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TRANSLATION IN THE AGE OF AI: CHALLENGES, OPPORTUNITIES, AND THE NEED FOR INNOVATION IN TRANSLATION EDUCATION

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Abstract: **The rapid development of information technology and artificial intelligence (AI) in the 21st century has significantly reshaped the translation industry. While AI brings innovative tools and expands the scope of language services, it also poses complex challenges that require new competencies and adaptive learning strategies. The essay begins by examining how recent technological advancements have brought significant opportunities to translation while also challenging foreign language education, thereby reshaping public perception of translation education. In light of the profound impacts of AI translation tools, the increasing competition in the job market, and the limitations and challenges that artificial intelligence cannot address, translation educators need to accurately assess these issues. Consequently, university translation departments should adjust their educational strategies to keep pace with the rapid development of artificial intelligence. Interpreter training programs need to integrate translation technology into the curriculum and shift the goal of training interpreters toward nurturing interdisciplinary talents, capable in both translation and language technology. Selective integration of translation technology should be supported. Universities can develop training programs tailored to students' diverse backgrounds, aiming to produce machine translation graduates who excel primarily in translation and, secondarily, in technology, or who excel primarily in technology and, secondarily, in translation. Moreover, technology-related courses can be selectively added to the curriculum based on learning objectives and the faculty's expertise.**

Keywords: **AI translation, translation education, artificial intelligence, translation industry, teaching translation.**

1. INTRODUCTION

In the context of global digital transformation, artificial intelligence (AI) is emerging as a technology with a profound impact across many fields, with education among the most significantly affected areas. The rapid development of AI systems has changed how people access knowledge and has also driven innovation in teaching and learning methods. Within the scope of applied linguistics, AI not only helps learners access information more quickly and efficiently but also helps reshape traditional teaching methods, especially in translation training—a field that requires precision, contextual understanding, and the handling of cultural nuances. Translation is not merely the process of converting text; it is also the recreation of a message from the source language to the target language, ensuring fidelity and cultural appropriateness while achieving communication goals. The rapid development of artificial intelligence (AI), especially in the field of translation, has generated multifaceted reactions within the academic community. Different perspectives not only reflect the diversity in technological approaches but also reveal deep concerns about the quality of education, language proficiency, and the role

of humans in the learning process. AI translation tools have created many valuable opportunities for users, as well as for education and training in the field of translation.

Traditional translation is a manual process that requires the translator to have a deep understanding of both the source and target languages, as well as to grasp the expressive nuances, communication goals, and cultural characteristics of the text. Translation is a complex decision-making process in which the translator continuously weighs the demands of fidelity against the audience's receptiveness (Pym, 2014). In contrast, translation with AI support is seen as a model that combines machine translation technology with human post-editing. AI tools can quickly generate initial translations, helping learners save time and focus more on semantic analysis, editing, and refining the translation. According to García (2010), machine translation is no longer just a temporary support tool but has become an indispensable part of the modern translation process.

However, although AI translation technology has advantages in speed and processing efficiency, this technology still reveals limitations in grasping complex linguistic phenomena such as idioms, cultural implications, or subtle expressive nuances, and poses several challenges that need to be addressed to optimize the use of AI in foreign language training in general and translation in particular. Therefore, in the context of translation teaching, learners need to be trained not only to utilize AI as a supportive tool but also to develop post-editing skills, critical thinking, and comprehensive language proficiency to ensure the quality of translations.

2. OVERVIEW OF THE DOCUMENT

The rapid development of artificial intelligence (AI) technology has profoundly shaped the translation industry, introducing powerful tools enhanced by AI and generative language models like ChatGPT (Kornacki & Pietrzak, 2024). Tools like ChatGPT have the ability to analyze translation errors, suggest improvements, and explain semantics, thereby helping learners gain a deeper understanding of language and pragmatics (Kuddus, 2022). These technologies have simplified the translation process while raising expectations for faster completion times, improved consistency, and cost-saving solutions in professional environments (Zou et al, 2025). Artificial intelligence (AI) can be integrated into translation teaching through various forms. First of all, instructors can use AI to create automated translation exercises, thereby helping students practice regularly and receive almost instant feedback (Bowker, 2002). As artificial intelligence becomes a central component in the toolkit of modern translators, digital literacy, referring to familiarity with AI tools and their practical applications, is now considered an important professional skill that directly impacts job prospects and long-term career development (Yang, 2025). To meet this technological shift, many translation training programs have begun integrating AI-related training to better prepare students to meet the industry's increasingly evolving demands (Zaghlool & Khasawneh, 2023).

The integration of artificial intelligence (AI) into translation education has transformed pedagogical methods, reshaping the way translation competence is developed. Researchers such as Kim et al. (2022) and Zaghlool and Khasawneh (2023) have emphasized the importance of integrating AI tools into the curriculum, advocating for task-based learning, blended teaching methods, and assessment practices as effective strategies. Previous studies on translation technology emphasize the shift from traditional teaching methods to constructivist learning approaches, highlighting active participation, learner-centered experiences, and critical reflection in translation classrooms (Kenny, 2019). Furthermore, empirical evidence from Wang (2023) shows that AI technology significantly enhances translation education when students actively engage in meaningful tasks, supported by technology, reflecting real translation scenarios.

The integration of AI technology into translation training is accompanied by significant concerns from educators and students. Many people fear that increasing reliance on AI could diminish the importance of human expertise and creativity in translation practice (Kruk and Kałużna, 2025). The challenges of using AI translation tools highlight the need to consider how translation students perceive and leverage AI in their translation practices. Understanding their attitudes, experiences, and strategies is crucial to bridging the gap between technological innovation and professional training. Improving the design of translation education programs to promote digital competencies and essential humanistic skills in the AI era is extremely important. Moreover, despite the increasing awareness of the advantages and potential threats of AI, pedagogical and ethical challenges still persist. Translation: Translation trainers face the dual task of promoting knowledge about AI while ensuring that students maintain core translation skills, creativity, and ethical responsibility (Mohamed et al., 2024). Recent studies support structured teaching on critically evaluating AI-generated translations, practical training in rapid translation techniques, and opportunities for collaboration with industry experts to bridge the gap between academic learning and real-world practice. Additionally, other researchers point out the necessity of integrating ethical considerations and reflective practices into the translation curriculum to mitigate risks such as over-reliance on automated solutions,

plagiarism, and data security issues. Overall, these studies emphasize the urgent need to research how translation students perceive, use, and prepare for the integration of artificial intelligence, thereby guiding the design of pedagogical strategies aimed at training professional translators with technological competence and an awareness of professional ethics.

As artificial intelligence (AI) continues to develop rapidly and increasingly impacts translation education, understanding the interaction between AI and translation students during the learning process becomes extremely important. Although AI tools have brought significant efficiency and practical improvements in translation practice, there are still concerns about their potential impact on professional competence, ethical decision-making ability, and the cognitive development of students, especially when translation training heavily relies on automation solutions. Therefore, this study aims to clarify the opportunities that AI translation tools bring, as well as the challenges these tools pose for language and translation students, thereby setting forth the need for innovations in translation education and training in the era of AI translation technology application as it stands today.

3. METHODS

The article is based on the process of investigating and analyzing the impact of AI translation tools on translators, thereby drawing out the challenges and opportunities that AI translation presents today. In addition, a survey was conducted to investigate the impact of artificial intelligence (AI) on translation work from the perspective of 100 third-year students at the Academy of Journalism and Communication. The participants were selected because they voluntarily engaged in translation research and are likely to have practical experience with AI-assisted translation tools. The online survey method was chosen to collect data because it is quick, cost-effective, and reaches more participants than other methods. This survey was conducted online, allowing most students to participate. The purpose of the survey is to address the research question of what opportunities AI translation brings to users and what challenges AI translation currently poses, and from there, what innovations are needed in the teaching of translation at universities.

4. RESULTS AND DISCUSSIONS

4.1. Opportunities Presented by AI in Translation

One is that AI helps enhance accessibility. AI-powered translation systems have made translation services more accessible than ever. These tools provide instant translations for many languages, allowing users to overcome language barriers without professional assistance. This accessibility benefits not only individuals but also groups and global organizations, allowing them to engage more broadly in international communication.

Secondly, speed and cost-effectiveness. Machine translation systems process large volumes of text at unprecedented speeds, significantly reducing the time and costs associated with traditional translation methods. This efficiency is particularly beneficial for industries handling large-scale multilingual projects, such as e-commerce, media, and international trade. The ability to translate documents quickly and on a large scale supports global expansion and operational flexibility.

Thirdly, real-time communication. Advances in AI have enabled real-time translation for text, voice, and images, facilitating instant interaction between languages. These capabilities are crucial for enhancing communication in personal, professional, and educational contexts. AI-supported systems, including voice recognition tools and chat platforms, are helping to bridge language gaps in real-time, promoting more effective multicultural dialog.

Fourth, enhancing collaboration between humans and AI. AI has supported the workflow of translators by creating initial drafts that can be refined to ensure accuracy and cultural relevance. This collaboration enhances productivity and ensures high-quality translations by leveraging both the efficiency of AI and human expertise. The combination of machine-generated accuracy and human contextual understanding is crucial for delicate fields such as legal and medical translation.

Fifth, bridging the language gap in education. In fact, artificial intelligence (AI) also plays a key role in education, expanding access to multilingual resources and allowing learners and educators to interact with materials in multiple languages. Tools that provide real-time translation and support personalization facilitate language acquisition and improve access to educational content worldwide.

Sixth, expanding language research and training. AI-based translation technology has opened up new directions for language research and training. By analyzing large-scale multilingual datasets, these systems contribute to a deeper understanding of language structures and patterns. They also enhance language learning platforms by providing instant feedback and deep insights tailored to the needs of each learner.

The integration of AI into translation has redefined the field by providing unprecedented accessibility, speed, and collaboration opportunities. These advancements have empowered individuals and organizations to effectively overcome language barriers, enhance global communication, and promote inclusivity. However, addressing the limitations of AI remains crucial to fully harness its potential while preserving the richness of linguistic and cultural diversity.

4.2. Challenges of AI Translation

Although artificial intelligence (AI) has revolutionized translation, it also faces significant challenges affecting its reliability and effectiveness. These challenges, stemming from the complexity of language, cultural nuances, and ethical considerations, highlight the limitations of AI-assisted tools in certain contexts. Addressing these issues is essential to ensure that AI translation systems support accurate and culturally sensitive communication. The topic of AI translation is rapidly developing and has the potential to completely change the way we interact with languages. Before AI translation can be used to accurately and reliably translate all forms of text, there are still some issues that need to be addressed.

A notable challenge is the lack of cultural nuance in translated texts. In some translation cases, cultural nuances, humor, and context must be preserved; however, AI translation systems often struggle with this. In fact, the culture of each region, each country, and each language is different, so an AI translation system may not accurately convey the emotional nuances and cultural language appropriate for the target audience. Machine translation models struggle with translating text due to the structural and syntactic differences between languages. Many researchers have also pointed out the difficulties in translating chemical nomenclature, including the requirement to be proficient in the latest terminology in both the source and target languages, as well as the cultural and historical significance of the names. Moreover, handling idioms, metaphors, and cultural nuances, as well as languages with limited resources, where the lack of training data can severely impact translation accuracy.

AI translation systems face significant ethical challenges, especially in sensitive fields such as medical, legal, and diplomatic translation. These fields require precision, accountability, and a deep understanding of specialized terminology, which AI tools often do not provide. Errors in these contexts can have serious consequences, from misdiagnoses in medical translation to legal disputes due to inaccuracies in contracts or agreements. For example, incorrect translation of medical diagnoses or prescriptions can endanger patient health, while errors in legal texts can lead to breaches of contract or international misunderstandings (Ismayilli, 2024). Furthermore, the lack of accountability in machine-generated translations raises ethical concerns regarding legal liability in the event of errors. Human oversight is still essential to ensure that translations in such contexts meet the necessary standards of accuracy and cultural appropriateness. A common scenario can be observed when language choices are made due to biases that may favor certain dialects or regional idioms over others. In addition, the field of AI translation evaluation and the development of effective quality control methods is very complex, characterized by nuances and difficulties that require thorough research. The complexity of language and the inherent subjectivity in evaluating translation quality make it difficult to effectively assess AI translations. AI translation models often excel at producing translations that closely match the reference text but may struggle to accurately convey the intended meaning. This limitation necessitates the exploration and development of new evaluation metrics that go beyond mere lexical accuracy and delve into the subtle nuances of meaning, fluency, and cultural appropriateness. Additionally, Massey and Wieder (2019) studied the interaction between corporate communication and quality assurance in translation and reported that an increasing number of critical fields, including business, law, and healthcare, are using translation. Therefore, it is important to ensure that translations are accurate, reliable, and culturally appropriate.

An important challenge is the collaboration between human translation and artificial intelligence (AI). A careful and flexible approach is needed to effectively collaborate between human translators and AI technology in the field of translation. To achieve accurate translations that carry cultural nuances and are contextually appropriate, it is important to strike the right balance between the talents of human linguists and the capabilities of AI models. Although not perfect, AI translation systems can still be useful for human translators, especially when used collaboratively, as AI systems can translate much faster than human translators and into more languages.

During the survey, there were numerous concerns about the limitations of using AI. More than 70% of students agree or strongly agree that AI limits the ability to understand language, context, and culture. Additionally, 72% of students believe that using AI diminishes the creativity and uniqueness in translations. On the other hand, 71% are concerned that AI is limited in handling complex texts, and 78% believe that AI restricts students' ability to evaluate and analyze. Especially,

81% of students believe that there is an unavoidable risk in overly relying on technology like AI. Many students also emphasized the importance of maintaining critical thinking and creativity skills in translation, and they are concerned that AI tools could limit human involvement in the decision-making process. Regarding ethical factors, they are concerned about biases embedded in AI algorithms, so instructors need to carefully implement the integration of AI in translation classes.

4.3. The necessity of innovation in Translation Education

According to Phuong và cộng sự (2025), the findings indicate that both students and lecturers demonstrate a high level of readiness and positive disposition toward AI, yet their applications remain fragmented and inconsistent across courses and institutions. AI-based tools such as ChatGPT, Google Translate, and DeepL are widely used to enhance vocabulary learning, post-editing,and comparative translation analysis. However, the pedagogicaluse ofAIstill lacks systematic guidance, resulting in uneven outcomes. Therefore, the study concludes that a controlled, pedagogically guided approach to AI integration is essential. AI should not substitute human cognition but rather function as a co-agent that stimulates critical reflection, creativity, and ethical awareness in translation learning. The findings emphasize that sustainable innovation in translator education depends on balancing technological capability with humanistic pedagogy and institutional responsibility (Phuong et al., 2025).

Integrating AI into translation teaching is not just a technological trend but also a strategic requirement in the context of modern education. However, for AI to be effective in the academic environment, appropriate integrated teaching methods are needed to ensure a balance between technology and human capability. First of all, learners need to be trained in post-editing skills for AI-generated translations. This is an essential skill that helps students not only detect grammatical, syntactic, and semantic errors but also adjust the translation according to contextual requirements, expressive nuances, and communication goals, thereby ensuring both the quality of the translation and the maintenance of personal creativity. In addition, the curriculum needs to integrate activities that develop critical thinking. Comparing AI-generated translations with manual translations and analyzing differences in vocabulary, style, and pragmatics will help learners gain a deeper understanding of the language and the ability to choose appropriate translation methods. Activities such as group critical discussions, multi-dimensional context analysis, or translating symbolic texts can contribute to cultivating the ability to appreciate language and process complex information.

Instructors play a central role in designing learning content, selecting appropriate AI tools, and guiding students to use technology effectively and ethically. Training lecturers in translation technology is a prerequisite for successfully implementing an AI-integrated teaching model. Therefore, training institutions need to organize workshops, specialized seminars, and build a community of technologically proficient instructors to create a modern and sustainable learning environment. In the context of AI becoming increasingly intertwined with professional translation, the development of a new translation competency framework is absolutely essential. This competency framework not only inherits the traditional requirements of the translation profession but also extends to technological skills and academic ethics. Specifically, learners need to develop language skills to flexibly apply both the source and target languages; possess technological skills to effectively utilize machine translation tools, translation support software, and large language models; in addition, they need post-editing skills to evaluate, edit, and improve AI-generated translations; critical thinking skills to analyze context, handle cultural factors, and make appropriate translation choices are essential; and finally, ethical skills to clearly understand issues related to intellectual property, plagiarism, algorithm transparency, and academic responsibility in using AI. This competency framework can be integrated into the output standards of translation training programs, thereby helping learners develop comprehensively and adapt to the modern professional environment. The application of the competency framework also contributes to standardizing the teaching process, while providing a basis for objectively assessing learners' competencies in line with translation practices.

Universities should establish comprehensive and clear policies on the ethical and responsible use of artificial intelligence in academic activities to protect integrity and transparency in academia. At the same time, higher education institutions should integrate AI knowledge modules into the curriculum to enhance students' understanding of AI concepts, limitations, and ethical impacts, thereby promoting the informed and critical use of these technologies. School policymakers should also provide continuous professional development programs for educators to enhance their ability to effectively integrate AI tools into teaching and assessment practices. Furthermore, standardized assessment guidelines need to be developed to clarify the permissible use of AI in courses and evaluations, reducing ambiguity between departments. To address ethical

and legal concerns, universities should strengthen data governance and privacy protection frameworks in compliance with national regulations. Policymakers should promote equitable access to AI resources and encourage interdisciplinary collaboration to ensure that university AI policies remain inclusive, adaptive, and responsive to technological advancements. Future research should explore the use of AI in different fields of study to determine whether students in areas such as engineering, social sciences, or health sciences have different AI experiences.

5. CONCLUSION

The integration of artificial intelligence (AI) into the field of translation has ushered in a new era of accessibility, efficiency, and scalability. AI-assisted tools have revolutionized the translation process by enabling real-time communication, reducing costs, and expanding the scope of language services to individuals and organizations worldwide. However, no matter how groundbreaking these advancements are, they also come with significant challenges. AI struggles to interpret idioms, cultural nuances, and ambiguous contexts, often leading to inaccuracies. Moreover, ethical issues, including bias in training data and the potential homogenization of linguistic diversity, further complicate the application of AI in sensitive fields such as legal, medical, and diplomatic translation. To fully leverage the opportunities that artificial intelligence offers in learning and teaching translation, and to address the challenges as analyzed above, educators and universities teaching languages and translation need to clearly recognize these issues. This recognition should lead to appropriate and effective changes in policies and teaching methods to keep pace with the rapid development of science and technology in general, and artificial intelligence in particular, while affirming the irreplaceable role of humans in translation activities. Finally, with the rapid development of AI technology, comparative studies between universities or countries are needed to capture broader trends and provide deeper insights into how cultural, educational, and technological contexts shape the application of AI in higher education./.

REFERENCES

[1] Bowker, L. (2002). *Computer-aided translation technology: A practical introduction*. University of ottawa Press.

[2] Ismail, Zitty & Maharani, Rosika. (2026). Artificial Intelligence in University Learning: Student Usage Patterns, Perceived Impact, and Ethical Considerations. *Journal of Education and Learning Reviews*. 3. e2719. https://doi.org/10.60027/jelr.2026.e2719

[3] Ismayilli, T. (2024). Navigating Complexities in Medical Text Translation: Challenges, Strategies, and Solutions. *Acta Globalis Humanitatis Et Linguarum*, 1(2), 170-176. https://doi.org/10.69760/aghel.01024080

[4] Kenny, D. (2019). "*Technology and translator training*". The Routledge Handbook of Translation and Technology, Routledge, London, pp. 498-515.

[5] Khoual, Mohamed & Elkaimbillah, Zineb & Asri, Bouchra. (2024). *Significance and Impact of AI on Pedagogical Learning: A Case Study of Moroccan Students at the Faculty of Legal and Economics*, In book: Artificial Intelligence, Data Science and Applications (pp.124-129), doi: https://doi.org/10.1007/978-3-031-48573-2_18

[6] Kim, J., Lee, H. and Cho, Y.H. (2022), "Learning design to support student-AI collaboration: perspectives of leading teachers for AI in education", *Education and Information Technologies*, Vol. 27 No. 5, pp. 6069-6104, doi: https://doi.org/10.1007/s10639-021-10831-6

[7] Kornacki, M., & Pietrzak, P. (2024). *Hybrid workflows in translation: Integrating GenAI into translator training*. Routledge.

[8] Kruk, M., & Kałużna, A. (2024). Investigating the role of AI tools in enhancing translation skills, emotional experiences, and motivation in L2 learning. *European Journal of Education*. https://doi.org/10.1111/ejed.12859

[9] Kuddus, K. (2022). Artificial intelligence in language learning: Practices and prospects. *Advanced analytics and deep learning models*, 1-17. https://doi.org/10.1002/9781119792437.ch1

[10] Massey, G., & Wieder, R. (2019). Educating for an interprofessional future: translation and organisational communication. In *9th Congress of the European Society for Translation Studies (EST 2019), Stellenbosch, South Africa, 9-13 September 2019* (pp. 81-82). Stellenbosch University.

[11] Nguyen Thi Viet Phuong, Pham Thi Huong & Pham Phuong Lan. Integrating AI-Based Machine Translation in Translation Pedagogy: Evidence from a Mixed-Methods Study in Vietnam. *Education Language and Sociology Research* 6(4):p37. November 2025. https://doi.org/10.22158/elsr.v6n4p37

[12] Pym, A. (2014). Translation skill-sets in a machine-translation age. *Meta: Journal des traducteurs*, 58(3), 487–503. https://doi.org/10.7202/1025047ar

[13] Wang, Y. (2023). "Artificial intelligence technologies in college English translation teaching", *Journal of Psycholinguistic Research*. Vol. 52 No. 5, pp. 1525-1544, doi: https://doi.org/10.1007/s10936-023-09960-5

[14] Yang, C. (2025). "Exploring essential personality traits for professional interpreters: a Delphi method study". *Frontiers in Education*, Vol. 10, 1597064, doi: https://doi.org/10.3389/feduc.2025.1597064

[15] Zaghlool, Z.D. and Khasawneh, M.A. (2023). "Aligning translation curricula with technological advancements; Insights from artificial intelligence researchers and language educators", *Studies in Media and Communication*. Vol. 12 No. 1, p. 58, doi: https://doi.org/10.11114/smc.v12i1.6378

[16] Zou, D., Zhang, H., Zhao, Y. and Xu, P. (2025). "*Unleashing the potential: how ChatGPT improves gisting skills in student interpreters*". The Interpreter and Translator Trainer, pp. 1-25, https://doi.org/10.1080/1750399X.2025.2507540