Vol. 4 No. 3 (2026)

Journal of Social Signs Review

Online ISSN 3006-4651

Print ISSN 3006-466X

Translation Students' Perceptions of the Integration of Artificial Intelligence in Translation Education: Artificial Intelligence in Education: A Constructivist Approach

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Article Details:`

Received on 17 Feb, 2026
Accepted on 02 March,2026
Published on 03 March, 2026

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Abstract

This study explores how translation students perceive and interact with artificial intelligence (AI) in their educational journey, focusing on its applications, their readiness to use it, the challenges they encounter, and their expectations for future training. Guided by Constructivist Learning Theory, a qualitative approach was adopted, analyzing open-ended responses from 45 translation students collected through an online survey via thematic analysis. The findings reveal three core dimensions: (1) Perceptions of AI Integration (students appreciate AI's potential to boost efficiency, productivity, and translation accuracy but worry about overdependence, threats to employment, and the loss of human creativity) (2) Student Readiness for AI-Assisted Translation (marked by uneven access to formal AI instruction and varying levels of self-initiated use, leading to differing degrees of self-efficacy); and (3) Challenges and Future Prospects (highlighting AI's limitations in handling context and culture, ethical dilemmas such as plagiarism and data privacy, and technical shortcomings in output quality). Theoretically, the study enriches Constructivist Learning Theory by demonstrating how active, reflective engagement with AI tools shapes learning and confidence. Practically, it urges translation programs to go beyond superficial AI exposure and integrate structured training in prompt engineering, critical assessment of AI-generated translations, and real-world collaboration with industry stakeholders. By foregrounding student voices, an often-overlooked perspective in AI and translation discourse, this research offers original, actionable recommendations to reshape curricula and prepare future translators to navigate, critique, and ethically leverage AI in professional settings.

Keywords: AI in translator education, Student perceptions of AI, Constructivist learning in translation, AI readiness among translation students, Ethical challenges of AI translation

Vol. 4 No. 3 (2026)

Journal of Social Signs Review

Online ISSN 3006-4651

Print ISSN 3006-466X

Introduction

The rapid advancement of artificial intelligence (AI) technologies has significantly transformed the translation landscape, introducing powerful tools such as neural machine translation systems, AI-enhanced computer-assisted translation (CAT) platforms, and large language models like ChatGPT (Kingchang et al., 2024). These innovations have not only accelerated translation workflows but also raised industry expectations for speed, consistency, and cost efficiency (Nuh et al., 2025). In response, many translation programs have begun incorporating AI-related instruction to align with evolving professional demands. As AI becomes an indispensable component of the modern translator's toolkit, digital competence, defined as the ability to effectively and critically use AI tools, has emerged as a vital professional attribute, directly influencing employability and long-term career viability

Nevertheless, the integration of AI into translator education raises significant concerns among both educators and learners. Critics warn that overreliance on automated systems may undermine the human elements of translation—such as creativity, cultural nuance, and ethical judgment (Mohamed et al., 2024) . Additional anxieties include potential job displacement, erosion of linguistic proficiency, ethical dilemmas related to data privacy and plagiarism, and the risk that students may develop a mechanistic approach to language, neglecting the reflective and interpretive skills crucial for high-quality translation (Hong, 2025). These challenges underscore the need to investigate how student translators perceive, interact with, and prepare for AI in their academic and professional journeys. Understanding their attitudes, experiences, and learning strategies is essential for aligning pedagogical practices with technological realities and for designing curricula that foster both digital fluency and enduring humanistic competencies in the AI era.

Overview of Relevant Literature

AI integration into translator education has transformed pedagogical practices, reshaping the way translation competence is developed. Previous studies in translation technology highlight the shift from traditional teaching to constructivist learning approaches, emphasizing active engagement, learner-centered experiences and critical reflection in the translation classroom (Budhwar et al., 2023). Researchers such as Bahroun et al., (2023) and Lafitte et al. (2025) have emphasized the importance of integrating AI tools within curricula, advocating for task- based learning, blended delivery modes and reflective assessment practices as effective strategies. Moreover, empirical evidence from Sarala et al. (2025) supports that AI technologies significantly enhance translator education when students actively engage in meaningful, technology-enhanced tasks that mirror real-world translation scenarios.

While AI tools offer great benefits in improving translation efficiency and fostering technical skills, research consistently indicates complex student attitudes characterized by both optimism and apprehension. Students frequently recognize AI's potential to boost productivity, enhance translation quality and support creativity (Efri Ekaningrum et al., 2023; Kazmi & Hashim, 2015).

However, several concerns persist regarding potential job displacement, loss of professional autonomy, and diminished human creativity (Westover, 2025) The study by Bastida et al. (2025) further highlights that student engagement with AI-generated

Vol. 4 No. 3 (2026)

Journal of Social Signs Review

Online ISSN 3006-4651

Print ISSN 3006-466X

feedback, although cognitively stimulating, can generate uncertainty and moderate satisfaction, indicating diverse levels of self-efficacy and critical awareness among learners. Moreover, despite increased awareness of AI's advantages and potential threats, pedagogical and ethical challenges remain. Translation trainers face the dual task of promoting AI literacy while ensuring that students retain core translation skills, creativity and ethical responsibility (Mohamed et al., 2025). Recent studies advocate for structured instruction in critical evaluation of AI-generated translations, practical training in prompt engineering, and collaborative opportunities with industry professionals to bridge the gap between academic learning and real-world practice (Mohamed et al., 2025). Additionally, researchers such as (Mentzas et al., 2024) point out the necessity of embedding ethical considerations and reflective practices into translation curricula to mitigate risks such as overreliance on automated solutions, plagiarism and data privacy concerns. Collectively, these studies Li et al. (2025) highlight the critical need to investigate how translation students perceive, utilize, and prepare for AI integration, guiding the design of pedagogical strategies that cultivate technologically competent and ethically aware professional translators.

The Present Study

As AI continues to rapidly develop and increasingly impacts translation education, it becomes critically important to understand how AI and student translators interact within the learning process. Although AI tools have introduced significant efficiencies and practical improvements in translation practice, there remain concerns regarding their potential impact on students' professional competencies, ethical decision-making and cognitive development, especially when translation training relies heavily on automated solutions (Sheehan et al., 2018). Given these concerns, there is an urgent need for research that investigates translation students' perceptions, attitudes, and preparedness for integrating AI into their translation practice. Therefore, the present study specifically aims to explore translation students' perceptions of the role and impact of AI in translation education and practice.

Theoretically, the present study adopts the constructivist learning theory, which emphasizes that learners actively construct their knowledge through authentic interactions and reflections on their experiences (Ullah et al., 2024) . Constructivism argues that effective learning occurs in contexts where learners engage actively, critically, and collaboratively with peers, instructors, and educational tools (Luqman & Antonakakis, 2021) . However, as student translators immerse in AI interaction in translation practice, more attention should be paid to whether they merely passively acquire knowledge of AI or actively engage with AI tools, critically reflect on AI-generated translations, and collaboratively solve translation problems, which enables them to construct personalized understanding and enhance their professional competencies. Therefore, it is essential to examine how student translators negotiate meaning through interactions with AI tools and unlock the interplay between technology, learner cognition, and social environments in translation education (Mohamed et al., 2024).

Despite extensive discussions on the transformative potential of AI technologies in translation education (Yang et al., 2025) there remain notable research gaps regarding how students perceive and practically engage with these technologies in their learning processes. Previous studies have often examined educators' views, pedagogical methods, or theoretical implications of AI integration (Castro et al., 2024). , yet relatively few have

Vol. 4 No. 3 (2026)

Journal of Social Signs Review

Online ISSN 3006-4651

Print ISSN 3006-466X

explicitly explored translation students' real experiences, self-perceptions of readiness, and the specific challenges they encounter when using AI tools. Additionally, the existing studies lack comprehensive insights into students' self-efficacy and critical reflections on ethical concerns, creativity loss, and human–machine collaboration (Castro et al., 2024b) Thus, the present study aims to close these gaps by exploring students' perception of AI integration in translation education so as to help translator trainers tailor pedagogical strategies and curriculum designs. To achieve this, the present study is guided by the following research questions:

RQ1. What are translation students' perceptions of the use and impact of AI in translation practice and education?

RQ2. How prepared do translation students feel to use AI tools in their academic and professional translation tasks?

RQ3. What challenges and support needs do translation students identify in adopting AI tools for translation work?

Methods

Research Design

This study adopts a qualitative research design to explore translation students' perceptions and readiness regarding the use of AI in translation education. Guided by the constructivist learning theory, which emphasizes learners' active construction of knowledge through experience and reflection, the study seeks to explore how students perceive and respond to the integration of AI tools in their learning environment. Thus, the qualitative research method enables researchers to capture in-depth insights into learners' attitudes, experiences, and expectations (Castro et al., 2024a; Mohsin et al., 2025)) . Data were collected through an open-ended survey, allowing participants to freely express their experiences related to their use of AI in translation tasks.

Participants

Out of 100 survey questionnaires distributed to translation students at a higher education institution in China, 45 students completed the survey, resulting in a response rate of 45%. The sample size is appropriate for a qualitative study, as prior research indicates that data saturation, where no new themes emerge, can often be reached with as few as 12–20 participants (Guest et al., 2006). The relatively large sample size of 45 therefore strengthens the credibility and depth of the findings. Participants were purposively selected based on their prior exposure to AI translation tools and active engagement in translation studies, which ensured that all respondents could offer meaningful and informed reflections on the integration of AI in translation education (Yuasa & Takeuchi, 2024).

Demographically, the sample included 18 males (40%) and 27 females (60%). In terms of academic background, 9 participants (20%) were sophomores in a Bachelor of Translation and Interpreting (BTI) program, while the majority, 36 participants (80%), were first-year students enrolled in a Master of Translation and Interpreting (MTI) program. Regarding translation proficiency, 39 students (86.7%) held a CATTI Level 3 certification, and 6 students (13.3%) had achieved CATTI Level 2, indicating that the sample possessed a relatively high level of translation competence. This purposeful selection strategy, focusing on students with direct experience of AI translation tools, enabled the study to capture in-depth insights into students' perceptions, preparedness, and challenges in AI-integrated translation education.

Vol. 4 No. 3 (2026)

Journal of Social Signs Review

Online ISSN 3006-4651

Print ISSN 3006-466X

Data Collection

Data were collected using an online survey administered over two months from November 21, 2024, to January 21, 2025. The survey was presented in English with Pakistani subtitles to aid comprehension and reduce potential language-related response barriers. Distribution was facilitated via both a web link and a QR code, which were primarily shared through WhatsApp, a widely used communication tool among Pakistani university students, to maximize accessibility and participation.

The survey consisted of 14 open-ended questions designed to capture a comprehensive picture of students' perceptions and preparedness regarding AI in translation education. The questions explored students' initial impressions and understanding of AI in translation, perceived benefits and drawbacks, and the anticipated impact of AI on career prospects (Kusuma Nata Laksana & Cahya Komara, 2024). Further items addressed experiences with formal AI-related training, self-directed skill development, specific AI tools used and usage frequency, self- confidence in using AI technologies, challenges encountered and suggestions for support or resources (Castro et al., 2024b; Hong, 2025). To ensure content validity, all survey items were reviewed and validated by two experts in translation and AI-related education (Hair & Alamer, 2022).

Data Analysis

The qualitative survey responses were examined through thematic analysis to identify recurring patterns and key insights into students' perceptions and readiness regarding AI in translation education. The data were coded using the constant comparative method, which involved continuously comparing emerging data segments to refine and categorize codes (Kusuma Nata Laksana & Cahya Komara, 2024) . These initial codes were then grouped into broader themes and subthemes, supported by direct quotes from participants to ensure authenticity and representativeness. In addition, a conceptual analysis was conducted to extract deeper meanings and identify relationships between concepts relevant to the research questions (Nowak, 2025). To enhance analytical depth and support visualization of thematic connections, conceptual mapping was performed, which facilitated the systematic organization of codes and the construction of thematic networks.

Ethical Considerations

This study strictly adhered to established ethical guidelines to protect the rights and privacy of all participants. Participation was entirely voluntary, and students were informed that they could withdraw from the study at any point without any academic or personal consequences. Before participation, each respondent was provided with a consent form outlining the purpose of the study, the nature of the data being collected, and how the information would be used. Only those who provided informed consent were included in the data collection process. All responses were treated with strict confidentiality, and no personally identifiable information was collected or stored. To ensure anonymity, survey data were coded and reported in aggregate form, with any quotations used in the findings anonymized to protect individual identities.

Results and Findings

Overview

Thematic analysis yields three dimensions: D1_Perceptions of AI Integration in Translation Practice and Education, D2_Student Readiness for AI-Enhanced Translation and D3_ Challenges and Future Prospects. Each dimension comprises several key themes, as summarized in Table 1. Specifically, the first dimension explores students' views on the

Vol. 4 No. 3 (2026)

Journal of Social Signs Review

Online ISSN 3006-4651

Print ISSN 3006-466X

application, benefits and career implications of AI in translation. The second-dimension addresses students' exposure to AI training, their frequency and purposes of self-directed use and their self-assessed efficacy. The third dimension identifies perceived limitations in current AI tools and students' suggestions for future translation training directions. These three dimensions answer the RQ1, RQ2 and RQ3, respectively.

Table 1: ***Thematic Analysis Results***

Dimensions	Themes
Perceptions of AI Integration in Translation Practice and Education Student Readiness for AI-Enhanced Translation Challenges and Future Prospects	Perceived Applications of AI in Translation Perceived Benefits and Significance of AI Perceived Impact on Career and Employment Exposure to AI Training in Translation Education Self-Directed Use and Frequency of AI Tools Self-Efficacy in Using AI Technologies Challenges and Limitations in Using AI Tools Future Translation Training Directions

Source(s): Authors owns work

Relating to RQ1

Perceived Applications of AI in Translation

Translation students perceive a wide range of applications for AI in translation practice. Based on Figure 1, it is evident that machine translation tools such as ChatGPT and DeepSeek are perceived as the most common application of AI in translation, receiving the highest number of mentions (n 5 26). As one student stated, "AI tools such as ChatGPT and DeepSeek can help us to translate some text," reflecting a basic but widespread awareness of machine translation use. In addition to general translation, students identified real-time subtitling and voice translation as a key application, often linked with speech recognition technologies: "AI translation, combined with speech recognition technology, can provide real-time subtitles and voice translation." Several students also pointed to image and document translation (n 5 5) enabled by AI's optical character recognition capabilities, such as "recognizing and translating the text in pictures, such as road signs, menus, and other pictures."

Moreover, students highlighted AI's integration into CAT tools, noting that AI helps "manage translation memories and maintain consistent terminology." Other recognized uses included subtitle generation, pre-translation for post-editing, and speech-to-text conversion. Although applications like terminology extraction (n 5 3) and automated quality evaluation (n 5 3) were mentioned less frequently, their presence reflects students' growing awareness of AI's multifaceted roles across the translation workflow. Collectively, these responses suggest that students are increasingly perceiving AI tools as direct translation tools and also leveraging their role for support functions that enhance efficiency, consistency and accessibility in translation practice.

Perceived Benefits and Significance of AI

Students expressed a generally positive perception of AI's role in translation, emphasizing its usefulness in improving efficiency, speed, and translation quality. As shown in Figure 2, high-frequency terms like "translation," "tools," "efficiency," "helpful," "time," and "improve" suggest that students view AI tools as effective assistants in managing large volumes of

Vol. 4 No. 3 (2026)

Journal of Social Signs Review

Online ISSN 3006-4651

Print ISSN 3006-466X

translation work. As one student shared, "AI can help translators handle a large volume of translation tasks and improve translation quality." Others also emphasized the role of AI in improving grammar and fluency, with one student stating that AI "helps me reduce grammatical and spelling errors." Additionally, AI was praised for enhancing productivity and serving as a useful learning aid, especially for beginner translators, by offering "instant suggestions" and supporting "vocabulary building."

Perceived Impact on Career and Employment

Students expressed mixed and insightful perceptions regarding the impact of AI on future translation careers. As highlighted by frequently occurring terms such as "translation," "translators," "human," "replace," and "job" (See Figure 3), many students voiced concerns about potential job displacement caused by AI advancements. For instance, one student reflected, "I am wondering whether it will replace human translators. Employment in the GenAI age is becoming more and more difficult for translation majors." While some viewed AI as a threat to job availability, particularly for entry-level translators, others emphasized its complementary role, stating, "I think AI will make the job more collaborative and I will likely work with machines rather than compete with them." Several responses stressed that although AI may handle routine tasks, human translators will remain essential in areas demanding cultural sensitivity, creativity, and ethical judgment. As one student affirmed, "Translation is more than language. It's about communication, empathy, and understanding people's intentions." Overall, students recognized that adapting to AI by developing new digital skills and specializing in complex fields like legal or literary translation is key to staying competitive and shaping a sustainable career.

Relating to RQ2

Exposure to AI Training in Translation Education

Translation students have been exposed to a wide range of AI-related training activities, suggesting a growing AI integration into translation education. According to Figure 4, among the different forms of training, CAT courses were the most frequently mentioned. These courses provided students with foundational knowledge and hands-on practice using mainstream tools such as Trados and Deja Vu. One student shared, "My school offers a computer-assisted translation course, where we learn to use mainstream translation software such as Deja Vu and Trados. This helps improve both translation efficiency and quality." Another common type of training was direct instruction on how to use AI translation tools (20 mentions), where students learned specific techniques for working with tools such as ChatGPT, DeepL, Baidu Translate and others. For instance, one student claimed, "The CAT course elaborately explained the usage methods of various AI translation tools, including how to input texts, adjust translation settings and optimize the translation results."

Moreover, post-editing and critical evaluation of AI-generated translations were included in some classroom activities and workshops (10 mentions), helping students develop editing skills and raise their awareness of the strengths and limitations of AI output. One student reflected, "We had a workshop focused on comparing AI-generated translations with human translations, and we learned how to identify common machine errors." While less frequently reported, AI-assisted subtitle translation (two mentions) and integration of AI tools into classroom tasks or assignments (five mentions) demonstrate that some programs are taking innovative approaches to embedding AI in practical translation exercises. As one student noted, "Our teacher encouraged us to use ChatGPT to

Vol. 4 No. 3 (2026)

Journal of Social Signs Review

Online ISSN 3006-4651

Print ISSN 3006-466X

paraphrase or Polish our translations, and we discussed its limitations in class." These findings suggest that although the extent and depth of AI-related training vary across programs, students are increasingly being introduced to AI technologies in meaningful and pedagogically diverse ways.

Self-Directed Use and Frequency of AI Tools

Students reported a wide range of self- directed uses of AI tools in their translation practice, indicating diverse learning strategies and levels of engagement. As presented in Figure 5, the most frequently reported activity was AI- assisted drafting and post-editing (14 mentions). Students often used AI tools to generate translations and then refine them. For example, one student noted, "I regularly translate texts with ChatGPT and then revise them myself to identify the tool's strengths and weaknesses." Comparing and analyzing AI translations (12 mentions) was also widely practiced, with one student stating, "I attempt to translate some complex texts and then compare the translation results provided by different tools." In addition, some students (6 mentions) reported using AI to practice translating complex or literary texts, such as, "I look up relevant materials to enhance my ability to use AI translation tools effectively for reading literature."

Using AI for feedback and self-evaluation was another important activity (six mentions) as one student described, "I send my translation to ChatGPT and ask for feedback so that I know how to improve." Additionally, exploring AI features and prompt engineering (six mentions) reflected students' growing digital literacy: "I've been trying to understand how prompt engineering affects translation quality and adjust my prompts accordingly." Moreover, students also leverage the AI tools for vocabulary enhancement and terminology support (six mentions), with a student sharing, "I use AI tools to support my vocabulary building by checking synonyms or alternative expressions." Less commonly, however, students engaged in subtitle translation practice (two mentions), such as "I practice using AI tools for translating subtitles and syncing them with video content." Finally, peer collaboration using AI tools (two mentions) was mentioned by students who used AI in group activities: "We in a team, each use AI to translate a passage and then give feedback on the machine output." Overall, the responses reveal that students are not just passive consumers of AI-generated translations, but rather active users who engage critically and reflectively with the tools to enhance their translation proficiency.

Self-Efficacy in using AI Technologies

In terms of self-efficacy, most students reported a high level of confidence and comfort in using AI translation tools. As reflected in Table 2, 25 out of 45 students fell into the high self-efficacy category, showcasing that the majority of the students feel confident, comfortable, or at east using AI in translation. Qualitatively, for instance, one student stated, "I feel more confident because AI translation significantly improves my efficiency," while another shared, "I feel quite comfortable using AI tools like ChatGPT and DeepL because I've practiced with them a lot and know how to use them effectively." Meanwhile, 16 responses reflected a more moderate or cautious attitude, indicating users are generally capable but maintain a critical approach to AI outputs. One student explained, "I feel comfortable using AI for initial drafts, but I always double-check the output because I don't fully trust it yet." Though the majority of respondents reached a moderate or high self-efficacy of using AI in translation, a smaller portion (n 5 4) though, expressed low self-efficacy or uncertainty. These students often admitted to confusion or a lack of confidence, as seen in one response: "Not really. If I want AI to translate for me, I don't know what

Vol. 4 No. 3 (2026)

Journal of Social Signs Review

Online ISSN 3006-4651

Print ISSN 3006-466X

prompts are best useful." These varying levels of self-efficacy suggest that while most students are embracing AI technologies with growing confidence, some still require targeted support to build competence and trust in using such tools effectively.

Relating to RQ3

Challenges and limitations in using AI tools. Student reflections revealed a wide range of perceived challenges and limitations in using AI tools for translation, with key concerns centering around creativity, cultural understanding and contextual accuracy. As shown in Figure 6, words such as "translating," "cultural," "creativity," "context," "think," "lack" and "errors" appeared prominently, indicating worries about AI's inability to handle diverse types of texts and its effect on students' individual thinking. For example, one student noted that AI tools "lack the creativity and sensitivity required for translating poetry, literature, or culturally rich texts." Others pointed to contextual misunderstanding, as AI often "translates sentence by sentence without understanding the overall flow," resulting in incoherent or inaccurate outputs.

In addition, students also encountered with several ethical issues, including data privacy and plagiarism, especially in handling confidential or sensitive content. For example, one student noted that "I once interned at a military institution, where my main responsibility was to ensure the alignment of military terms. And using AI is prohibited due to confidentiality concerns." Even for students who had been using the AI in translation, several students expressed that over-reliance on AI could lead to a decline in critical thinking and language proficiency, stating that "I rely on it so much that my translation speed or proficiency decline." Last but not least, technical concerns also emerged, including formatting problems, inconsistency in terminology and difficulty in evaluating AI outputs. Overall, while students acknowledge the practical speed and convenience of AI, they caution against its blind use, emphasizing the continued need for human judgment, revision, and ethical awareness in professional translation tasks.

Future Translation Training Directions

As for suggestions for future AI in translation training, students expressed a clear desire for more structured and practical AI-integrated training in future translation education, highlighting four key areas of focus. As shown in Figure 7, many advocated for curriculum and course development (12 mentions), emphasizing the need for "AI-related courses," "post-editing techniques," and "ethical considerations in AI translation" (e.g., "It would be great if our university could offer a dedicated course on AI- assisted translation and post-editing techniques"). Equally prominent was the demand for practical skills and technical training, such as hands-on workshops, prompt engineering, and quality assessment practices. For example, one student noted, "I think it would be helpful to have more hands-on training workshops that teach us how to use AI tools like ChatGPT and DeepL in real translation tasks."

Additionally, students also voiced out that industry engagement and real-world exposure would be vital, with suggestions to "establish cooperative relations with translation companies or technology companies, so that we can exercise and improve their abilities in practice," as well as learning from case studies and guest lectures. Lastly, students requested better resources and learning support, including access to tutorials, AI tool comparisons, and professional-use platforms, with one suggesting "a resource library that includes AI tool comparisons, tutorials, and error analysis examples would support my self-study and skill development." These insights collectively highlight the importance of

Vol. 4 No. 3 (2026)

Journal of Social Signs Review

Online ISSN 3006-4651

Print ISSN 3006-466X

experiential training to better prepare translation students for the AI-integrated future of the profession.

Discussion

Synthesis of the Findings

This study set out to investigate translation students' perceptions, readiness and training needs in relation to the AI integration in translation education. Thematic analysis of the responses revealed three major dimensions: students' perceptions of AI, their readiness for AI-enhanced translation practice and the challenges and future directions for AI-integrated translator training. Broadly, students recognized diverse applications of AI and acknowledged its role in boosting efficiency and supporting translation accuracy, echoing previous empirical research that underscores the transformative impact of technology on translation workflows (Castro et al., 2024a; Yang et al., 2025) . However, students also expressed ambivalence about AI's influence on future employment and professional identity, reflecting both opportunities and anxieties. The first research question is: What are the translation students' perceptions of the use and impact of AI in translation practice and education? The first dimension revealed that students largely viewed AI as a versatile tool, acknowledged for its ability to increase speed, facilitate large-scale text handling, and enhance productivity, which aligns with (Yang et al., 2025) and (Budhwar et al., 2023). Yet, students' concerns extended beyond technical aspects to include questions of human–machine collaboration. While previous studies have pointed to fears of job displacement and declining employment prospects (Bahroun et al., 2023a) , the present research further highlights students' deeper understanding of the enduring need for human intervention in ensuring cultural appropriateness and ethical judgment in translation, extending the conversation toward a more collaborative human–AI collaboration model (Sarala et al., 2025). The second research question is: How prepared do translation students feel to use AI tools in their academic and professional translation tasks? In the second dimension, the present study revealed a moderate but varied level of preparedness among translation students, as reflected in their exposure to formal training and proactive engagement with AI tools. Similar to the work of (Bahroun et al., 2023b), students who participated in CAT courses or explored AI tools independently demonstrated higher self-efficacy and adaptability. Nevertheless, the present study also exposes gaps in students' depth of technical knowledge, particularly in areas like prompt engineering and post-editing. These skills have been identified as essential for future-proofing translators' careers (Panda & Kaur, 2023). While earlier research recommends hands-on, experiential learning environments (Brass et al., 2023) , this study finds that the integration of structured, curriculum-based AI training remains uneven, highlighting the urgency for systematic pedagogical interventions and industry collaboration.

The third research question is: What challenges and support needs do translation students identify in adopting AI tools for translation work? This study found that students identified several challenges and limitations in using AI, notably the risk of reduced creativity, overreliance on automated output, insufficient contextual awareness, and heightened ethical concerns, which correlate with Sánchez-Castany (2025) and Sheehan et al. (2018) These issues illustrate technical limitations of AI integration in translation education and thus highlight the broader need for critical and ethical engagement with AI. The voice from students for more contextualized training, industry-oriented workshops and access to expert resources is consistent with prior studies, which advocate for a rebalancing of

Vol. 4 No. 3 (2026)

Journal of Social Signs Review

Online ISSN 3006-4651

Print ISSN 3006-466X

translation curricula to incorporate both digital literacy, ethical reflection and enterprise-led collaboration between industries, universities and research institutes.

In conclusion, this study advances the field by foregrounding students' real experiences and the evolving expectations placed on future translators in the age of AI. While students recognize AI's value in streamlining translation tasks, they also caution against its unchecked adoption and emphasize the ongoing importance of human oversight, critical thinking, and continuous professional development. The findings of the present study, together with previous studies, underscore the necessity for translation education to move toward a learning model that embraces AI and cultivates the reflective, adaptive, and ethically responsible translators required in an increasingly AI-driven world.

Theoretical Implications

The present study advances constructivist learning theory by evidencing how AI integration in translation education transforms both learning processes and student roles. The findings of this study demonstrate that when students actively engage with AI tools, they move beyond traditional, passive learning models to become co-constructors of both linguistic and digital knowledge. This positions AI not merely as a digital support tool but as an integral component in facilitating learner autonomy, digital literacy, and critical thinking within translation training. Such results reinforce and extend recent research (e.g. Efri Ekaningrum et al., 2023; Teja & Student, 2025), which highlights the need for constructivist pedagogies to adapt and expand in technologically mediated learning environments.

Theoretically, this study suggests that future research on AI in translation education should further explore the dynamic interplay between human and machine agency in collaborative learning environments. Thus, there is a need to investigate how constructivist-oriented tasks, such as project-based AI translation projects, peer review of machine translation, and ethical use of AI translation, can maximize the benefits of AI while mitigating risks of over-reliance and skill atrophy. Additionally, research should also examine how AI integration influences the evolution of translator identity, professional competence, and the cultivation of lifelong learning habits. By foregrounding the interaction between AI technologies and constructivist pedagogy, this study opens new avenues for the design and assessment of innovative, contextually relevant training models that prepare future translators for rapidly changing professional landscapes.

Pedagogical Implications

The findings of this study offer several concrete and actionable implications for the design and delivery of translation education in the era of AI integration. Firstly, the results highlight the necessity for translator trainers to adopt a scaffolded approach to AI integration in the translation curriculum. Students benefit most when they receive not only foundational training on mainstream translation technologies such as CAT tools and popular AI translators, but also explicit instruction on advanced functionalities, critical evaluation, and post-editing skills. Based on frequent student calls for more hands-on practice and post-editing workshops, curricula should include dedicated modules on AI-assisted translation, error analysis and prompt engineering. Such modules, as evidenced by Mohamed et al. (2024) and Einola & Khoreva (2023)could provide authentic tasks where students experiment with multiple AI tools, compare outputs, and engage in collaborative review. Embedding these activities within core courses, rather than treating them as add-ons, will help future translators internalize best practices for AI collaboration and position them as critical, reflective technology users.

Vol. 4 No. 3 (2026)

Journal of Social Signs Review

Online ISSN 3006-4651

Print ISSN 3006-466X

Secondly, the findings underscore the importance of fostering critical digital literacy and ethical awareness throughout translation training. Many students voiced concerns about the risks of over-reliance on AI, data privacy and declining translation proficiency. Pedagogically, this means educators must design learning experiences that explicitly address not only the strengths but also the limitations and ethical challenges of AI tools. For example, incorporating structured debates, real-world case studies on confidentiality breaches and guided reflections on the role of human agency in post-editing can sensitize students to the boundaries of AI (Sarala et al., 2025). Moreover, assessment criteria should reward students for demonstrating ethical judgment, critical evaluation of AI-generated outputs and independent problem-solving. Trainer development programs should also keep instructors abreast of AI's evolving capabilities and risks, enabling them to guide students in building balanced, responsible technology habits.

Last but not least, the study points to the need for greater alignment between translation education and the evolving demands of the profession, achieved through sustained industry engagement and diversified learning support. Students recommended industry partnerships, guest lectures and internships that provide exposure to real-world translation workflows using AI tools. Collaborative projects with industry experts can help students understand market expectations, the value of teamwork in AI-enhanced environments and the ongoing need for creativity and specialization. In addition, educators should curate accessible resources such as comparative tool libraries, video tutorials, and annotated examples of AI post-editing for independent learning. Incorporating gamified terminology acquisition, peer collaboration exercises and AI-driven feedback platforms can increase engagement and motivation (Efri Ekaningrum et al., 2023) . Finally, regular curriculum development should incorporate student feedback, emerging technological trends and industrial experts to ensure that translation programs remain relevant and future-oriented, equipping graduates with the adaptability and competencies essential for success in an AI-driven translation industry.

Conclusion, Limitations and Future Research

This study explored translation students' perceptions, readiness and challenges related to the integration of AI technologies in translation education. The findings revealed that students generally recognize the wide-ranging applications and benefits of AI in translation, particularly in improving efficiency, accuracy, and workflow. However, they also expressed concerns about AI's limitations, including lack of creativity, contextual understanding and potential impacts on future employment. While many students have received basic training in AI tools and actively use them in self-directed learning, their self-efficacy levels vary, indicating the need for more structured, practical, and critical training. Ultimately, students viewed AI as a valuable complement rather than a replacement to human translation, and they expressed their desire for future translation education to better prepare them for the evolving digital landscape.

Despite offering insights into AI integration in translation education, this study has certain limitations. First, it relies on self-reported data from a limited sample, which may not fully capture the diversity of experiences across different institutions or cultural contexts. Second, while this study focused on translation students at a Chinese university, the findings may manifest differently in other cultural or institutional contexts since factors such as institutional policy, resource availability, and attitudes toward AI may shape both the perceived opportunities and challenges of integrating AI in translation training. Third, the

Journal of Social Signs Review

Online ISSN 3006-4651

Print ISSN 3006-466X

qualitative nature of the responses, while rich in detail, may be influenced by individual biases or varying levels of technological familiarity among participants. Last, the study is underpinned by constructivist learning theory, which, while effective in illuminating the active and social dimensions of AI integration, may not account for other relevant theoretical perspectives. This theoretical focus may thus restrict the generalizability of the findings beyond constructivist- informed settings.

Therefore, future research could address these limitations by employing a mixed-methods design, expanding the sample to include instructors, industry professionals, and learners from diverse backgrounds, and investigating long-term learning outcomes and transfer effects of AI-integrated translation training. In addition, future research could adopt a cross-national approach by including more diverse cultural and institutional contexts, thereby providing a deeper understanding of how various factors shape students' perceptions and engagement with AI in translation education. Moreover, comparative studies using alternative or complementary theoretical frameworks such as sociocultural theory, self-determination theory, technological acceptance models (TAM), or Unified Theory of Acceptance and Use of Technology (UTAUT) could provide a more holistic understanding of how AI transforms translator education. Last but not least, emerging research should explore discipline-specific applications of AI, ethical considerations, and the development of adaptable pedagogical frameworks. These avenues would contribute meaningfully to advancing both theory and practice in AI-informed translation education.

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