



Investigating Students' Perceptions of Ethical Principles in Translation Teaching in the AI-Mediated Era

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Abstract

Ethics in translation is often treated as a marginal or theoretical concern, rather than a central, integrated component of the curriculum. This mixed-methods study aims to investigate students' perceptions of ethical principles in translation teaching in the era of AI-supported education. 416 fourth-year students from a university in Vietnam completed a structured questionnaire. Eleven students were randomly selected for semi-structured interviews to explore deeper insights into their ethical perspectives. While students showed ethical awareness of copyright and confidentiality, they lacked sufficient understanding of or interest in privacy policies. They highly appreciated professional values, acknowledging the role of human translation in refining AI-generated translations. Still, they paid little attention to sustainability and justice, which are implicit aspects of AI use in translation. The findings highlight the need for curriculum integration of translation ethics in the AI-enabled era to train both competent and ethically grounded novices who can evaluate platform terms, form privacy-aware decision-making habits, and engage with sustainability and justice. Clearer AI platform policies are needed to support responsible and ethical use of translation technologies. Future research should explore students' ethical decision-making in AI-based translation and the impact of AI tools on students' professional development and translators' agency.

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Practitioner Notes

1. Students demonstrate growing but uneven technological competence and their critical yet practical view of AI tools.
2. Ethics of AI in translation should be explicitly embedded in translator education through real-life scenarios, workshops, and modules.
3. Practitioners should help students recognize privacy risks, evaluate AI tool use, and develop a quick “pause–check–decide” habit before using AI tools.
4. Translation training should continue to emphasize the role of human agency, critical decision-making, and professional ethics, rather than positioning AI merely as a replacement for human translators.
5. A combined technological and ethical training can help ensure that future translators are both technically competent and ethically grounded.

Keywords

Ethics, machine translation, students' perceptions, translation teaching, translation technology.

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Introduction

The rapid integration of artificial intelligence (AI)—computer systems' ability to perform tasks that typically require human intelligence—has significantly advanced machine translation (MT). MT, in its advanced form of neural MT, generates translations using artificial neural networks that learn translation patterns from large-scale datasets (Castilho et al., 2017). MT and language models like ChatGPT have offered numerous advantages in terms of productivity, cost-effectiveness, and convenience, enhanced speed and accessibility of translation tasks across diverse contexts (Alkhawaja, 2024; Belhassen et al., 2025; Bo, 2023; Hidayati & Nihayah, 2024). However, the tools also pose critical challenges in handling cultural nuances, emotional subtleties, and figurative language (Banat & Abu Adla, 2023; Belhassen et al., 2025), and they often face ethical concerns related to data privacy, algorithmic bias, and professional integrity (Bo, 2023; Holi & Alhassan, 2025; Moorkens, 2022).

In AI-mediated translation contexts, technological competence or the ability to be proficient in the use of translation technologies is considered a must among translators (European Master's in Translation, 2022; PACTE, 2003, 2009). In addition to linguistic and cultural knowledge, translators should be able to use computer-assisted translation (CAT) tools, translation memories, terminology databases, machine translation systems, and AI-enhanced workflows. As emphasized by Holi and Alhassan (2025), ethics or ethical codes and principles designed to regulate professional behavior play a critical role in guiding professional conduct and helping translators navigate complex dilemmas related to data privacy, responsibility, and justice in technologically mediated environments. Ramírez-Polo and Vargas-Sierra (2023) argue that ethical education in translation empowers future professionals to act critically and responsibly in response to emerging challenges in the translation industry.

Although scholars and professional associations have increasingly emphasized the role of ethics in translation, ethical training remains inconsistently implemented in translator education. Curricula in many countries tend to emphasize linguistic and technical skills while neglecting the experiential, reflective, and ethical aspects of professional practice (Alkhatnai, 2024; Drugan & Megone, 2011; Özmat & Akkoyunlu, 2024). Moreover, current research tends to focus on theoretical models or evaluation of AI translation tool use, giving limited empirical attention to how students—future practitioners—perceive and navigate these emerging ethical challenges. In the Vietnamese higher education system, translator training is often embedded in general language programs rather than specialized curricula (Nguyen, 2020, 2023, 2025), and discussions of ethical issues are not part of translation courses. Nguyen et al. (2025) note that while ethical matters related to AI in translation are acknowledged in literature-based studies, empirical investigations, particularly those on students' perspectives, remain scarce.

Generally, many translation and language programs rarely focus on ethical principles that are essential in translation practice, including issues such as data ownership and language bias (Bowker, 2020; Moorkens, 2022). Few studies have explored how students perceive ethical challenges related to translation technology use or how confident they are in dealing with such issues in their training programs (Alkhatnai, 2024; Esqueda, 2024; Nguyen et al., 2025; Özmat & Akkoyunlu 2024). Validated instruments are also needed to measure students' ethical awareness in translation education and to evaluate the effectiveness of ethics instruction in training programs.

To address the gaps, this study aims to investigate students' perceptions of ethical principles in translation teaching in the era of AI-enabled education. In other words, this study answers the research question "What are students' perceptions of ethical principles related to AI use in translation education?"

The study draws on the six-dimensional framework proposed by Ramírez-Polo and Vargas-Sierra (2023), which categorizes ethics in translation technology into domains of data, professional value, sustainability, representation, justice, and market influence. By using this framework as the basis for questionnaire development, the study seeks to explore students' awareness, concerns, and expectations regarding ethical issues in their training. This study contributes valuable insights into how future translators interpret ethical responsibility in the age of MT. It will inform educators and curriculum designers about the areas where students feel ethically unprepared or unsupported, helping to shape more responsive translation pedagogy. Additionally, by using a validated ethical framework, the study promotes a structured and systematic approach to evaluating ethics in translation—an area often treated peripherally in translation teaching. Ultimately, the research supports the development of ethically literate translators who can make informed, socially responsible decisions in increasingly complex digital environments.

Literature

This literature review aims to explore how ethical concerns have been addressed in translator education. It begins by examining MT, its merits and demerits, followed by a review of translators' competences, including technological competence in the machine translation-based industry. The discussion then turns to emerging ethical concerns in the use of translation technologies, revolving around Ramírez-Polo and Vargas-Sierra's (2023) framework, which will serve as the theoretical foundation for this study. The section concludes by identifying key gaps in the literature, including the lack of empirical research into students' perceptions of ethics in translation classrooms.

Machine Translation

MT has evolved significantly from its early rule-based origins, in which translation is obtained through lexical and grammatical rules, as seen in how linguists approach language (Hutchins & Somers, 1992). These early systems required manual construction of large bilingual dictionaries and grammar rules for each language pair, which was time-consuming and resource-intensive.

The 1990s witnessed the advent of corpus-based methods, among which Example-Based MT and Statistical MT were dominant. The former functioned like Translation Memory systems by retrieving and recombining previous translation examples from bilingual corpora (Carl & Way, 2003). The latter, prevalent in the early 2000s, used bilingual and monolingual corpora to calculate probabilities of translations at word and phrase levels (Carl & Way, 2003).

In 2016, Neural MT transformed the field of translation, employing artificial neural networks (Castilho et al., 2017). These networks learn translation patterns from large datasets without being explicitly programmed with linguistic rules. Like human learners, they rely on example-based learning (Saffran et al., 2001), with deeper layers in the network learning to recognize increasingly abstract patterns. The more parallel training data the system has, the better its translation quality is; therefore, low-resource languages, which often lack sufficient data for training, can yield limited results.

MT or translation tools assisted by AI offer speedy, accessible, and cost-efficient translations, enabling the rapid processing of large volumes of content across languages (Alkhawaja, 2024; Hidayati & Nihayah, 2024; Sahari et al., 2023). However, MT also raises significant flaws in translation quality and reliability (Banat & Abu Adla, 2023; Lau et al., 2024). For example, ChatGPT-based translation works better for mechanical or editing tasks rather than tasks requiring critical thinking and fine-tuning (Sahari et al., 2023). MT's inaccurate or biased translations are reported, while user privacy can be violated in case of sensitive content revealed, contributing to the devalued professional translation work (Banat & Abu Adla, 2023; Nguyen & Vo, 2025). Moreover, underrepresentation in low-resource languages often limits the inclusivity of MT tools (Holi & Alhassan, 2025). Although machine translation has significantly transformed the translation industry, the skills and competences required of professional translators remain essential.

Translation Competence and Technological Competence

In the technologically mediated environment, professional translators, whose linguistic abilities are a prerequisite, are now expected to master a wide range of other competences or subcompetences. They must possess *linguistic and communicative competence* in at least two working languages, alongside cultural and intercultural awareness to mediate or negotiate meaning across different contexts (Kelly, 2014; PACTE, 2003, 2009). To operate effectively in specialized domains, *subject-matter knowledge* and *extra-linguistic competence* are crucial, enabling translators to handle terminology, background knowledge, and genre conventions (Göpferich, 2009; PACTE, 2003).

In addition to linguistic and cultural competences, *technological competence* has been an essential part of a translator's competence. O'Hagan (2020) considers this shift as the *technological turn*, emphasizing the need for translator education to align with rapid technological advancements. Technological competence enables translators to be proficient in the use of translation technologies such as CAT tools, translation memory systems, terminology databases, and AI-powered platforms. Kelly (2014) refers to this dimension as *instrumental competence*, involving the effective use of documentation tools and resources. Similarly, PACTE (2009) maintains that *instrumental sub-competence* is vital procedural knowledge for handling both traditional reference tools and modern information and communication technologies. In other words, translators need to be familiar with online databases, search engines, and machine translation systems. They are also expected to develop *strategic competence*, which involves planning, self-assessment, problem-solving, and decision-making during translation.

The European Master's in Translation (2022) reinforces the importance of translators' technology skills, emphasizing *technological competence* as the ability to effectively manage digital workflows and engage critically with emerging translation technologies. Göpferich (2009) highlights instrumental competence, embedding instrumental skills alongside routine activation and psychomotor competence to reflect the growing cognitive and operational demands placed on translators. Meanwhile, Kiraly's (2014) constructivist approach encourages experiential engagement with tools in authentic contexts, fostering not only technical skill but also reflective and ethical awareness in technology-mediated translation environments.

Equally important are *personal and interpersonal competences*, encompassing collaboration, negotiation, and client interaction skills (European Master's in Translation, 2022; Kelly, 2014).

Models (Göpferich, 2009; Kiraly, 2014) go further by highlighting professional ethos, translator self-concept, and ethical behavior as integral to translator competence. These aspects reflect a growing recognition that translators must not only be technically skilled but also ethically aware, reflective, and socially responsible in the face of evolving professional challenges.

More recent initiatives, such as the Training Web Interaction and Translation Technologies (TWITT) model proposed by Vargas-Sierra and Ramírez-Polo (2011, cited in Ramírez-Polo & Vargas-Sierra, 2023), explicitly link technological training with collaborative learning and ethical awareness. The model encourages the use of digital platforms and social media in classroom settings to build both technological fluency and responsible digital engagement. Building on this, He and Tao (2022) introduced the Translation Technological Thinking Competence (TTTC) model, which articulates a progression from basic technological awareness to critical evaluation and innovation. This model offers a more granular approach to the development of technological competence, encouraging students to not only apply tools but also assess their socio-ethical implications. While most models of translator competence offer valuable insights into the skills and knowledge needed by translators, most of them treat ethical awareness as an implicit or secondary concern, embedding it within general notions of professional conduct or interpersonal awareness.

Ethics in the Translation Profession

Ethics play a pivotal role in ensuring responsible and professional translation practice, especially in contexts involving artificial intelligence and crisis communication. As Holi and Alhassan (2025) point out, ethical codes are designed to regulate professional behavior and help translators navigate complex dilemmas, including issues related to data privacy, fairness, and professional accountability. These codes are not merely formalities but serve as essential tools to manage ethical challenges that arise during translation processes. Furthermore, in high-stakes environments like crisis translation, O'Mathúna et al. (2019) argue that ethical responsibility becomes even more critical, as failure to provide accessible and accurate language services can result in serious harm or deepen existing inequalities.

Translators are expected to make morally sound decisions in professional practice, balancing accuracy, responsibility, and accountability toward the source text (ST), the client, and the wider society. Ethical translation decisions involve not only understanding traditional principles such as fidelity and loyalty but also being critically aware of the broader socio-cultural implications of one's translation choices. Traditionally, ethical issues in translation centered around fidelity, equivalence, and the translator's role in mediating between the author and the reader (Robinson, 2019). Chesterman (2001) maintains that the translator needs to faithfully reproduce the ST original message without making any changes (*ethics of representation*), or perform professional and contractual obligations, including confidentiality and meeting the client's goals (*ethics of service*), ensure that the message remains accessible and appropriate (*ethics of communication*) and adhere to institutional, cultural, or professional standards that govern acceptable translation behavior (*norm-based ethics*). Generally, these four lenses highlight the translator's role as both a linguistic mediator and an ethical agent in increasingly complex professional contexts. Pym (2001) emphasises the role of the translator as a cultural mediator who promotes cross-cultural understanding by resolving arising cultural differences in the translation process. In the same vein, Venuti (2017) claims that translators should decide whether cultural items can be foreignized

or domesticated in the target translation, considering the translator's visibility in complex situational dilemmas. Skopostheorie or functional approaches to translation (Nord, 2018) proposed that translators must follow their clients' instructions. In these senses, translators serve as linguistic, cultural, and social intermediaries between the source and target contexts.

Many international professional associations have recognized the growing need to formalize ethical standards in translation. Organizations such as the American Translators Association (ATA) and the Australian Institute of Interpreters and Translators (AUSIT) have published official codes of ethics to guide translators' conduct in increasingly complex work environments (ATA, 2022; AUSIT, 2012). These codes typically emphasize key ethical principles such as *confidentiality* (ensuring that client information is kept secure and private), *accuracy* and *fidelity* (faithful rendering of the ST), and *impartiality* (avoiding bias, especially in sensitive or legal contexts). In addition, they stress the importance of *professional conduct*, including honesty in advertising one's qualifications, and *continuous professional development*, urging practitioners to update their skills and stay current with technological and linguistic changes. These frameworks not only help translators navigate ethical dilemmas but also promote public trust in the profession by establishing clear standards of accountability and responsibility. These professional codes, though foundational, are often too broad for practical use in translator education.

Ethical Issues in Translation Technology

A growing body of research has highlighted the multifaceted ethical concerns associated with the integration of technology into translation practice and pedagogy. Ramírez-Polo and Vargas-Sierra's (2023) framework, on which the discussion of ethical issues in translation technology is based, categorizes translation technology ethics into six dimensions, including data ethics, professional value, representation, sustainability, justice, and the market.

Firstly, the *ethics of data* refer to the treatment of data and issues of privacy, confidentiality, copyright, and data sharing (Ramírez-Polo & Vargas-Sierra, 2023). Bo (2023), who delves into the emerging ethical issues of literary translation, insists that copyright ethics is an indispensable part of AI-enabled literary translation since training data provided by AI involves copyright issues. Similarly, the reuse of the translated content or translation databases can raise the complex issue of copyright (Moorkens, 2022). When translators upload data into a free online machine translation website, the service provider may keep and reuse it. MT systems are typically trained using parallel or aligned bilingual segments translated by humans, which are often stored in translation memories. These memories are sometimes shared in public repositories or returned to clients, who may assert ownership over the data (Moorkens, 2022). Therefore, translation resources, including personal data, can be shared and commoditized without the owner's consent, which can lead to the breach of data privacy and confidentiality (Bowker, 2020). Holi and Alhassan (2025) maintain the importance of confidentiality and security of translators' translated documents when using AI-powered translation technology. Data breaches and misuse of sensitive content are potential cybersecurity risks, resulting from the increasing reliance on online platforms and cloud-based tools (Canfora & Ottmann, 2020). Therefore, in the age of machine translation and cloud-based tools, translators must learn how data is collected, stored, and reused ethically.

Professional value emphasises the translator's role and their responsibility. When MT expands, translators may handle a large amount of translation work, their identity can be challenged, and

their contributions as post-editors may be ignored (Bowker, 2020; Moorkens, 2022). However, their linguistic expertise, cultural judgment, and contextual interpretation remain irreplaceable. Bo (2023) shows no direct evidence that machine translation will replace human translators. High-quality machine translation still needs proofreading and post-editing to fix errors that can only be identified by human close reading and interpretation (Castilho et al. 2017b, cited in Bowker, 2020). Belhassen et al. (2025) conclude that AI is unlikely to replace human translators in literary translation due to their creativity and intuitiveness and suggest its use as an auxiliary tool in translation drafting or terminology research. Thus, translators must be recognised as *agency*, meaning their right and ability to make informed, autonomous decisions throughout the translation process.

AI and automation may lead to the devaluation of human expertise or to the misattribution of contributions, as translators often face pressure to work faster or accept lower rates, particularly in post-editing or outsourcing scenarios. Translators may be put in a dilemma in which they have to produce quick, low-quality translations to respond to clients' needs or guidelines and, therefore, are labelled as "bulk suppliers" rather than "premium translation", compromising the quality of translation, impacting their job satisfaction (Bowker, 2020; Moorkens, 2022). Meanwhile, they must take full responsibility for the final product. Errors in AI-based translations may cause harm or miscommunication in safety-critical domains (e.g., healthcare or legal translation) (Canfora & Ottmann, 2020). Therefore, they should be paid equitably for their skills, time, and intellectual labor—regardless of whether they produce original translations or refine AI-generated output. As technology becomes increasingly integrated into translation, it is essential to maintain respect for the translator's professional identity and ensure ethical treatment in terms of pay, attribution, and accountability.

The increasing use of AI in translation raises concerns about *sustainability*, which involves the impact of technology on humans and the environment. Scholars, including Moorkens (2022) mention that current and emerging AI-based work systems may promote unrealistic deadlines, repetitive tasks, and diminish human agency, leading to negative effects on translator well-being and training. Meanwhile, the large-scale deployment of AI models—especially in machine translation—demands significant computational resources, contributing to higher energy consumption and environmental footprint. Moorkens (2022) explains that Neural MT is particularly resource-intensive, requiring large amounts of power for running parallel texts and data training. Cronin (2017) advocates for the *ecological turn in translation studies*, redefining translation not only as a linguistic or cultural act but also as one that takes into account material and environmental consequences. In other words, the rapid expansion of translation volumes through automation may lead to unsustainable practices that harm both the translator and the planet.

Ethics of Representation discusses the relationship between the target text (TT) and the ST. This aligns with the evaluation of translation (Nord, 2018), in which translators need to check whether the translated output conveys the original message faithfully and accurately. Translators also maintain the acceptability and readability of the TT by preserving the tone and cultural nuance of the ST. In the era of AI-generated translation, this ethical dimension also addresses the risk of bias in machine-generated translations. The use of certain datasets or algorithms may distort meaning, spread stereotypes, or erase cultural values in translations (Savoldi et al., 2021; Tsamados et al., 2022). Holi and Alhassan (2025) explain that AI algorithms may misrepresent information or contribute to linguistic and cultural biases, and that they lack the linguistic and

emotional nuances as found in human translation. Belhassen et al. (2025) say literary MT encounters difficulties with cultural subtleties, emotional richness, and stylistic accuracy.

Another issue in the AI-powered translation context involves *justice* or fair and equitable access to digital tools and resources, particularly for underrepresented or minority-language communities. This aspect highlights concerns about the digital divide, where disparities in technological infrastructure or technological literacy can prevent disadvantaged groups from accessing machine translation or AI-assisted workflows. All communities should be heard in the digital age, avoiding being marginalised by inaccessible technologies. Furthermore, UNESCO's (n.d.) warns that technologies such as machine translation and voice assistants may often favor high-resource languages, reinforcing digital divides and cultural asymmetries. English as a lingua franca and European languages are more well-served in the training data than less-widely used languages, leading to better translation quality than translation involving minority languages (Bowker, 2020). Ethical translation practice should ensure linguistic diversity, where minority languages are given more space and power in the training data, rather than being disadvantaged in the era of AI translation (Bowker, 2020).

Market ethics addresses the economic and labour-related dimensions of translation work in the age of technology. Platform-based labor models (including crowdsourced translation platforms) and the commodification of linguistic work can cause translators' concerns about fair compensation or the risk of diminished professional value in the AI-powered translation market. In addition to the pricing or commoditization of translation, Ramírez-Polo and Vargas-Sierra (2023) maintain that no language or market should be left behind in technology-generated translation practices.

Ramírez-Polo and Vargas-Sierra's (2023) analysis of ethical issues in translation technology supplements ethical aspects of theoretical models (e.g., European Master's in Translation, PACTE) with practical ethical considerations, offering educators a roadmap to integrate ethics explicitly in curriculum and instruction. It is particularly well-suited to teaching contexts due to its structured, multidimensional approach. Each of the six dimensions targets a specific area of ethical concern, offering a comprehensive lens through which students' awareness and understanding of ethics can be assessed. Ramírez-Polo and Vargas-Sierra (2023) provide a timely and comprehensive foundation for exploring students' perceptions of ethical principles in translation education—particularly in the context of increasing reliance on artificial intelligence. Our study provides empirical evidence and validation to this model, as the authors expect to have.

Introducing Ethics in the Curriculum

Despite the growing importance of ethics in the translation profession—especially in the time of the increasing automated translation era—translation ethics remains marginal in many educational contexts. Drugan and Megone (2011) from the UK reveal that ethical training is either not systematically taught or offered only as optional content. Alkhatnai (2024), a Saudi Arabia-based study even notes an inverse relationship between the amount of ethics instruction and students' ethical competence, possibly due to overly theoretical or non-interactive teaching methods. This suggests that traditional pedagogical approaches fail to equip students with the reflective and practical skills needed to handle ethical dilemmas in real-world translation work.

However, promising practices are emerging. For instance, Esqueda (2024) reports positive outcomes from adopting case-based pedagogy in Brazil, promoting student engagement and ethical reflection. Meanwhile, student concerns are documented in Turkey by Özmat and Akkoyunlu (2024) which highlights the moral implications of AI in translation, including job insecurity, reduced cognitive engagement, and weakened educational relationships. Yet such concerns are rarely addressed using structured ethical frameworks. In Vietnam, research on ethics in translation is still limited, with Nguyen et al. (2025), a literature-based study identifying basic ethical issues linked to AI in translation but lacking empirical evidence and pedagogical solutions. Overall, there is a clear need to integrate translation ethics more deeply into curricula through experiential learning, reflective practices, and explicit engagement with technology-related ethical challenges.

Many programs focus on tool proficiency but neglect the ethical literacy needed to navigate the broader impacts of technology on translation practice, including issues such as data commoditization, surveillance capitalism, and language bias (Bowker, 2020; Moorkens, 2022). Few studies have investigated how students perceive ethical challenges related to technology in their training, or whether they feel adequately prepared to handle these issues in various contexts (Alkhatnai, 2024; Esqueda, 2024; Nguyen et al., 2025; Özmat & Akkoyunlu 2024). There is also limited availability of validated instruments for measuring students' ethical awareness in translation education. The lack of such tools makes it difficult to evaluate the effectiveness of ethics instruction or compare perceptions across different training programs. This study seeks to fill these gaps by adopting the six-dimensional framework proposed by Ramírez-Polo and Vargas-Sierra (2023) to explore students' perceptions and experiences, and by developing a validated survey instrument that can be used for future teaching, evaluation, and research purposes.

Method

The research was conducted in 2025 at a university specializing in foreign language education located in the central part of Vietnam. This study adopts a mixed-methods approach to gain a comprehensive understanding of students' perceptions of ethical principles in translation teaching within the AI-mediated era. The quantitative component involves the descriptive and referential analysis of a validated questionnaire, while the qualitative component includes semi-structured interviews with a subset of participants to explore deeper insights and contextual interpretations.

Participants

A total of 416 fourth-year English majors who had been exposed to at least one translation tool during their translation learning process were selected for the study. These students had completed one year of coursework in translation, encompassing subjects such as *Translation Theory* and *Advanced Translation Practice*. By this stage, they had developed a solid foundation in both translation knowledge and skills, enabling them to approach translation tasks with a degree of professionalism and contextual awareness. Unlike novice translators, these students demonstrated behaviors indicative of growing competence; for instance, they tended to avoid excessively literal renderings and were capable of making context-sensitive translation choices aligned with the communicative purpose of a text.

The online questionnaire on Google Form was sent to them through email, messenger, or Zalo. A total of 416 students responded to the questionnaire, among whom are 349 female students

(83,9 %), 61 male students (14,7 %), and 6 others (1,4%). The great imbalance in the number of male and female students reflects the normal rate in the language education sector.

Participation in this study was entirely voluntary, and students retained the right to withdraw at any point without any academic penalty or negative impact on their course performance. In the local Vietnamese context, formal ethics approval was not required for this minimal-risk educational study; however, participation was strictly voluntary and unrelated to grades or academic assessment. The survey was delivered to the entire fourth-year cohort (approximately 600 students), yielding an approximate 60% response rate. Responses were collected anonymously, and participants received supplementary learning materials (on translation and IELTS practice) as a small token of appreciation.

Measures

The questionnaire is developed based on the six ethical dimensions from Ramírez-Polo and Vargas-Sierra's (2023) framework. This framework is appropriate for a survey-based study because it offers clear, categorized ethical themes that can be transformed into measurable indicators. Each category addresses specific areas of concern—from privacy and authorship (*data ethics*) to the fairness of labor practices (*professional value*) and inclusivity (*justice*)—which allows for the construction of focused, thematically organized survey items. Moreover, the framework encourages a holistic understanding of ethics, enabling the research to capture not only students' awareness but also their critical reflections and attitudes toward the implications of using AI in translation.

The questionnaire consisted of three main parts. The first part sought demographic information of the participants; the second part included 31 items to explore students' perception towards the use of AI in translation; the final part had three open-ended questions. The second part of the questionnaire was first developed on Ramírez-Polo and Vargas-Sierra's (2023) first four ethical dimensions of translation technology, including data, professional value, sustainability, and representation. *Justice* and *Market ethics* were excluded due to their overlapping sub-themes with other selected dimensions. For instance, issues such as access to technological infrastructure and training resources—typically discussed under *Justice*—closely align with ethical concerns already covered under the *Data* dimension, especially regarding low-resource languages. Similarly, within the *Data* category itself, sub-topics like data sharing, protection, and extractivism exhibit considerable thematic convergence, suggesting limited distinction in practical discussions. The questionnaire includes Likert-scale items (1 = Strongly disagree to 5 = Strongly agree) and open-ended questions to capture both perceptions and reflections.

The first version of the questionnaire had a very high reliability of .936. To examine the statistical eligibility of the questionnaire's items, Corrected Item – Total Correlation was calculated. Then, Exploratory Factor Analysis (EFA) was processed. Factor loading was kept at 0.3, denoting an acceptable level of EFA analysis. KMO value was identified at .927, over .5, and the significant level of Bartlett's Test of Sphericity is .000, less than .05, expressing the EFA is meaningful. 5 components were extracted with Eigenvalues greater than 1. Yet, one item was excluded as the value identified was under .3. 30 items of the questionnaire were divided into 5 dimensions: *Ethics of Data* with 10 items, *Professional value* with 7 items, *Sustainability* with 3 items, *Representation* (Quality of translation) with 5 items, and *Justice* (Accessibility and Fairness) with 3 items. The reliability of all dimensions was recognised to be high. Specifically, the dimension *Ethics of data*

has a reliability of .879; the dimension *Professional value* has a reliability of .828; the dimension *Sustainability* has a reliability of .730; the dimension *Representation* has a reliability of .813; the final dimension *Justice* has a reliability of .670.

Table 1

Reliability Level

Dimensions	Level of Reliability
All items	.933
Ethics of data	.879
Professional value	.828
Sustainability	.730
Representation	.813
Justice	.670

Interviews

Students who indicated interest in being interviewed and provided availability formed the interview-eligible pool. From this pool, 11 participants were randomly selected and contacted to schedule 30–40-minute semi-structured interviews. These interviews were conducted immediately after the participants completed the questionnaire to ensure the content remained fresh in their memory. Before the interview, students were invited to revisit the questionnaire items and were then encouraged to elaborate freely on any items they wished, providing their perspectives, experiences, or concerns.

Results

Students' perceptions towards the ethical issue in using AI in translation were revealed through the analysis of the data from the questionnaire and further explained by the qualitative data from the semi-structured interview. Students were identified to make use of different kinds of AI tools to learn translation, namely ChatGPT, Google Translate, Gemini, Copilot, or Claude. The most common ones are ChatGPT and Google Translate.

The first look at the quantitative data showed that students had generally good attitudes toward keeping ethics when they applied AI in their translation. Being asked about the importance of applying ethical principles in AI-based translation, 53.8% of students surveyed strongly agreed; 26.2% agreed; 14.2% had neutral ideas. By contrast, only 3.4% and 1.7% strongly disagreed and disagreed, respectively. In other words, students generally realised the importance of keeping ethics in translation.

Results taken from 11 interviewed students gave us very concrete ideas of students about keeping ethical principles in translation. All 11 students shared the idea that applying ethical principles in AI-supported translation was essential and should be considered as a “must” in using AI in translation. The interviewed student 4 supposed that ethics in AI translation was necessary as many translated documents were recognized to violate authors' rights these days. More

interestingly, the interviewed student 3 thought that translators needed to maintain ethics in using AI for their translation, even though there were no rules issued.

Table 2

Descriptive Analysis of Dimensions in Ethics in Translation

	<i>n</i>	Mean	Std. Deviation	Mode
Ethics of Data	416	3.94	.69	3.91
Professional value	414	3.99	.70	4.00
Sustainability	415	3.38	.90	3.00
Representation	416	4.11	.72	5.00
Justice	416	3.83	.83	4.00
Valid N (listwise)	416			

With the scale of 1-5, the mean values of all 5 dimensions of ethical principles in AI-based translation, which range from 3.3823 to 4.1144, indicate that students had positive attitudes towards keeping ethics when using AI in their translation learning. The lowest mean belongs to the dimension *Sustainability*, indicating that they did not concern much about it. Differently, the highest mean value is that of *representation* or quality of translation, with 4.1144, denoting that students were concerned most about the quality of their translation when applying AI.

Ethics of Data

The results revealed that students had great concerns over the *ethics of data* with the mean values from 3.40 to 4.39. Their main worry is the necessity to avoid plagiarism and respect copyrights in translation practice. The interviewed students 4, 5, and 6 worried that AI tools like ChatGPT or Gemini might use unreliable or uncheckable sources in their translation, and they even make use of many sources without permission. In addition, the interviewed students also worried about the fact that translators or students may have used someone else’s translation. While acknowledging the translator’s contribution, all the interviewed students understood the importance of avoiding plagiarism and respecting authorship.

Yet, the results also showed that students’ understanding of privacy policies of the AI tools’ use for translation was not very good, even though the mean value of this item was still high, with 3.40. Seven out of the 11 interviewed students admitted that they did not pay much attention to the privacy policies of the AI tools they used. “I rarely read the privacy statement offered by AI tools”, or “I accidentally disclosed data when I was given a translation task some time ago,” were extracted from the interview data.

The second-highest mean value (4.16) belongs to item 1.8, which indicates that translators have the right to decide how their linguistic data is used or shared in AI-enhanced translation tools. The interviewed student 5 supposed that translators provided input for the translation; therefore, they can decide how such information is used or reused later. The interviewed student believed that translation inputs belong to translators, who should have the right to decide whether AI tools may store them, as these inputs reflect their effort in word choice and contextual analysis. Therefore,

translators should be informed when their works are shared or used by AI tools, as stated by the interviewed student 10.

Table 3

Descriptive statistics: Ethics of data

	Items	n	Mode	Mean	Std. Deviation
1.1	I consider data confidentiality when using AI tools in translation assignments	416	5	3.99	1.02
1.2	I am concerned about uploading private data to cloud-based translation.	416	5	3.95	1.06
1.3	I think there may be risks of unintentionally exposing sensitive or confidential information when using AI tools.	416	5	4.04	1.01
1.4	I am aware that translation data (e.g., my assignments or outputs) can be used as commercial assets by third parties.	416	4	3.81	1.07
1.5	I am aware that I could be held responsible if confidential information I input into AI tools is leaked.	416	5	3.88	1.151
1.6	I am aware that my data may be repurposed or redistributed without consent.	416	5	4.04	.999
1.7	I am concerned about how AI translation tools handle and store the data I input.	416	4	3.72	1.123
1.8	I think translators should have the right to decide how their linguistic data is used or shared in AI-enhanced translation tools.	416	5	4.16	.974
1.9	I think it is necessary to avoid plagiarism and respect copyright in translation practice.	416	5	4.39	.890
1.10	I am concerned about the violation of intellectual property rights when using AI-translated content.	416	5	4.02	.978
1.11	I understand the privacy policies of the AI tools I use for translation.	416	3	3.40	1.048
	Valid N (listwise)	416			

The results of items 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, and 1.7 about how AI tools treat the input given by translators, and how they store such information had high mean values (3.99, 3.95, 4.04, 3.81, 3.88, 4.04, 3.72, respectively), showing students' great concerns about confidentiality, storage, and usage of information. The interviewed students 1, 2, and 3 shared opinions that the user's personal information should be kept confidential. Others thought that the translated works should be the property of translators and should not be shared or used without their permission, especially when the works contained sensitive data.

In other words, data storage, data use, and data confidentiality are of great concern. AI tool companies should consider such factors to make users more comfortable and efficient in using AI tools in their translation jobs.

Professional value

Table 4

Descriptive statistics: Professional Value

	Items	n	Mode	Mean	Std. Deviation
2.1	I am aware that free AI-based translation practices like crowdsourced translation or unpaid volunteer work may undermine the professional value of translators.	416	4	3.76	1.133
2.2	I am aware that translators' contributions are not properly acknowledged in AI-assisted workflows.	416	4	3.73	1.037
2.3	I am aware that some translation platforms or clients underpay translators despite high workloads and professional requirements.	416	5	4.07	.916
2.4	I am aware that the increasing use of AI in translation may impact job satisfaction.	415	4	4.00	.969
2.5	I believe that the increasing use of AI in translation may lead to unrealistic deadlines.	416	4	3.98	.908
2.6	I think translators should be properly compensated for their work, regardless of the platform or project type	416	5	4.44	.865
2.7	I am aware that the use of AI tools in translation may lead to the undervaluation of human translators' expertise and skills.	416	4	3.93	1.111
	Valid N (listwise)	416			

The mean values of 7 items in the dimension *Professional value* are quite high, ranging from 3.73 to 4.44. Such mean values indicate students' high awareness of professional values of the translation works. The very high mean value (4.44) of item 2.6 shows us that students strongly believe the translator should be properly compensated for their work, even though they are supported by AI tools in their translation. According to the interviewed students 1, 2, and 4, translators play an essential role in the translation process, and they should be highly valued and properly compensated. The interviewed student 5 worried about the fact that translators were undervalued and paid less due to the support of AI tools, which may make people think that translators did not make as much effort as before for the translation product. This opinion is also indicated in item 2.7 with the mean value 3.93.

As shown in items 2.1, 2.2, 2.3, and 2.4 (mean values 3.76, 3.73, 4.07, 3.98), there are great concerns about the devaluation of translators' efforts, high job requirements, and job dissatisfaction when AI is commonly thought to take over most of the translation process. Results

from 11 interviews share similar concerns. All 11 interviewed students believed that translation requires great skills and knowledge, so the translators were valued for their jobs. The interviewed students 6, 7, and 8 worried that if students abused AI tools, they could not develop their skills sufficiently, while the interviewed students 1, 10, and 11 supposed that translators might lose their skills and knowledge in case they relied too much on AI. The interview data also align with what is found in the survey regarding job requirements and job satisfaction. The appearance of AI tools in translation leads to decreased job satisfaction, with students explaining that translators' translation may not be as good as AI work, and translators are expected to finish their work in a shorter time. In other words, translators' efforts and skills are being undervalued while they are expected to work faster and more effectively in translation.

In short, *professional value* is greatly affected by the use of AI tools. While students acknowledge their translation efforts and their role in translation and expect high remuneration, they are concerned that translators may be undervalued, expected to work more, and their job requirements seem to be harder with the support of AI tools in translation.

Sustainability

Table 5

Descriptive Statistics: Sustainability

	Items	<i>n</i>	Mode	Mean	Std. Deviation
3.1	I think AI-based translation workflows may affect translators' well-being.	416	3	3.17	1.149
3.2	I think AI-based translation workflows may contribute to overwork.	416	3	3.37	1.099
3.3	I think that the development and operation of large AI models (e.g., in machine translation) have significant environmental impacts	415	3	3.60	1.094
	Valid N (listwise)	415			

Sustainability is the dimension that explores opinions about translators' well-being and impact on the environment. Interestingly, this dimension has the lowest mean values among the 5 dimensions, which indicates that students have the least concerns about this matter. Item 3.1, with the low mean value (3.17), indicates students' neutral opinion over the impact of using AI tools on translators' well-being. Students interviewed expressed various opinions on the impact of AI tools on translators. The interviewed students 1 and 2 kept neutral ideas. In their opinion, everything has two sides: positive and negative, and whether the use of an AI tool in translation affects translators or not depends on translators themselves. If translators use AI tools in a wise way, their work can be facilitated, and vice versa. By contrast, the interviewed student 5 supposed

that AI tools in translation made students feel they were no longer valuable, leading to demotivation in learning, and worry about her future career.

Item 3.2 (mean value=3.37) shows that most students selected “neutral”. All interviewed students shared that their work was reduced thanks to AI tools. Item 3.3 (mean value 3.60) shows that students are concerned about this matter. Very few students interviewed thought that, similar to all kinds of tools, using AI can lead to damage to the environment, as electricity is consumed. According to the interviewed student 3, she did not think that the use of an AI tool had any impact on the environment, as they were similar to sending emails or using social media. In summary, students were recognized to have neutral opinions on the *sustainability* dimension. According to students interviewed, the use of AI tools will determine their impact on translators, and the environment is not much affected by AI tool usage.

Representation (Quality of translation)

Table 6

Descriptive statistics: Representation

	Items	n	Mode	Mean	Std. Deviation
4.1	I think AI tools may fail to preserve the author's style and tone.	416	5	4.22	.944
4.2	I think that AI-generated translations are not readable.	416	4	4.03	.953
4.3	I think AI-generated translations may affect the accuracy of target texts.	416	4	3.95	.983
4.4	I think translators may be held responsible for inaccurate translations produced by AI tools.	416	4	3.60	1.094
4.5	I am aware that practices such as submitting unedited machine translations may be considered unethical in the profession.	416	5	4.18	1.004
	Valid N (listwise)	415			

Representation or the quality of the translation product produced by AI tools is questionable. The analysis of the survey as shown in Table 6, reveals concerns about the quality of the translation works. Items 4.1, 4.2, and 4.3 have very high mean values (4.22, 4.03, and 3.95). Students were identified to doubt the quality of AI translation works regarding style, tone, accuracy, and readability. All interviewed students share opinions that AI products are not of high quality and the products seem to be inhumane, making them less lively and stylistically inappropriate. The

accuracy of AI products is also a matter, especially when the text requires high professional knowledge.

Students were identified to have high awareness of the ethical issue in the profession when using the translation provided by AI tools without editing, as shown in item 4.5 (mean value 4.18). Surveyed students agreed that translators may be held responsible for errors caused by AI tools if they used such products (Item 4.4, mean value 3.60). All interviewed students, except for students 1 and 2, confirmed that translators had to be responsible for the final product. In their view, AI tools just support the translation product, and it is translators who provide the input, revise the translation, and then use the product. Therefore, they should be held responsible for what they use. Differently, the interviewed students 1 and 2 supposed that AI tools produced the translation, contributing to the quality of the product. As a result, AI tools should also be in charge of the quality.

In short, AI tools are in the process of development, so the quality of products produced is identified to have some weak points regarding styles, tone, and accuracy. Yet, it is translators who revise, edit, and use such products appropriately to suit the needs of their profession. Besides, translators should be responsible for the final translation work.

Justice

Table 7

Descriptive Statistics: Justice

		N	Mode	Mean	Std. Deviation
5.1	I am aware that AI translation tools often perform poorly with low-resource languages, potentially increasing language inequality.	416	4	3.71	1.092
5.2	I am aware that AI tools may marginalize less-represented languages and cultures.	416	4	3.66	1.143
5.3	I am concerned that those from marginalized groups or low-resource regions may have less access to AI training tools and resources.	416	5	4.13	.961
	Valid N (listwise)	416			

The use of AI tools in all fields, especially in education, raises concerns about injustice. As indicated in the item 5.3 (mean value=4.13), students surveyed were greatly concerned about the chance to access AI tools in marginalized groups or low-resource regions. All interviewed

students share the idea that people, especially learners in remote or mountainous areas, do not have enough conditions to access AI tools in general and in translation in specific.

Language equality and culture are factors to be considered when AI tools are widely used, as shown in items 5.1 and 5.2 (mean values 3.71 and 3.66, respectively). AI tools have been trained using popular languages like English and Chinese, leading to the ignorance of less spoken languages. The interviewed student 6 believed that there would be some effects on the development of languages due to the fast spread of AI tools. Yet, the interviewed students thought that there was no current evidence of whether AI tools may negatively impact culture; however, studies should be implemented to explore how AI affects culture. In these students' view, it is users' ways of using AI tools that decide their effects. A wise and appropriate use will boost the development of language and culture. All in all, AI tools in translation may have certain effects on language equality, culture, and accessibility. Yet, users can reduce the negative impact by their proper use of AI tools.

Gender difference

An independent sample T-test was calculated to test whether gender has any impact on students' perceptions of the ethics principles in translation. The result shows that there is no statistical significance caused by gender difference, as the p-value is much higher than .05. Yet, since there is an imbalance between male and female participants of the research, as discussed in the "methodology" session, the result is just a reference for further studies.

Discussion

Emerging but developing ethical thinking in data ethics

Although still in its early stages, students' ethical awareness regarding data ethics is emerging and progressively developing. Having been exposed to a variety of AI tools, most students acknowledged the significance of ethical considerations in both translation practice and learning. Their reflections encompassed diverse aspects of ethics, including concerns about overreliance on AI, data ownership, and the appreciation of translators' contributions. This indicates a growing sense of technological literacy and suggests that students are beginning to develop instrumental subcompetence or technological awareness, as proposed in the models by Kelly (2014) and the PACTE group (2003), which enables them to use translation tools more effectively and responsibly.

Students showed strong concern about plagiarism and copyright, acknowledging that AI-generated translations may originate from others' intellectual work. However, they had a limited understanding of how AI learns from large datasets, which raises their doubts about the reliability of the AI-generated translation. This highlights the need for software developers to recognize and respect copyright in translations.

Although students expressed concerns about confidentiality and consent, they paid little attention to privacy policies governing data storage and sharing. They acknowledged that sharing translations with personal information without permission is unethical. However, their tendency to skip terms and conditions or unintentionally disclose sensitive data reveals a disconnect between their ethical awareness and actual behavior. The coexistence of great concern about confidentiality and low engagement with privacy policies/terms suggests a common pattern in

everyday digital behaviour: users often accept click-through terms out of habit, time pressure, and “terms fatigue,” even when they are aware of potential risks. In this sense, the issue may be less about a lack of concern and more about limited practical digital literacy—i.e., not knowing what to look for, how to evaluate trade-offs, or how to adopt safer workflows. This may also suggest a lack of practical training in data ethics. Instruction should be clear, contextualized, and actionable to prevent misalignment between ethical understanding and classroom practice, as cautioned by Alkhatnai (2024).

A Reasonable Understanding of Professional Values and Representation

The students demonstrated a sound understanding of the translator’s role, effort, and knowledge, which likely stemmed from their prior hands-on experience. Many believed that translation deserves appropriate remuneration, yet they also anticipated common industry challenges such as client pressure, low pay, tight deadlines, and even potential job displacement. This awareness reflects students’ recognition of the tension between technological advancement and the preservation of professional identity. Their reflections are especially relevant in the Vietnamese context, where translator accreditation remains limited, and the profession often lacks formal recognition (Do, 2020; Hoang, 2020). To prepare for such realities, students need both ethical and technological awareness to manage expectations, negotiate terms, and maintain agency in professional settings (Robinson, 2019).

Moreover, regarding *representation*, students were able to critically assess AI-generated translations, particularly in terms of stylistic appropriateness and accuracy. Many positioned themselves as editors with the final say, indicating a growing sense of professional autonomy and maturity in evaluating machine output—consistent with broader concerns about the current limitations of AI in translation (Banat & Abu Adla, 2023; Belhassen et al., 2025).

A Neutral Perception of Sustainability and Justice

The students exhibited a relatively neutral stance on *sustainability* and *justice*. Few demonstrated awareness of how AI-generated translations might affect translator well-being (e.g., through unrealistic deadlines or diminished agency) or contribute to environmental impacts such as energy-intensive computing (Moorkens, 2022). This may stem from limited professional experience, insufficient understanding of AI’s operation in translation, or curricular constraints.

In terms of *justice*, most students were unaware of AI’s potential effects on language equity and cultural representation. This gap may relate to their primary engagement with English—an AI-dominant language—and their limited exposure to minoritized or less-resourced languages. Interestingly, some students highlighted their ability to control AI tools to promote language and culture, reflecting a positive but surface-level engagement with *justice*-related issues.

Students’ “neutral” responses regarding sustainability and justice may not only reflect limited professional experience, but they also may indicate limited curricular emphasis on sustainability and justice dimensions of AI. Sustainability- and justice-related dimensions of AI are often less pronounced in everyday classroom use, as they are embedded in background infrastructures and processes that students rarely encounter directly (e.g., energy demands and costs and benefits distributed across stakeholders). From this perspective, neutrality may signal uncertainty or low conceptual access rather than indifference.

Conclusion

This study explored students' perceptions of ethical AI use in translation and translation learning. Findings suggest that while students are developing ethical awareness—particularly regarding copyright, confidentiality, and data use—they lack sufficient understanding of or interest in privacy policies and the underlying mechanics of AI translation tools. AI-related training in translation education should include brief, structured activities for students to practice evaluating platform terms and to develop privacy-aware decision routines (e.g., selecting tools, managing data sensitivity, and choosing low-risk alternatives if necessary).

Interestingly, the students demonstrated a strong appreciation for professional values, recognizing translators' contributions and the importance of human agency, even amid growing AI capabilities. Translation training should continue to emphasize the role of human agency and promote students' critical decision-making and professional ethics, rather than positioning AI merely as a replacement for human translators.

By contrast, principles of sustainability and justice received limited attention, likely due to students' limited exposure to broader social and environmental implications of AI in their translation classes. Therefore, AI literacy in translation education should extend beyond tool use and efficiency to include explicit instruction in sustainability and justice, through structured prompts, scenario-based discussion, and reflective tasks that focus on these 'hidden' dimensions.

Generally, to foster more responsible AI use, educators need to integrate translation ethics into the curriculum, with a specific focus on AI-related dilemmas. AI platforms should provide clear policies on copyright, data ownership, and ethical boundaries. A combined effort from different stakeholders can help ensure that future translators are both competent and ethically grounded.

The study limitations involve a predominantly female sample in a single context, which may influence the distribution and generalizability of reported ethical perceptions, and the use of a self-reported questionnaire, which may be subject to recall bias. Therefore, future research should replicate the study with more diverse participant groups and across many contexts to strengthen transferability. Furthermore, potential research should expand the research scope by exploring students' actual AI use behaviors and the impact of exposure to AI tools on students' professional identity development and their long-term attitudes toward the human role in translation.

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