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From Compliance to Critical Literacy: Teaching GenAI Translation Ethics through Synthetic Scenarios

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ABSTRACT

The rapid integration of Generative AI (GenAI) into the translation industry has outpaced the development of ethical pedagogical frameworks, leaving students ill-equipped to navigate complex human-machine collaborations. This study addresses this gap by proposing a Situated Learning approach to the teaching of GenAI ethics. Grounded in the 2025 TAC Guidelines for the Chinese translation industry, the study evaluates an instructional design that utilises synthetic, scenario-based learning materials.

As part of a Teaching Development Grant project, 72 translation students (BA and MA) engaged with a series of AI-generated ethical dilemmas focusing on transparency, risk management, and intellectual property. The intervention employed instructional scaffolding through immediate feedback loops (Moodle Lessons) followed by reflective inquiry. Results indicate that while the scaffolding effectively solidified surface knowledge of normative constraints, students struggled with 'grey area' decision-making, particularly regarding fan translation and copyright. Qualitative analysis shows students' understanding evolving from passive compliance to active Critical AI Literacy (CAIL) through the intervention. The study concludes that synthetic scenarios are a viable pedagogical tool for fostering moral imagination and supporting the teaching and learning of GenAI Translation Ethics.

Keywords: Adaptive Learning, Large Language Models, Pharmacology, Competency-Based Education

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INTRODUCTION

Large Language Models (LLMs) powering chatbots such as ChatGPT have demonstrated increasing ability in language processing and translation (Moreno García & Mangiron, 2024; Yao et al., 2025). Ethical issues regarding GenAI use in the translation industry have arisen alongside such affordances. AI systems typically source their training data from the internet and user inputs (Brown et al., 2020), to then integrate them into the training dataset so as to enhance model performance. Content uploaded to translation engines and chatbots may include confidential or sensitive information at risk of being accessed by third parties. General users of GenAI platforms may be provided with such content when interacting with the model, leading to secondary information leakage (Carlini et al., 2021). In addition, AI might provide copyrighted content as translation suggestions, but directly adopting such translations could pose infringement risks. Due to these and other risks, scholars are advocating for the integration of ethical considerations as part of translation education (Li & Liu, 2025).

In the field of translation, the translation industry is standing at the forefront of the AI impact, where Language Service Providers (LSPs) are now embracing GenAI technology by integrating such models into Computer-Assisted Translation (CAT) tools (Lambson & Han, 2025). This adoption, rather than a superficial response to the AI revolution, is driven by AI's potential to generate high-quality translations (Jiao et al., 2023; Yamada, 2024) and to streamline the translation process (Falempin & Ranadireksa, 2024; Raunak et al., 2023). Such incorporation into the industry is also arousing a transformation in translation education.

Research into the benefits and limitations of AI integration in educational contexts is ongoing as these models advance. Liu & Afzaal (2021) illustrated the huge potential in translation education and advocated for the establishment of AI-related translation courses, but demonstrated concern about the shift in translation pedagogy following the integration of AI into translation teaching and the potential consequences it may cause. Xu et al. (2025) also acknowledged the role of AI in translation teaching, noting that AI excels at handling surface-level language issues but still falls short in addressing deeper linguistic challenges, such as coherence. In their study, they called for the management of ethical issues related to AI-powered translation pedagogy. Similarly, Kwok et al. (2025) indicated that while AI contributes to improvements in specific aspects of student translation quality, persistent limitations shed light on the critical need to foster professional translator competencies, especially the cultivation of Critical AI Literacy (CAIL), 'the skills needed to work with and through AI technologies, and the active awareness of its affordances and limitations' (Giustini & Dastyar, 2024, p. 197).

To effectively develop CAIL among students, it is essential not only to focus on AI application skills but also to integrate ethical considerations into course design (Giustini & Dastyar, 2024, p. 206). However, the curriculum concerning ethical human-machine collaboration has not kept pace with the rapid development of AI technology, especially in the early stage of policy-making (Schiff, 2022). As a result, the teaching of GenAI ethics in translation education still remains limited (Li & Liu, 2025).

In the translation industry, ethical standards are constantly evolving. Moorkens and Rocchi (2020) found that the ownership that translators previously commonly had of their own translations and translation memories has gradually reduced. This situation is expected to

continue as translation data becomes more valuable due to the urgent need for machine learning (ML) in the AI era (Moorkens & Rocchi, 2020, p. 326). Data collection practices are specified clearly by translation service providers, but issues may occur unnoticed or without intention. For example, some users may assume the data was not shared with anyone, and others may have deleted their usage records, but were unaware that the provider still retained and used their data (Bowker, 2020). Facing this series of ethical concerns, although translation associations striving to protect translators' rights continue to emerge and related research is increasing, discussions on translation ethics and morality remain on the margins (Moorkens & Rocchi, 2020).

Moreover, a significant pedagogical gap remains in how to operationalise these ethical concepts in the classroom. Traditional lecture-based instruction is often insufficient for conveying the nuances of AI ethics, which requires students to navigate 'grey areas' rather than memorise static rules. While the technical aspects of prompt engineering are increasingly present in curricula, the cultivation of moral imagination, defined as the capacity to mentally simulate the potential consequences of one's decisions on various stakeholders, particularly in novel situations where existing rules are silent or ambiguous (Werhane, 1999), lacks pedagogical frameworks.

This paper proposes GenAI as a tool to generate synthetic scenarios for the learning of translation ethics. Synthetic learning content is understood here as GenAI output that has been generated by an LLM according to a prompt provided by a human (such as an educator or a student) for the purposes of teaching and learning. These scenarios are proposed as a support to authentic, real scenarios for teaching and learning.

Research has proven that the use of authentic artefacts has the potential to enhance learning (Gilmore, 2007; Mayer, 2020). However, such materials are often fixed and may lack customisability (Liu et al., 2024). Negative effects may derive from the direct use of authentic materials, such as cognitive overload or cultural alienation (Gilmore, 2019).

Recent research suggests that synthetic teaching materials, especially AI-generated videos and dynamically generated classroom resources, can often support learning outcomes comparable to traditional materials. In an experimental study, Netland et al. (2025) found that AI-generated teaching videos produced learning outcomes similar to those of human-made videos, although human-made videos had a slight advantage in perceived learning experience. A similar pattern appeared in Li et al.'s (2024) study, which reported no significant differences in recall, recognition, or affective responses across AI-generated synthetic video, human-generated video, and text-based materials, though participants generally preferred video over text. Jauhiainen and Garagorry Guerra (2024) reported that GenAI could be used to create and adjust text, illustrations, and exercises for pupils at different knowledge levels, with findings suggesting gains in motivation, classroom fit, and the achievement of lesson goals. Moreover, Xu et al. (2025) compared AI-generated instructional videos (AIIV), created using GPT, text-to-speech, and lip synthesis from slides and instructor photos, against traditional recorded videos (RV) for English word learning. AIIV matched RV overall in learning effectiveness, with superior retention scores but no difference in transfer tasks. It also reduced cognitive load despite lower social presence in RV.

These studies suggest that synthetic materials show potential due to their scalability, personalisation, and efficient production when paired with sound instructional design (Xiaoyu et al., 2025). GenAI can produce context-specific materials aligned with particular teaching and learning objectives, thereby enabling differentiated instruction and circumventing the challenges of adapting existing resources. Unlike authentic scenarios drawn from specific past events, synthetic AI-generated scenarios allow instructors to dynamically tailor the variables and constraints to specific pedagogical needs.

Under the support of a Teaching Development Grant (TDG) entitled “Enhancing Video Game Localization Education through Generative AI: Authentic Learning and Assessment via Synthetic Data, Scenario Creation and Adaptive Feedback”, this study explores students’ awareness of ethics in the AI-assisted translation industry by analysing the results from a summative quiz and open-ended questionnaire completed by 36 Translation BA students and 36 Translation MA students, exploring ethical concerns in the GenAI industry. The primary objective is to evaluate the effectiveness of this synthetic scenario approach in improving students’ ethical reasoning, while simultaneously assessing their baseline awareness of GenAI translation ethics. By doing so, this work advances teaching and learning scholarship beyond the translation discipline, offering a generalisable pedagogical model for ethics education in any field grappling with GenAI integration.

The study is guided by the following research questions: 1. What is the current level of translation students’ understanding regarding GenAI ethics?; 2. How effective are synthetic, AI-generated, instructor-curated scenarios as pedagogical tools for teaching translation ethics?; 3. What are the pedagogical implications and recommendations for developing a GenAI ethics curriculum?

MATERIALS AND METHODS

The pedagogical flow followed in this study consisted of Scenario Generation using GenAI, followed by Student Interaction (Quiz), Immediate Feedback (Loop) and Student Reflection. The pedagogical design of this study is grounded in Lave and Wenger’s (1991) theory of Situated Learning, which argues that learning is a function of the activity, context, and culture in which it occurs. By simulating the specific constraints of the translation industry, such as strict data regulations and copyright ambiguities, the synthetic scenarios move students from abstract ethical theory toward ‘legitimate peripheral participation’ (ibid), moving from low-risk cases to more unclear scenarios, exploring surface knowledge first and then moving towards deeper knowledge (de Jong & Ferguson-Hessler, 1996). Furthermore, the study employs Instructional Scaffolding (Wood et al., 1976). The immediate feedback loop in the multiple-choice quiz serves as a hard scaffold, correcting surface-level misconceptions instantly, while the subsequent open-ended reflection serves as a soft scaffold, encouraging students to internalise and articulate their own ethical reasoning. The combination of scenarios with quizzes received strong inspiration from the PI’s participation in the project “Enhancing Learning and Teaching of Digital Citizenship through Scenario-based AR Learning Trails”, led by Dr. Theresa Kwong at Hong Kong Baptist University (HKBU).

Simulated real-world scenarios were the pedagogical approach adopted by this study, which can help bridge the gap between theory and practice while alleviating students’ negative

emotions towards ethical topics (Baker & Maier, 2011). From a career development perspective, scenario-based teaching and learning methods help students acquire ethical knowledge in the translation industry prior to entering the workforce, enhancing their professional competence (Greere, 2024; Wong et al., 2018).

Chatbots are increasingly being leveraged to generate synthetic learning materials for translation and language learning due to their capabilities for creating texts and audio in multiple languages, adaptable to specific domains (Koç & Savaş, 2025; Nadas et al., 2025). In translator training, chatbots can act as classroom content generators, with instructors reviewing the synthetic texts for accuracy, bias, and pedagogical fit (Yigci et al., 2025).

At the design stage, the AI models GPT 4-O (accessed via HKBU GenAI Platform) and Grok3 were adopted to generate ethical scenarios linked to common ways human translators may leverage GenAI for translation purposes. To ensure the scenarios were pedagogically sound yet challenging, a 'few-shot' prompting strategy was employed. Prompting was performed in Chinese. The AI was provided with specific clauses from the TAC Guidelines and instructed to generate scenarios where translator actions, such as uploading a text to a chatbot, sharing an image for context, etc., could be ethically compromised, providing the most ethical approach as the correct answer, as well as three incorrect answers. The chatbot was also prompted to generate a text to be displayed after each incorrect answer, explaining the ethical issue arising from performing the action.

Scenario creation was based on the 《翻译行业生成式人工智能应用指南（2025）》 (Guideline for the Application of Generative Artificial Intelligence in the Translation Industry (2025); translated by the authors, hereafter, the Guideline) released by the Translation Technology Committee affiliated with the Translators Association of China (TAC). The rationale for utilising the Guideline in this study is twofold. According to China.org.cn. (2025, April 30), the Guideline is the 'first systematic AI application guideline specifically tailored for the translation industry' (translated by authors from: '首个专门面向翻译行业的系统性 AI 应用指南'), playing an important role in the development of AI usage norms in the translation industry. Specifically, the contents of Parts 6 to 8 were adopted for quiz design, as these are related to ethical issues. Part 9 was excluded from this research as it focuses on 'Quality Control: A Closed Loop of Values and Cultural Adaptation' (translated by the authors from: '质量管控:价值观与文化适配闭环').

Utilising the TAC Guideline provides a critical non-Western perspective on AI governance. Considering that all participants were from the Chinese mainland and Hong Kong, the Chinese origin of the guidelines was considered a crucial aspect, ensuring that students are trained on compliance frameworks they will actually encounter in their regional careers.

This quiz was designed to focus on industry standards, emphasising the importance of transparency, managing risks, and intellectual property respect under scenarios that mirror the real-world future working environment. It aimed to prepare students for real-world compliance rather than hypothetical technical scenarios. By focusing on these high-level concerns, the quiz targeted the decision-making processes of students rather than any technical proficiency, which was tested and trained in other activities of the TDG project. Sensitive topics such as politics, religion and AI displacement were not included, as the most

appropriate response would vary from person to person. A total of ten scenarios were selected by researchers after discussion and adapted for the study. Ten was determined to be the optimal number to provide comprehensive coverage of the TAC Guidelines' core ethical tenets without inducing cognitive overload or survey fatigue. Empirical evidence from Bunce et al. (2010) demonstrates that student attention in educational settings features frequent short lapses rather than a strict 10-20-minute limit, but overall engagement sustains for 15-20-minute activities when structured appropriately. For a 10-question quiz (1.5-2 minutes per question), this duration aligns with optimal quiz lengths, with short formats minimising cognitive fatigue.

In **Table 1**, the corresponding sections of the Guideline are listed for each of the ten questions. All the descriptions in **Table 1** were translated by researchers, as no official English version of the Guideline has been released. In the design of the questions, both Sections 6.1 and 6.2 of the guidelines correspond to two questions each, because in the real working scenarios, one translator will be situated in different working environments, for example, individually or collaboratively. Based on Section 6.1, we designed two multiple-choice questions focusing respectively on individual AI use and team-based AI use. In questions relating to Section 6.2, Specify Usage Scenarios, in addition to uploading text files, image upload was also included to refer to elements of specific translation workflows, for example, video game localisation, which include multimedia materials (Bernal Merino, 2016). Since the Guideline is a public document, to prevent students from previewing it and anticipating the theme of the following questions, the question order, which is based on the chapter sequences, was shuffled by the researchers.

Table 1. Quiz design, including question number, real-industry situation and guideline entry focus

Question Number	Real-industry Situation	Guideline Entry Focus
Question 1 (Q1)	File uploading	6.2 Specify Usage Scenarios
Question 2 (Q2)	Subtitle	6.3 Risk Prevention and Management
Question 3 (Q3)	Image uploading	6.2 Specify Usage Scenarios
Question 4 (Q4)	Terminology Extraction	7.1 Basic Assistance Scenarios
Question 5 (Q5)	MTPE	7.3 Resolution of Responsibility Disputes
Question 6 (Q6)	Account Sharing	8.2 Private Data Protection
Question 7 (Q7)	Decontextualisation	7.2 Creative Collaboration Scenarios
Question 8 (Q8)	Collaboration	6.1 Obtain Authorised Consent
Question 9 (Q9)	Fan translation	8.1 Technical Ethics Adherence
Question 10 (Q10)	Data for Personal use	6.1 Obtain Authorised Consent

In this study, a quiz consisting of ten multiple-choice questions and three open-ended questions was provided to 72 participants. Students had no time limit to finish the quiz, but on average, finished it in 20-30 minutes. This study involved 36 MA students and 36 BA students from both the Chinese mainland and Hong Kong majoring in Translation at Hong Kong Baptist University (HKBU). The quiz was provided in Simplified and Traditional Chinese, depending on student demographics, and was provided via Moodle. Each multiple-choice question of the quiz had four response options. Only one option was considered the most appropriate.

All participants signed a consent statement before their participation. All aspects of this study complied with the ethical policies of HKBU. The BA students were enrolled in courses that were inherently part of the Translation programme, their output being collected as part of in-

class tasks. Students were explicitly informed that the scenarios were generated by chatbots and that their anonymised quiz responses and reflections would serve as research data.

As a preliminary study for the development of ethics courses in the AI translation industry, the multiple-choice quiz targeted 'Understanding', while the qualitative reflection focused on 'Analysis' and 'Evaluation' (Anderson & Krathwohl, 2001). While quizzes can sometimes prompt grade-seeking behaviour rather than genuine comprehension, this assessment was strictly formative, emphasising the looping learning pattern rather than a final grade, thereby encouraging authentic engagement with the ethical concepts. These two components provide timely feedback and reinforce knowledge acquisition through repetition, self-reflection, and thinking expansion.

Immediate feedback about the task (FT) was included to support understanding. FT covers how the task is performed, including 'distinguishing correct from incorrect answers, acquiring more or different information, and building more surface knowledge' (Hattie & Timperley, 2007, p. 91). Immediate feedback was included due to its potential to accelerate the learning process (Hattie & Timperley, 2007). Instructor-provided feedback was implemented via the 'Lesson' function in the Moodle teaching platform. For the ten multiple-choice questions, if a student selected the correct option, the system immediately displayed an explanation for that option. If a student selected an incorrect option, the system popped up an explanation and returned to the question's stem, requiring the student to reattempt until the correct option was selected before proceeding. For instance, in a situation involving extracting terminologies from a text under the uncertainty whether the use of AI tools is approved for this purpose, if a student incorrectly chose to anonymise the text to remove any identifiable confidential information when using the AI tool, the feedback message explicitly stated: 'Being unethical. Anonymising the text might reduce risks, but it doesn't guarantee full compliance with the Non-Disclosure Agreement (NDA). It's better to seek explicit permission. Please try again.'

Students performed analysis and evaluation by completing three open-ended questions in Moodle, which were displayed immediately after the quiz. The open-ended questions concentrated on what they learned and solutions to the scenarios in both the quiz and their own responses.

Quiz results were collected and analysed, focusing on the success rate of each multiple-choice question. The success rate was calculated according to four dimensions, as all students were allowed to perform four attempts of a question with four choices. Students were expected to discard all inappropriate options within four attempts, selecting the most appropriate answer to progress. Each answer included an explanation to ensure a looping learning pattern and to help filter out low-quality data from students who intentionally chose incorrect answers or selected at random. The first-attempt success rate was adopted to analyse students' initial understanding of the questions, while the success rates of the second and third attempts were employed to identify weaknesses in students' ethical understanding and to evaluate whether the explanations were helpful for comprehension. The fourth attempt explored whether all students had selected the most appropriate option. If any student still failed after a fourth attempt, that data would be considered invalid and removed. The base number of students analysed for each attempt varies, corresponding to the number of students participating in that attempt.

All participants were invited to answer three open-ended questions regarding the quiz and other ethical issues as a way of self-reflection directly after the quiz: 1. What have you learned from the quiz?; 2. What questions or doubts regarding ethical AI use for translation do you have after taking the quiz?; and 3. Are you aware of any other potential ethical issues regarding AI use for translation, and how can these issues be resolved?. All the responses to open-ended questions were qualitatively analysed through thematic analysis (Braun & Clarke, 2006), a qualitative research method that 'involves searching for recurring ideas (referred to as themes) in a data set' (Jason & Glenwick, 2015, p. 33). It is a flexible means of qualitative analysis, providing space for creativity and reflection for researchers employing different research methods (Braun & Clarke, 2019). The qualitative data collected were analysed through NVivo 15 and visualised with the help of a mind map generator, Xmind. All the qualitative data underwent six stages of thematic analysis (Braun & Clarke, 2006) under several rounds of recoding and discussion among the research team members to ensure the outcome was able to tell a comprehensive story of the data set. To ensure methodological rigour, intercoder reliability was established by having two researchers independently code a 20% sample of the qualitative responses; discrepancies were resolved through consensus discussions until a high agreement rate was achieved.

RESULTS

The results of this study consist of quantitative results from quiz performance and qualitative outcomes from open-ended questions.

Quantitative Results

The average first-attempt success rate is 81.80% for all ten questions. For each question, the lowest one-time success rate is at 54.17% (Q9), and the highest is at 95.83% (Q8). From the overall trend of the first-attempt success rate, as the question number increases (i.e., as time progresses), there is no obvious continuous decline, which indicates that students were not or were only minimally affected by fatigue when participating in the quiz (See **Figure 1**).

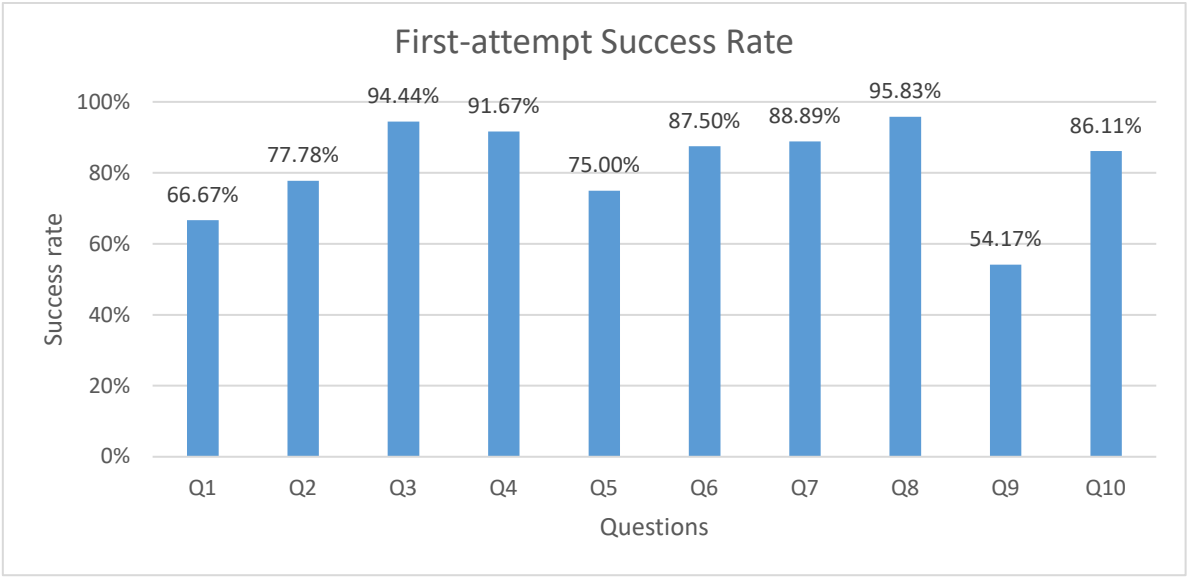

Figure 1. The First-Attempt Success Rate

In **Figure 2**, the average second-attempt success rate is 75.48% for all ten questions. The lowest second-time success rate is at 50.00% (Q5 and Q7), and the highest is at 100.00% (Q8), indicating that at least half of the students who entered the second run of attempts could figure out the correct option after eliminating one inappropriate option and receiving an explanation. From a probabilistic perspective, after excluding one incorrect option in a four-option multiple-choice question, the probability of selecting the correct answer is 33.33%, but the average accuracy rate observed in this study is 75.48%. This may suggest that immediate explanations of incorrect answers may be effective in improving their accuracy.

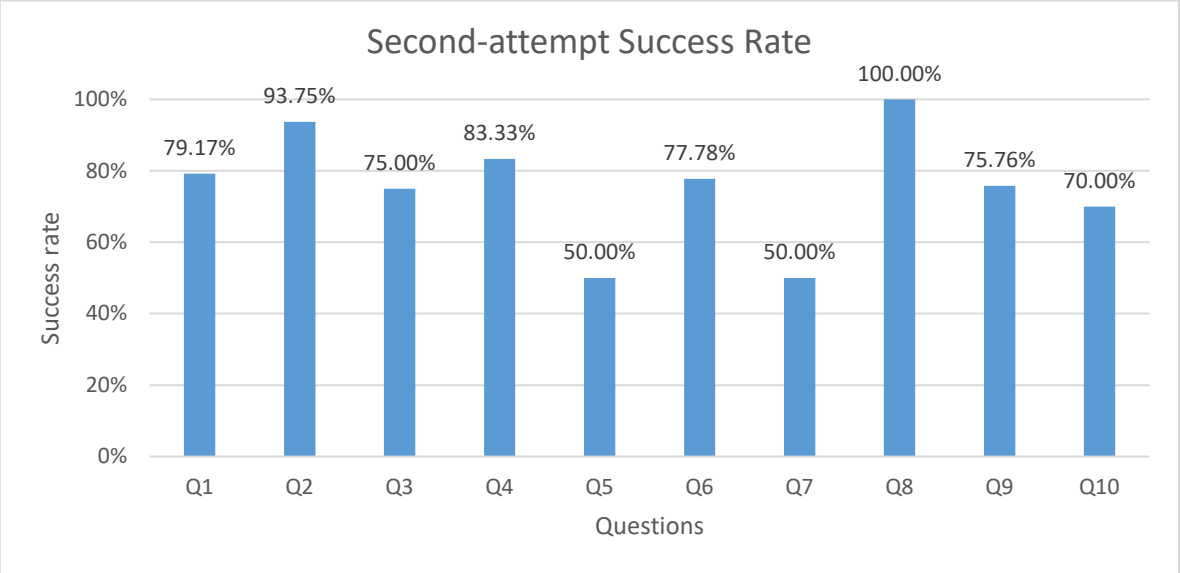

Figure 2. The Second-Attempt Success Rate

The average third-time success rate is 81.05%, with the highest being at 100.00% (Question 2, Question 3, Question 4, and Question 6), and the lowest third-time success rate is at 50.00% (Question 9) (See **Figure 3**). From a probabilistic standpoint, after eliminating two incorrect options in a four-option multiple-choice question, the probability of selecting the correct answer is 50.00%, whereas this study observed an average accuracy rate of 81.05%, highlighting the role of immediate feedback in enhancing performance. For Question 9, despite providing explanations for each incorrect option, the accuracy rate on the third attempt remained at 50%.

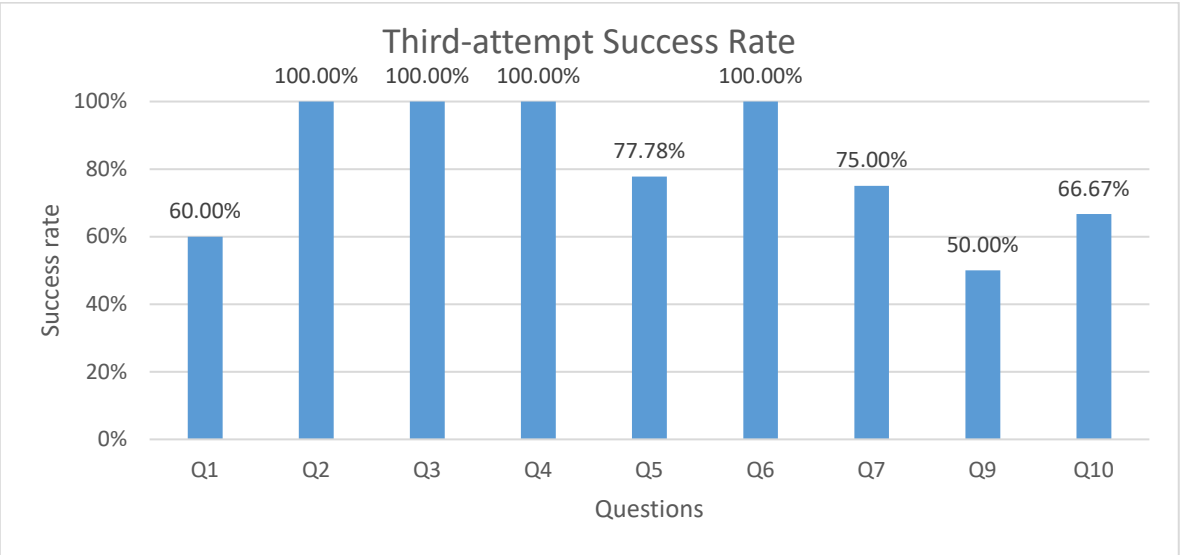

Figure 3. Steps 1 to 5 of the PLUS approach with an example of scores

After eliminating three options, all students successfully selected the correct option, with no student requiring more than four attempts, indicating to some extent that students did not apply a completely random approach to responding. (See **Figure 4**).

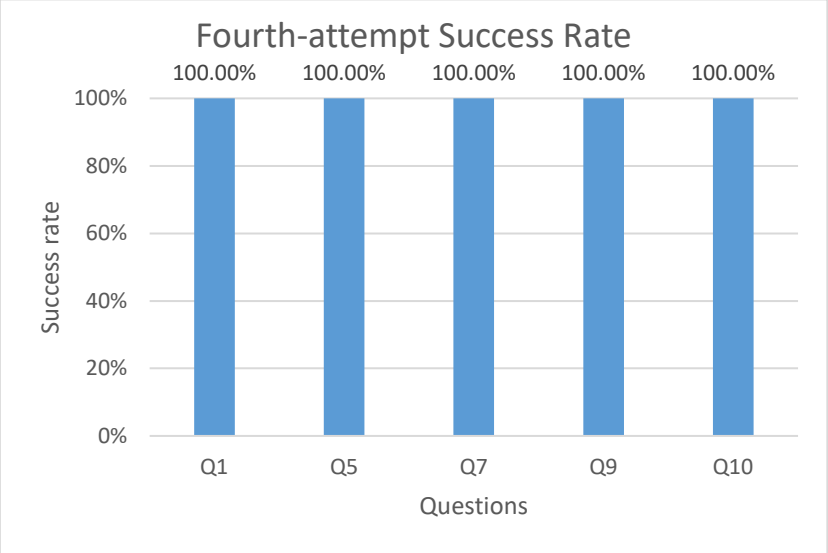

Figure 4. The Fourth-Attempt Success Rate (Q1, 5, 7, 9 and 10)

Students made two mistakes on average during the quiz, pointing to blind spots. On average, students made 12 selections during the quiz. The improvement from the first to the third attempt demonstrates the efficacy of the immediate feedback loops inherent in the Moodle Lesson design.

Quantitative Analysis

Three themes were identified (see **Figure 5**): (1) challenges in the current ethical framework, with 95 codes representing 75.00% of respondents (54 out of 72); (2) the complexity of ethical decision-making, with 87 codes representing 72.22% of respondents (52 out of 72); and (3) future solutions emphasising multi-stakeholder engagement, with 54 codes representing 59.72% of respondents (43 out of 72).

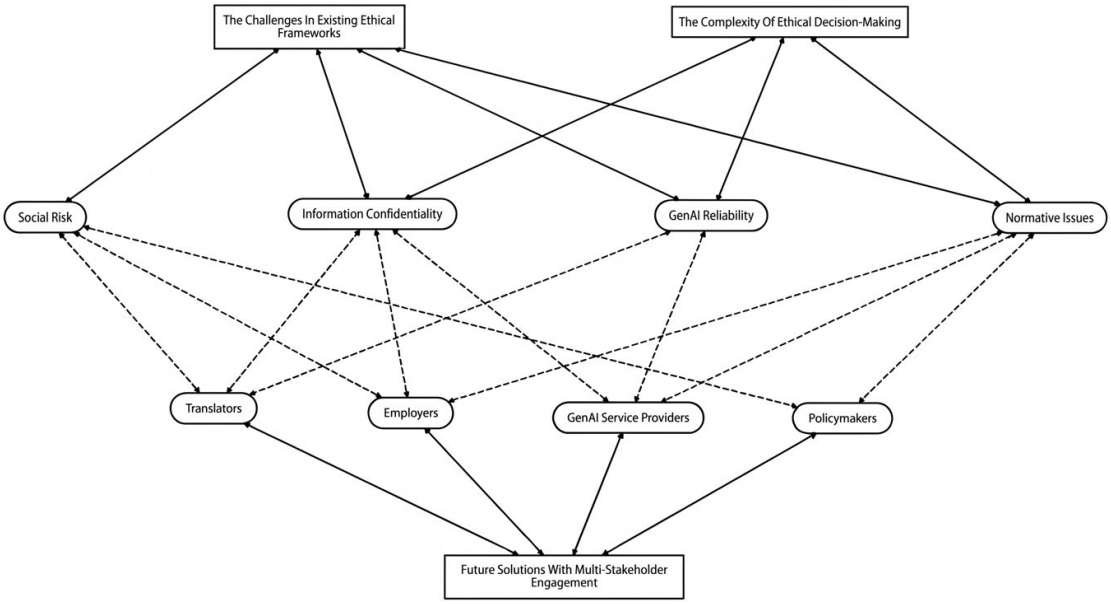

Figure 5. The Mind Map of Themes [1]

After the quiz, 52 out of 72 students (72.22%) shared ethical concerns regarding 'decision-making' (87 codes), which were discussed from three key aspects: 'normative constraints' (66 codes), 'confidentiality' (16 codes), and 'AI reliability' (five codes). 48 out of 72 respondents (66.67%) mentioned normative constraints such as 'authorisation', 'laws and regulations', 'copyright issues', and 'moral constraints'. 16 out of 72 respondents (22.22 %) stated 'confidentiality', which refers to the protection and the risk of leakage. Five respondents (6.94%) highlighted concerns regarding 'AI reliability', specifically the dependability of AI-generated content (AIGC). Reliability was found to be influenced by multiple factors, including the choice of model, prompt strategy, and the nature of content uploaded to the AI service. One student reported that 'By using AI on translation, not only the consent and permission among all the participants are important, (but) the confidential contents of the documents must also be taken into consideration', another student noted, 'Whether acting as a company or an individual translator, it is essential to seek explicit permission from the client, software provider, or relevant organization to secure necessary authorisation.' In view of the complicated working situation, one student concluded that '(…) [W]hen using AI in the translation process, we need to consider various ethical issues, mitigate all kinds of risks, while not sacrificing efficiency and accuracy.'

Students were aware of copyright issues. One student claimed that 'In translation projects, if situations arise that involve others' copyrights or trademark rights, it is necessary to abide by the principles of intellectual property protection and not plagiarise others' work', and a different student noted, '[b]e careful with any information about the project in case the materials are leaked.' Moreover, a third student shared: 'For commercial translation, sometimes security and copyright are more important than the content.'

54 out of 72 students (75.00%) posed questions about challenges within the current ethical framework. Among all the questions raised, 'AI reliability' (35 codes) was the most-discussed topic with 27 respondents (37.50%), followed by 'normative issues' (34 codes, 27 respondents, 37.50%). 15 out of 72 respondents (20.83%) mentioned 'confidentiality' (15 codes), and 11 out of 72 (15.28%) respondents noted 'social risk' (11 codes). Regarding the reliability of AI output, 'accuracy' was the most mentioned topic, which was stressed by 13 respondents (18.06%). Students highlighted the potential risk of misguidance, ambiguity, and unsatisfactory performance. One student pointed out: 'AI translation may lack accuracy, leading to the spread of errors or misleading information. This could have serious consequences in fields such as law and medicine', and another student argued: 'AI translation may fail to accurately capture cultural nuances or context'.

Beyond concerns about accuracy, nine students (12.50%) focused on 'fairness' and 'bias', including sensitive topics such as politics, religion, and linguistic hegemony. One student mentioned: 'AI translations might lead to cultural conflicts or offend certain groups, such as Muslims.' In view of the linguistic hegemony, one student stated that 'AI translation risks perpetuating cultural biases by favouring dominant languages (…)'. Apart from stating challenges, nine students (12.50%) raised questions about how to address these. For example, one student asked: 'What should I do if the AI still can't provide a satisfactory answer, even after I've given it various prompts?'

In terms of the challenges in 'normativity', 27 out of 72 students (37.50%) emphasised the importance of 'copyright' (22 respondents, 30.56%), 'regulation' (nine respondents, 12.5%),

as well as ‘moral constraints’ (2 respondents, 2.78%). They raised questions about the copyright of AI-generated content. One asked, ‘Does AI Translation count as my own translation, if there are no set laws that allow people to freely use or possess translation by AI?’ Another student pointed out the possibility that ‘[s]ome amateur translators use AI work and claim it’s their manual work.’ Furthermore, students extend their concerns to the risk of infringement. For example, one student noted, ‘AI translation may translate some unpublished books, which would infringe the author’s copyright.’ Another student asked, ‘If all parties permit the use of AI, are there still copyright issues with the final work after using AI for game localisation?’ Regarding this question, one student provided their opinion: ‘I don’t accept that even if I am hired to do a translation, I have no right to use the translated content for my personal learning purposes. Translation is a form of labour, and the fruits of that labour should belong to the labourer.’ Their statement aligns with scholarly views. Moorkens and Rocchi (2020) asserted that, even though it has become standard for translation resources to be returned to employers, this practice still has shortcomings in legal and ethical aspects. Moreover, sharing a part of the copyright with translators will not undermine the creativity of the target text and can boost its economic value (Lee, 2020).

Within the theme of normative issues, students expressed concerns about the absence of regulations. One student pointed out that ‘In the field of translation, there is still a lack of relevant regulatory frameworks for AI.’ Another asked, ‘Different countries employ different AI regulations. When we deal with international translation tasks, what should we do to deal with compliance troubles?’ Under these circumstances, students considered that morals would be an alternative guidance for the AI-involved industry, but at a high risk. One of them stated: ‘I think it is too ideal to ask people to follow the ethical way of using AI in their work; most of them might omit the terms from both clients and AI tools, just because people are always seeking the most convenient way, or a lack of knowledge of using AI might cause data leakage.’ Another explained: ‘So far, legal regulations related to AI applications are still incomplete, and many scenarios rely on moral constraints to guide behaviour, which is unreliable. Even moral requirements have not yet reached a consensus in the context of AI use. Moreover, regulations vary across different regions, making it challenging to protect rights.’

‘Confidentiality’ is another topic indicated by 15 out of 72 respondents (20.83%). From the responses, the risks and vulnerabilities associated with information leakage stem from two aspects: the AI usage methods and the AI tools themselves. Students raised concerns regarding both how AI was used and the content that was input, for example: ‘If you provide your translated version to AI for checking or improvement, it might learn from it and offer your translation to others.’

Regarding the AI models themselves, one student asked: ‘Is it possible that even if we set the AI tools to be offline, it still uploads the data?’. This and other comments, as well as their emphasis on using ‘safe’ locally deployed AI models and avoiding uploading sensitive information, show that translation students possess a certain level of ethical awareness regarding confidentiality, which can prevent them from leaking information. However, students believed that even in ‘safe’ scenarios, such as locally deployed offline AI tools, there was still a potential risk of information leakage. As a solution to this, one student proposed: ‘Since AI

is the most convenient tool for translation, should every company have its own independent system to avoid confidentiality issues?'

Students also showed concerns about social risk. 11 out of 72 respondents (15.28%) highlighted the 'social risk' of AI use, including the 'allocation of responsibility'. For example, one student asked, 'If the client allows us to use a specific AI tool and it unfortunately leaks data, who should be responsible?' Another student questioned, 'When AI and humans work together on translation tasks, if a major error occurs, who should bear the consequences?' In addition, students expressed concerns about the future landscape of the translation industry, such as the possibility of being replaced by AI: 'As AI becomes more accurate, will it eventually replace us? Can we become people who debug AI?'

To these challenges above, students provided their solutions from four perspectives: translators (39 codes), employers (one code), AI service providers (seven codes), and policymakers (seven codes). 33 out of 72 respondents (45.83%) stated what translators can do to prevent potential ethical risks. Among them, 13 students (18.06%) mentioned the importance of manual post-editing, including the concepts of AIGC reliability and copyright issues. One student reported that 'The phrasing (provided by AI) may be awkward or unclear, and data provided may be inaccurate or fabricated. The translator needs to proofread the translated draft thoroughly.'

To ensure satisfactory manual post-editing, it was deemed necessary to strengthen one's own professional capabilities and ensure that sensitive information has been removed from content uploaded to the AI. One student reported that 'The translator needs to possess the relevant cultural knowledge to identify and correct translation errors.' Another student said that '(…) Also, personal information needs to be detected and deleted before uploading anything to AI (…)'.

Furthermore, eight students (11.11%) highlighted the importance of gaining AI use approval from clients. One student stated that 'When using AI tools to help translation, we have to ask for agreement for using the tools with the clients.' Before selecting AI models for translation tasks, students suggested reviewing the privacy policies of AI service providers and considering using AI models from large companies as solutions. One student suggested, 'It is advisable to choose AI from major corporations as a translation aid. Since these tools are backed by large companies, the likelihood that their training data involves copyright infringement is lower than that of smaller companies.'

To clarify potential issues regarding responsibility allocation, students suggested marking AI-generated content, using work accounts, and explaining the benefits and drawbacks of AI use to clients. Given the complexity of ethical considerations surrounding AI use, three students (4.17%) directly proposed using AI sparingly, or even not to use it at all, to maximally avoid ethical issues: 'I was aware about privacy and copyrights, the way for me to resolve this issue is usually just to avoid using AI in this area.' For employers or clients, one student (1.39%) hoped that they specify responsibility allocation when drafting contracts: 'Clearly define the boundaries of responsibility when using AI translation tools, and stipulate possible liability sharing in the contract.'

For AI service providers, six students (8.33%) raised the need for model enhancement and systematic supervision. One student said, 'I think we should strengthen the protection of data

privacy and safety, to build up a more open, inclusive and fair AI translation model (…).' Another student mentioned, 'We may develop robust detection systems and guidelines to mitigate misuse.' Six students (8.33%) recommended policymaking from two perspectives. On the one hand, they call for enacting more regulations: 'There is still a lack of relevant management systems for AI in the field of translation; industry planning guidelines and management measures can be issued accordingly.' On the other hand, they advocate for education and public awareness. One student suggested that '(…) governments can put more effort into promoting and educating the society on the correct way to use AI tools without offending our privacy and confidential information from work.'

Results indicate that students' ethical considerations in AI-assisted translation fall into two main categories. The first involves students' ability to use AI tools within suitable ethical frameworks. The second pertains to identifying and resolving ethical issues in AIGC during the translation process. These categories reveal pedagogical shortcomings in translation education and point to opportunities for incorporating ethics more robustly.

DISCUSSION

The discussion section covers the implications of the quantitative results, students' reflections, and how the study informs translation education, in separate subsections.

Implications of the Quantitative Results

The quantitative results validate the efficacy of using synthetic scenarios combined with immediate feedback loops. The high average first-attempt success rate (81.80%) suggests that the AI-generated, instructor-curated scenarios were realistic and accessible, grounding abstract ethical norms in translation contexts.

However, the data also highlights the necessity of the loop mechanism in the instructional design. The improvement in success rates across attempts (rising to 100% by the fourth attempt) confirms that the hard scaffolding provided effectively corrected surface-level misconceptions in real-time. This supports Hattie and Timperley's (2007) assertion that immediate feedback accelerates learning by helping students quickly distinguish correct from incorrect constraints.

A critical exception in the quantitative data was Question 9 (Fan Translation), which retained a low success rate (50.00%) even on the third attempt. This persistence of error, despite feedback, indicates that 'grey areas' regarding intellectual property cannot be solved through simple feedback loops alone and require deeper, qualitative intervention.

Student Reflection Implications

While the quantitative data showed high compliance, the qualitative themes reveal that this compliance is largely driven by anxiety. Students identified normative constraints as the primary hurdle in AI-assisted translation. While 37.50% (27 respondents) cited normative issues as a significant challenge, 66.67% (48 respondents) identified them as the main source of difficulty in decision-making. This apprehension is consistent with the academic discourse, which highlights deficiencies in ethical education about AI-assisted translation. Specifically, systematic instruction in AI ethics is often absent from translator training programmes, where

educational emphasis is typically placed on AI's potential as a productivity tool (Li & Liu, 2025). This suggests that students currently view ethics as a system of punitive constraints rather than a professional competency.

This uncertainty is compounded by an uneven distribution of regulatory power, where employers and AI providers set rules that translators must passively follow. Students expressed significant fear of being held liable for navigating 'loopholes' in incomplete legal frameworks. If students are not educated on these norms, harmful practices, such as stripping translators of copyright, could become industry standards (Lee, 2020). To counter this passive compliance and bolster Critical AI Literacy (CAIL), curricula should include industry expert insights and compare local standards, such as Chinese Guidelines, with international frameworks like the EU AI Act (2024).

Confidentiality remains a critical source of anxiety, with approximately 20% of students worrying about data leakage and its impact on their workflows. Students showed awareness of technical risks, such as secondary information leakage where models train on uploaded data (Carlini et al., 2021), but they lacked knowledge of industry-level solutions. While students suggested basic personal precautions, they were unfamiliar with the enterprise-grade private models now employed by Language Service Providers (LSPs) to secure data (Lambson & Han, 2025). Incorporating these corporate solutions into the curriculum is essential to bridge the gap between student fears and professional realities.

Although the quiz focused on industry standards, 15.28% (11 respondents) highlighted broader social risks, specifically workforce displacement and the ambiguity of responsibility allocation in human-AI collaboration, issues also discussed by Yu and Liu (2024). The emergence of themes such as 'social risk,' 'bias,' and 'job displacement' indicates that students are moving toward Critical AI Literacy (CAIL). They are correctly identifying systemic risks, such as 'Who is responsible if AI fails?', even if they lack the agency to solve them. This shift validates the study's goal of fostering moral imagination. These concerns also underscore the need for a curriculum that goes beyond technical skills. By integrating sociological perspectives, educators can empower translators to comply with standards, but also to actively participate in shaping a more equitable and sustainable AI translation ecosystem.

Concerns regarding the reliability of AI-generated content were prevalent, with 37.50% (27 respondents) questioning the quality of AI output. However, 76.74% of students focused exclusively on the translator's role in fixing errors, while only 8.33% considered the accountability of AI service providers. This tendency to internalise responsibility, viewing the translator as the sole gatekeeper, highlights a need for pedagogical adjustment. To transform this anxiety into competence, translation courses should incorporate practical workshops on prompt engineering and post-editing, training students to realistically assess and manage the quality limitations of specific models.

The study identified a significant blind spot regarding 'fan translation' and copyright (Question 9), which yielded the lowest success rates (54.17% on the first attempt and 50.00% on the third). Even with immediate feedback, students struggled. When presented with a popular but unauthorised fan translation, students frequently opted to credit the fan creator rather than produce the original work required by their employer. This failure highlights a misunderstanding of professional integrity. While fan translation is a valid social phenomenon,

professional translators must prioritise the client's copyright ownership over community norms (O'Hagan, 2021). This persistent confusion reflects the 'grey legal area' described by O'Hagan (2009), where unauthorised translation often enjoys tacit approval until it conflicts with commercial interests. For example, the 2016 Nintendo Pokémon controversy in Hong Kong, where a legally sound but culturally insensitive standardisation sparked protests (Tong, 2018), comes to mind. Fan translation presents a particularly difficult ethical dilemma in the Chinese and Hong Kong contexts, where strong participatory digital subcultures often view unauthorised but culturally nuanced translations as acts of community service that supersede corporate copyright. To address these culturally embedded dilemmas, educators must go beyond standard compliance checks. We recommend utilising concrete pedagogical strategies such as guided classroom debates or stakeholder role-play exercises, where students must explicitly argue from the conflicting perspectives of the copyright holder, the LSP, and the fan community. This suggests that further ethical education is required to prepare students for the nuanced reality of the AI era.

Pedagogical Implications for Translator Education

The study validates the utility of synthetic GenAI scenarios. From an instructional perspective, the use of synthetic scenarios significantly reduced the burden of materials preparation by acting as a brainstorming and personalisation tool. Instructors can include key items in their prompts, such as guidelines, level of scenario difficulty, students' knowledge, area of expertise, etc., to obtain the most relevant ethical scenarios. Instructors can then select the most relevant cases, with optional modification. Having said that, according to our experiences, human quality control is highly encouraged when engaging the chatbot for synthetic material creation, such as quizzes. For example, during the experiment, it was detected that chatbots tended to provide incorrect options that proved too easy to detect by both instructors and students during pilot testing. By using LLMs to generate learning materials, and then curating and improving their output, instructors can develop multiple scenarios, allowing for high-frequency, low-stakes testing of ethical decision-making, which is difficult to achieve through traditional essay-writing.

The data suggest that scaffolding effective failure is a potent teaching tool. The low success rate on Question 9 (Fan Translation) highlights that students struggle most when professional ethics conflict with digital subcultures. Educators should not view this failure negatively but use it as a 'teachable moment' (Hattie, 2012) to spark classroom debate. Divergences like these between the industry answer and the students' intuition reveal areas where the curriculum must focus.

Finally, the transition from surface knowledge (quiz) to deep reflection (open-ended questions) underscores the need for CAIL. Students demonstrated they could identify what was wrong, such as normative constraints, but struggled with how to solve it, lacking agency. Curriculum design must advance from raising awareness to the more complex ethical competence building, for instance, by incorporating role-play exercises where students imagine actions from different roles. This role-playing approach is further validated by results, since students struggled to see the client or provider's point of view. Thus, future scenario-based learning should force students to act as other actors to help them internalise the multi-stakeholder nature of the translation industry.

CONCLUSION

Quiz results show good performance at surface-level compliance, but issues remain in complex grey area decision-making. Students can develop their ethical approaches to AI-assisted translation work via synthetically created, instructor-curated scenarios, pairing instructional scaffolding for guidance and post-quiz reflection exercises for criticality, as required. Moreover, a greater number and variety of ethical scenarios can be provided thanks to the brainstorming support of GenAI, benefitting instructors.

While this study offers valuable insights into student perceptions of GenAI ethics that can support and inform curriculum development, several limitations should be noted. The sample size (N=72) is relatively small and confined to a specific university context, which may limit the generalisability of findings to other Asian educational systems with different legal AI frameworks (e.g., Japan, South Korea, etc.). Additionally, the reliance on self-reported data in the qualitative section may reflect social desirability bias, where students express more ethical caution than they might exercise in a real-world, deadline-driven environment. Future studies could gather more detailed qualitative data via interviews or employ longitudinal observation to explore how ethical awareness training translates into, for instance, behavioural change.

Ultimately, this study argues that ethical competence in the GenAI era cannot be taught through static textbooks. It requires dynamic interventions that simulate the messy reality of the industry. By adopting such approaches, educators can transform students from passive users of AI tools into critical, ethically aware gatekeepers of cross-cultural communication. In doing so, this research aligns with Felten's principles of good scholarship of teaching and learning (2013) by focusing on student learning, being grounded in context, and providing a methodologically sound, generalisable framework that invites further public sharing and peer review across disciplines.

ENDNOTE

1. Square boxes represent themes, while oval boxes represent key codes within the themes. Solid arrows indicate the affiliation between topics and themes, and dashed arrows between topics indicate associative relationships.

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