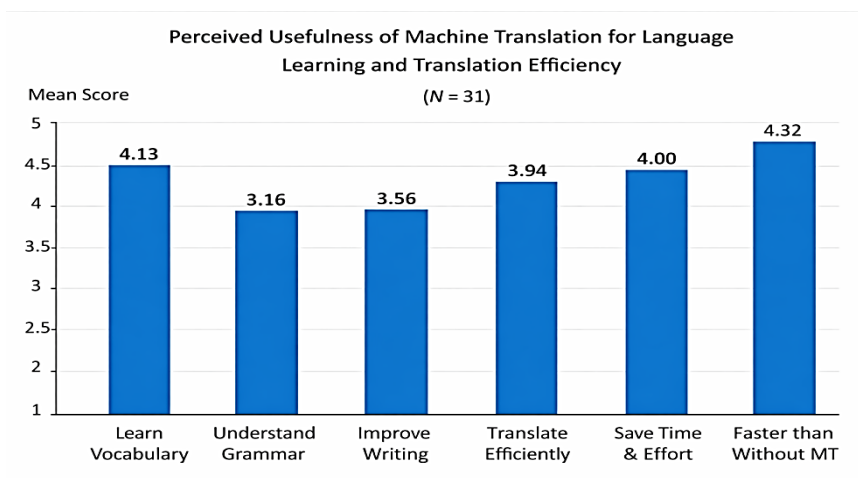


Figure 2: Perceived Usefulness of MT for Language Learning and Translation Efficiency

3. Perceived Challenges and Attitudes toward Machine Translation

Figure 3 below illustrates the EFL students' perceptions of MT challenges and pedagogical attitudes. The participants indicated their strong agreement that MT output often needs post-editing and may contain contextual and lexical inaccuracies. Nonetheless, students held positive attitudes toward MT and strongly supported its guided inclusion into translation course programs.

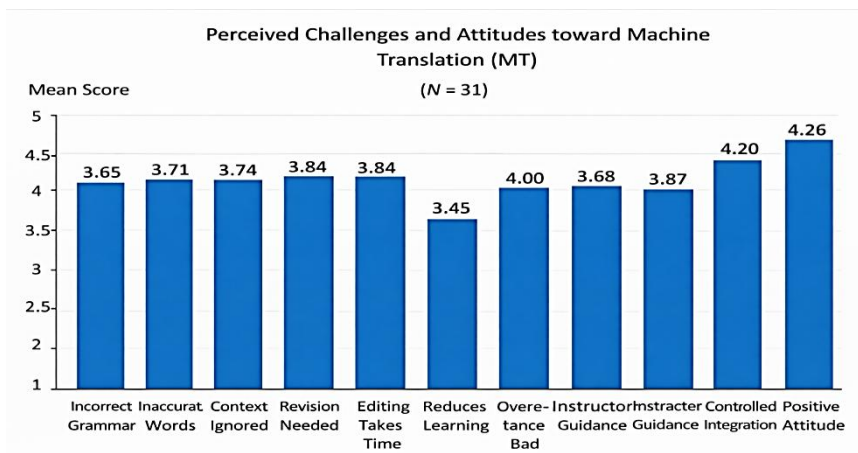


Figure 3: Perceived Challenges and Attitudes toward MT

5. Discussion

The findings obtained in this study indicated that EFL undergraduate translation students at the University of Tripoli generally regard Machine Translation as a supplementary learning tool in the translation learning process. Therefore, in response to the first research question, students expressed their frequent use of MT, mainly when it comes to vocabulary comprehension and understanding the general meaning of texts. This finding indicates that MT serves as a comprehension aid rather than as a substitute for independent translation.

This finding aligns with previous research studies showing that students mainly use MT for gist comprehension and lexical aid rather than for producing final translations (Garcia & Peña, 2011; Jolley & Maimone, 2015; Niño, 2020). Using MT as a preliminary aid indicates students' strategic involvement in technology to reduce cognitive load when handling unfamiliar vocabulary or complex text structures.

With regards to the second question in this study, EFL students considered MT as useful for the development of vocabulary, enhancing grammar understanding, academic writing support, and increasing general translation efficiency. These findings therefore align with previous studies by Alhaisoni and Alhaysony (2017) and Bendaoud et al. (2022), who report that MT can improve learning efficiency and support language processing in EFL settings. Its

time-saving benefits further reinforce its appeal as a practical academic value in demanding academic environments.

The increasing use of some MT tools, such as Google Translate and AI-based applications, reflects international trends, indicating that MT is currently a routine integral part of students' academic work (O'Neill, 2019; Tsai, 2019). More importantly, students' desire to recommend these tools to their peers indicates a change from seeing MT as academically questionable to viewing it as a valuable learning resource. This view supports the arguments made by Pym (2013) and Kenny and Doherty (2014), who state that MT literacy, should be integrated in contemporary translation education (Pym, 2013; Kenny & Doherty, 2014).

In spite of the EFL students' positive attitudes about MT use, the findings of the study also revealed that their awareness of MT limitations was reported. In response to the third research question, participants pointed to some challenges includes contextual inaccuracies, grammatical errors, and their need for post-editing skills, which reflect the findings made by Gaspari et al. (2015) who warned about the MT limitations in dealing with pragmatic, cultural, and discourse-level nuances.

Notably enough, EFL students were aware that reviewing and correcting MT output could demand time and effort, indicating that they engage with MT actively rather than passively. Their evaluative approach to MT-generated translations supports Bowker's (2020) view that MT can promote students' critical thinking skills when integrated into pedagogical practice. However, this finding is significant since it challenges the assumption that undergraduates cannot critically assess their MT output.

EFL students also reported moderate concerns that overreliance on MT could negatively influence their language translation skills. This concern is, therefore, consistent with more recent studies warning that uncritical MT use may reduce students' engagement with traditional learning resources like dictionaries and grammar guides (Clifford et al., 2013; Lee, 2020). However, neutral and dissenting responses suggest the existence of neutral and dissenting responses among EFL indicating that their views are nuanced rather than uniformly negative, which supports the Niño's (2009) argument that the pedagogical effect of MT is heavily dependent in how it is applied rather than on the technological side of it.

Pedagogical Integration of MT

One of the key findings of this study is that students strongly supported the guided inclusion of MT in their translation courses. This finding is therefore, in agreement with previous research supporting instructor-mediated MT use, framing it as a learning tool rather than a replacement for human translation skills (Bowker & BuitragoCiro, 2019).

It is worth noting that EFL students expressed their preference for structured guidance of MT use, thereby reflecting their recognition of the need to develop translation skills, post-editing abilities, and critical evaluation strategies. This, in turn, entails the need for using curricula that explicitly deal with MT literacy, handle its ethical use issues, and develop post-editing skills. Generally, these findings can support the views that MT is neither beneficial nor harmful, and that its educational value stems from its purposeful integration, critical involvement and pedagogical guidance.

Thus, by giving some empirical evidence from a tertiary EFL setting in Libya, the findings of this study can add some insights to the ongoing debates on the use of MT in translation education. This can support the need for curriculum reforms in order to integrate MT literacy and post-editing training skills in the undergraduate translation programs, particularly in EFL settings.

Conclusion

This research study investigated the EFL undergraduate students' perceptions about using Machine Translation MT during the translation learning process at the Faculty of Education, University of Tripoli. Findings showed that students generally held positive attitudes toward MT who regarded it as a supportive learning tool rather than a substitute for human translation competence. They tended to frequently use of MT in order to develop their vocabulary comprehension, increase their understanding of the general meaning of texts, and improve efficiency during translation activities, thereby emphasizing its role as cognitive scaffolding in the early phases of translation learning.

Moreover, EFL students demonstrated a high level of awareness regarding MT limitations, including contextual inaccuracies, grammatical errors, and the need for post-editing skills. It can be suggested that this students' awareness indicates they are not merely

passive users of MT output but have the ability to engage critically with technology when using it. Importantly enough, students reported their concerns about the overreliance on MT, recognizing that uncritical use may negatively hinder the development of independent translation skills.

On the whole, the findings support the view that MT is neither inherently beneficial nor automatically harmful to translation learning. Rather, it's the educational value that matters most on how it is used and the degree of guided, reflective and engaging practices. By investigating EFL undergraduate students in the early phases of translator training in an EFL setting, this research study therefore offers empirical evidence to an underrepresented area of MT research and thereby supports the needs for a pedagogically informed integration of MT into translation educational curricula.

Pedagogical Implications

The results of this study offer several key pedagogical implications for translation educators, curriculum designers, material developers and tertiary education institutions, especially in EFL settings.

First of all, the widespread independent utilization of MT by EFL students, despite the lack of explicit formal instruction, is indicating that existing banning policies are neither realistic nor effective. Translation programs should encourage the presence of MT and include through structured and guided approaches, which reflects contemporary perspectives that consider MT literacy as a core component of modern translation competence.

Second, translation pedagogy should explicitly address MT awareness, limitations, and ethical use. EFL Students should understand how MT systems work, why errors continue to occur, and in which contexts MT output may not be reliable. This type of instruction can reduce overreliance on MT while encouraging the development of critical skills and inform decision-maker.

Third, students' recognition of post-editing needs calls for the need to incorporate post-editing tasks and activities into their translation curriculum. Designing structured post-editing activities can strengthen students' analytical and meta-linguistic skills, and allow them to identify and correct errors in meaning, grammatical

inaccuracies, writing styles, and pragmatics. Undoubtedly, guided post-editing transforms MT from a passive tool into an active learning resource that helps improve deeper learning.

Finally, MT can be useful for undergraduate EFL students when used as a complimentary tool in the early stages of translation learning. When integrated into pedagogy, MT improves comprehension and efficiency without negatively affecting the learning translation skills. Therefore, translation curriculum designers should adopt a balanced approach in which MT should be integrated as a supplementary learning aid that complementary rather than substitutes for the traditional translation pedagogy.

To sum up this research study emphasizes an urgent change from restrictive policies to more informed, guided, and reflective incorporation of MT in translation pedagogy. By supporting MT literacy and post-editing skills as early as possible at the undergraduate level, translation courses can better equip students with contemporary translation practices while maintaining the development of key linguistic and cognitive skills.

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