SIGEH ELT: Journal of Literature and Linguistics
Volume 6 Number 1, March 2026, pp: 951-961
E-ISSN: 2775-8834

Integrating Metacognition and Artificial Intelligence in Translation Pedagogy: A Mixed-Methods Needs Analysis of Students and Instructors

Carla Maretha[1], Hesti[2], Musiman[3], Anisa Maulani[4]
[1234]English Literature Study Program, Universitas Muhammadiyah Lampung, Indonesia

Article Info

Submitted:
30 April 2026
Reviewed:
26 July 2026 – 1 September 2026
Accepted:
4 September 2026
Published:
24 September 2026

Keywords:
Translation pedagogy, metacognition, artificial intelligence, mixed methods, translation practice

Abstract

Artificial Intelligence (AI) is now embedded in translation practice, yet frequent use does not necessarily ensure critical or self-regulated translation. Recent studies have examined GenAI performance, student perceptions, prompting behavior, and assessment policy, but fewer studies connect students' observed translation processes with instructor needs and curriculum requirements to derive process-oriented instructional design. This study identifies the needs of students and instructors and formulates design requirements for a Metacognition- and AI-Integrated Translation Practice Module (MPP-AIM). It reports the Define phase of the 4-D Research and Development framework using a convergent mixed-methods needs-analysis design. Questionnaire data were collected from 15 English Literature students and two translation instructors; the instructors also participated in semi-structured interviews, 11 students were observed during AI-assisted translation tasks, and the Semester Learning Plan (RPS) was analyzed. Students reported very high AI familiarity (M = 4.9) and use for translation assignments (M = 4.8), but lower confidence in independently performing translation tasks (M = 2.9). Observation showed that 9 of 11 students began without systematic planning and 7 performed no post-editing. Instructors were cautious about AI-generated translation quality (M = 2.5) while strongly supporting curriculum revision and professional development (M = 5.0 each). Integrated findings indicate a gap between technological adoption and metacognitive regulation, curricular alignment, and process-oriented assessment. The study contributes an evidence-to-design framework specifying planning prompts, structured prompting, post-editing checklists, reflective activities, ethical-use guidance, process-oriented rubrics, peer review, and instructor support for critical human-AI collaboration.

Correspondence Author: Carla Maretha Email: carlamaretha@gmail.com
DOI: https://doi.org/10.36269/sigeh.v6i2.5163
Published by Universitas Muhammadiyah Lampung
Journal Homepage: https://journal.uml.ac.id/index.php/ELt/index
Journal SIGEH ELT licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

INTRODUCTION

Artificial Intelligence (AI) has rapidly altered translation practice and translator education. Neural Machine Translation tools such as Google Translate and DeepL now coexist with Large Language Models (LLMs) such as ChatGPT, which can generate translations, propose alternatives, explain choices, and respond to iterative prompts. These affordances can improve access, speed, and feedback, but they also create a pedagogical risk: fluent machine-generated text may encourage students to accept output before sufficiently analyzing the source text, considering translation purpose, comparing alternatives, or justifying revisions. Consequently, recent higher-education research increasingly argues that access to GenAI should be accompanied by AI literacy, explicit pedagogical guidance, transparent use, and critical evaluation rather than treated as either an

unrestricted shortcut or a prohibited technology (Chan, 2023; Farrokhnia et al., 2024; Kohnke et al., 2023; Moorhouse et al., 2023; Tlili et al., 2023).

Translation makes this concern particularly consequential because linguistic fluency does not guarantee semantic, pragmatic, terminological, or cultural accuracy. LLM performance varies across language pairs, domains, and text types, especially when translation requires technical terminology, implicit meaning, culturally specific expressions, or context-sensitive interpretation (Stap & Araabi, 2023; Zhu et al., 2024). Machine-translation literacy therefore extends beyond operating a tool: users must understand its limitations, judge output quality, manage risk, and retain responsibility for final decisions (O'Brien & Ehrensberger-Dow, 2020; Zhou et al., 2022). In translation education, students should consequently learn not only how to obtain AI-generated alternatives, but also how to interrogate, compare, post-edit, and justify them.

Metacognition provides a useful regulatory framework for this purpose. It refers to learners' awareness and regulation of their own cognitive processes through planning, monitoring, and evaluation (Flavell, 1979; Schraw & Moshman, 1995). In AI-assisted translation, planning includes analyzing the source text, anticipating problems, defining purpose and audience, and selecting appropriate strategies and tools. Monitoring requires checking equivalence, terminology, register, and contextual adequacy while interacting with AI-generated alternatives, whereas evaluation involves post-editing, quality judgment, revision justification, and reflection. This regulatory cycle is consistent with the strategic dimension of the PACTE translation competence model, in which strategic competence coordinates other subcompetences during problem identification and decision making (PACTE Group, 2017), and with higher-order approaches to translation competence that emphasize comparing alternatives and defending context-sensitive choices (Tan & Cho, 2021).

A critical review of recent research shows that important pieces of this problem have been studied, but mostly in isolation. Broad GenAI studies have mapped educational opportunities, risks, policies, and assessment responses (Chan, 2023; Farrokhnia et al., 2024; Moorhouse et al., 2023), yet their unit of analysis is higher education generally rather than students' translation decision-making. Translation-specific work has become more informative. Zhang et al. (2025) documented students' perceived benefits, challenges, prompt limitations, and need for institutional support, while J. Zhang et al. (2025) found that student translators' prompting practices were often intuitive and uninformed. These studies clarify what students perceive and how they prompt, but they do not simultaneously examine whether planning, monitoring, and evaluation are behaviorally enacted in the classroom or how those behaviors align with instructors' expectations and formal course assessment.

A second strand focuses on translation processes and post-editing. Latorraca (2023) showed that trainees may underestimate post-editing difficulty, Cao et al. (2023) examined the process and product of student translation revision, and Wang & Jalalian Daghigh (2023) compared cognitive effort across human translation and machine-translation post-editing. Such process research demonstrates that revision and post-editing require substantial cognitive work, but it does not by itself provide a curriculum-level framework for regulating GenAI use through explicit metacognitive scaffolds. Likewise, collaborative computer-assisted translation designs show the value of authentic tasks, participation, and reflection (Zappatore, 2024), but they were not designed around contemporary GenAI-supported prompting and evidence of human contribution. Indonesian EFL studies have also reported AI-related benefits and concerns (Male et al., 2025; Dira & Yulianto, 2026), yet they focus on language-learning or writing contexts rather than translation pedagogy. The unresolved issue is therefore not simply whether AI is useful, risky, or widely

adopted, but how empirical evidence from students' behavior, instructors, and curriculum documents can be integrated to specify a process-oriented instructional response.

This gap is visible in the English Literature Study Program examined in this study. AI-assisted translation had become a regular part of coursework, whereas instructional materials and assessment remained predominantly product-oriented. Instructors had limited structured instruments for eliciting students' pre-translation analysis, documenting prompt and tool choices, evaluating post-editing decisions, and assessing reflective or ethical use of AI. Under an Outcome-Based Education (OBE) framework, this creates a constructive-alignment problem: if intended outcomes include strategic translation competence but assessment captures only the final target text, it becomes difficult to distinguish a reasoned human-AI translation process from minimally edited automated output. Process-oriented evidence is therefore needed to align learning outcomes, activities, and assessment with critical AI use (Chen et al., 2023; Xu et al., 2023).

Accordingly, this study aims to identify the empirical needs and preliminary design requirements for a Metacognition- and AI-Integrated Translation Practice Module (MPP-AIM). It addresses three research questions: (1) What patterns of AI use, self-reported translation confidence, and metacognitive regulation characterize students' translation practices? (2) What pedagogical, technological, and curricular needs do instructors identify for critical and ethical AI integration? and (3) What MPP-AIM design requirements emerge from the integrated quantitative and qualitative evidence? The study's novelty lies in combining questionnaire data, instructor perspectives, direct classroom observation, and curriculum analysis and then mapping each identified need to a concrete module component. This evidence-to-design mapping moves beyond general advocacy for AI integration by specifying how human-AI translation can be regulated through planning prompts, strategic prompting, post-editing, reflection, ethical documentation, process-oriented assessment, collaboration, and instructor support.

METHOD

This study forms part of a Research and Development project using the 4-D instructional development model (Define, Design, Develop, and Disseminate) proposed by Thiagarajan et al. (1974). The model was selected because it links systematic needs identification with subsequent material design, validation, and implementation. This article reports only the Define phase because a defensible module should be grounded in evidence about learners, instructors, tasks, and curriculum requirements before a prototype is produced. The present phase therefore establishes the needs profile and preliminary specifications that will guide the later Design and Develop phases of the MPP-AIM.

A convergent mixed-methods needs-analysis design with explanatory integration was employed (Creswell & Clark, 2025; Fetters & Tajima, 2022; Younas et al., 2023). Quantitative and qualitative evidence addressed the same instructional problem from complementary perspectives and was integrated during interpretation. Questionnaire means provided descriptive indicators of student and instructor perceptions, while interviews, curriculum analysis, and classroom observation were used to explain the cognitive, pedagogical, and curricular conditions underlying those indicators. The design was not intended for statistical generalization; rather, it sought contextually grounded meta-inferences for instructional design.

Participants were drawn from an English Literature Study Program and were directly involved in Translation Practice. Fifteen students and two translation instructors completed the needs-analysis questionnaires, the two instructors participated in semi-structured interviews, and 11 students were observed during AI-assisted translation activities. The sample was purposive and context-specific. Before data collection, participants were informed about the purpose of the study,

voluntary participation, confidentiality, and the right to withdraw; identities were anonymized in transcription and reporting.

The student and instructor questionnaires used a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The student instrument covered understanding of translation, relevance of instructional materials, confidence in performing translation tasks, familiarity and experience with AI-mediated translation tools, perceived efficiency and quality, training needs, and curriculum revision. The instructor instrument examined comparable issues from a teaching perspective, including AI experience, quality judgment, professional-development needs, and curriculum revision. Semi-structured interviews explored limitations of current instruction, competencies required for critical AI use, assessment practices, professional-development needs, and expectations for the proposed module. The Semester Learning Plan (RPS) was analyzed for explicit treatment of metacognitive regulation, AI-assisted translation, post-editing, learning outcomes, and process-oriented assessment. During the non-participant classroom observation, the 11 students completed bidirectional translation tasks involving Indonesian-to-English and English-to-Indonesian translation. The source materials comprised approximately 500-word narrative excerpts drawn from news, speeches, and folktales, and the task was completed within a 100-minute classroom session. The use of multiple genres provided varied lexical, syntactic, pragmatic, and culturally situated translation demands. Students were permitted to use AI-mediated translation tools, allowing the researchers to observe source-text analysis, pre-translation planning, tool selection, monitoring of AI-generated output, post-editing, revision, collaboration, problem solving, and evaluative behavior under classroom conditions. The instruments and qualitative protocols were reviewed for relevance, clarity, and alignment by researchers with expertise in applied linguistics and instructional design.

Questionnaire data were analyzed descriptively using item means and, for the student group, standard deviations. Because the instructor sample comprised only two participants, instructor means were interpreted as context-specific descriptive indicators and no instructor standard deviations were used for inferential interpretation. An exploratory internal-consistency analysis of the ten student questionnaire items yielded Cronbach's alpha = 53. The questionnaire was designed as a multidimensional needs-analysis instrument covering concept understanding, material relevance, translation confidence, AI familiarity and use, perceived efficiency and quality, training needs, and curriculum revision rather than as a single unidimensional scale. Accordingly, the items were interpreted at the item level and were not combined into a composite score; expert review of relevance, clarity, and alignment provided additional evidence of instrument adequacy for the needs-analysis purpose. Interview, observation, and curriculum data were analyzed thematically through familiarization, coding, categorization, theme development, review, and interpretation following contemporary thematic-analysis principles (Braun & Clarke, 2021). Integration occurred by comparing questionnaire patterns with themes and observed behavior and organizing convergent evidence into a joint display linked to MPP-AIM design requirements. Credibility was strengthened through source and methodological triangulation, peer debriefing, and member checking with participating instructors.

RESULT AND DISCUSSION

Result

The combined questionnaire results show that AI was already embedded in students' translation practices, but confidence, instructional relevance, and critical quality control lagged

behind technological adoption. Table 1 presents student and instructor means in a single display to avoid treating the two perspectives as separate findings.

Table 1. Student and Instructor Perceptions of Translation Instruction and AI Integration

No.	Indicator	Students M (n = 15)	Students SD	Instructors M (n = 2)
1	Understanding of fundamental translation concepts	3.8	0.41	4.5
2	Relevance of current instructional materials to industry demands	3.2	0.41	3.0
3	Confidence in independently performing translation tasks	2.9	0.26	5.0
4	Technology facilitates the translation process	4.7	0.49	4.5
5	Familiarity with AI-mediated translation tools	4.9	0.35	4.0
6	Active use of AI in translation tasks/assignments	4.8	0.41	3.5
7	AI improves translation-workflow efficiency	4.6	0.51	4.0
8	AI improves the linguistic quality of translated output	3.9	0.26	2.5
9	Need for AI-related training/professional development	4.5	0.52	5.0
10	Need to revise the translation curriculum for AI developments	4.6	0.51	5.0

Note. Student means and standard deviations are based on n = 15 and a five-point scale (1 = strongly disagree; 5 = strongly agree). Means are rounded to one decimal and SDs to two decimals. Instructor means are descriptive and context-specific because n = 2.

Students reported very high familiarity with AI tools (M = 4.9, SD = 0.35), frequent AI use for translation assignments (M = 4.8, SD = 0.41), and strong perceived technological facilitation (M = 4.7, SD = 0.49). However, confidence in independently performing translation tasks was substantially lower (M = 2.9, SD = 0.26), and the relevance of current materials was rated only moderately (M = 3.2, SD = 0.41). Students also expressed a strong need for targeted AI training (M = 4.5, SD = 0.52) and curriculum revision (M = 4.6, SD = 0.51). The relatively small dispersion around the confidence and material-relevance items indicates that these concerns were not driven by a small number of extreme responses. Overall, operational adoption was more advanced than the instructional structures needed to support independent evaluation and responsible use.

The instructor data provided a complementary perspective. Instructors were highly confident in translation competence (M = 5.0) and acknowledged technology's practical value (M = 4.5), yet they rated AI's contribution to translation quality at only M = 2.5. They also rated the relevance of current instructional materials at M = 3.0 and strongly endorsed both professional development and curriculum revision (M = 5.0 each). These means should not be interpreted as correlations; rather, they indicate that experienced instructors distinguished technological efficiency from dependable translation quality and identified a need for pedagogical regulation.

Qualitative evidence clarified how these perceptual patterns manifested in teaching and learning. Instructor interviews emphasized four needs: making students' reasoning visible, teaching AI as an assistive rather than autonomous translator, strengthening prompt formulation and post-editing, and providing instructors with practical guidance for assessment. Curriculum analysis showed limited explicit coverage of metacognitive regulation, AI-assisted translation, post-editing, and process-oriented assessment. Observation added behavioral evidence: 9 of 11 students began without systematic source-text analysis or pre-translation planning; 10 used AI-mediated tools; 7 performed no post-editing; and only one brief peer exchange about a translation choice was observed. More specifically, three students entered complete sentences into Google Translate or DeepL and copied the generated output directly into their documents, while two others appeared uncertain about how to revise AI output that sounded semantically or pragmatically inappropriate. The instructor circulated and assisted students, but prompts focused mainly on task completion rather than eliciting planning, monitoring, or evaluation. One instructor summarized the intended pedagogical stance by emphasizing that AI should function as an 'assistant, not a translator' and that students need to engage in post-editing and critical assessment.

Table 2. Integrated Needs, Empirical Evidence, and Preliminary MPP-AIM Design Requirements

Integrated need	**Convergent evidence**	**MPP-AIM design requirement**
Metacognitive planning	Student confidence M = 2.9; 9/11 observed students began without systematic planning or source-text analysis.	Pre-translation planning prompts, source-text analysis worksheets, and heuristic questions.
Critical and evaluative AI use	AI familiarity M = 4.9 and use M = 4.8; 7/11 students performed no post-editing; instructors rated AI quality M = 2.5.	Structured prompting, prompt logs, human-AI comparison tasks, error diagnosis, post-editing checklists, and ethical-use guidance.
Curriculum and assessment alignment	Materials relevance: students M = 3.2, instructors M = 3.0; both groups supported curriculum revision; RPS gave limited attention to AI use and process evidence.	Revised Sub-CPMK, AI-integrated activities, and rubrics assessing planning, monitoring, revision justification, and documented human contribution.
Instructor readiness and support	Professional-development need M = 5.0; interviews identified uncertainty about evaluating students' AI use.	Instructor guide, implementation procedures, assessment examples, and professional-development activities.
Collaborative and reflective learning	Classroom work was largely individual; only one brief peer discussion was observed.	Peer review, collaborative post-editing, reflective worksheets, and authentic group translation projects.

Across sources, the central meta-inference is consistent that high technological engagement coexisted with limited evidence of planning, post-editing, reflection, and collaborative evaluation, while curricular and instructor support had not yet fully adapted to AI-mediated translation. These findings generated five interconnected design priorities for the MPP-AIM: metacognitive

scaffolding, critical and ethical AI literacy, process-oriented curriculum alignment, instructor support, and collaborative reflective learning.

Discussion

AI Use Without Metacognitive Regulation

The integrated findings reveal a digital-metacognitive paradox. Students were highly familiar with and frequently used AI, yet their independent translation confidence was lower and their observed behavior often bypassed planning and post-editing. This should not be read as evidence that AI causes low confidence, because no correlational or causal analysis was conducted. Instead, it indicates that technological fluency and metacognitive regulation can develop unevenly. The present finding extends research on students' perceptions of GenAI-assisted translation. Zhang et al. (2025) found that students recognized both efficiency benefits and challenges involving prompting, accountability, and dependency, while J. Zhang et al. (2025) showed that students' prompting behavior could be intuitive and uninformed. The current study adds direct classroom evidence showing where the regulatory gap becomes visible: before translation, when source-text analysis and planning are omitted, and after AI generation, when output is accepted with little or no post-editing.

From a metacognitive perspective, the problem is therefore not AI use itself but unstructured AI use. When students are not required to articulate anticipated translation problems, define a strategy, compare machine-generated alternatives, diagnose errors, and justify revisions, a fluent output can substitute for deliberate problem solving. This interpretation is consistent with the planning-monitoring-evaluation cycle and with strategic translation competence, which treats problem identification and decision making as central rather than incidental processes. Pedagogically, the appropriate response is not prohibition. It is to make the invisible translation process visible through planning prompts, monitoring checklists, prompt logs, revision rationales, and reflective self-assessment.

Human Oversight, Post-Editing, and AI Literacy

Instructor caution about AI-generated quality reinforces the need for human oversight. Their low quality rating (M = 2.5) contrasts with students' very high familiarity and use, suggesting that practical acceptance of AI does not eliminate concern about reliability. Translation-technology research supports this distinction: LLM output can vary substantially across language pairs and culturally or terminologically complex texts (Stap & Araabi, 2023; Zhu et al., 2024), and MT literacy requires users to understand limitations and retain responsibility for final communicative decisions (O'Brien & Ehrensberger-Dow, 2020). Instructors' emphasis on prompt formulation, quality control, and ethical accountability therefore represents a professional competence issue rather than resistance to innovation.

The observed absence of post-editing among seven students is especially important. Process research has shown that post-editing is not a trivial final correction but a cognitively demanding activity requiring attention, diagnosis, and revision decisions. Latorraca (2023) found that trainees can underestimate post-editing difficulty; Cao et al. (2023) demonstrated the value of examining both revision process and product; and Wang & Jalalian Daghigh (2023) documented distinct patterns of cognitive effort in translation and post-editing. The present study connects those process concerns to GenAI pedagogy: if learners are allowed to submit AI output without visible evaluation steps, instruction may assess textual fluency while overlooking whether students can identify semantic, pragmatic, or cultural problems. Post-editing should therefore be taught and assessed as evidence of human judgment.

From Product-Oriented Assessment to Process-Oriented OBE

The curriculum analysis identifies a constructive-alignment problem. Strategic and metacognitive competence require observable planning, monitoring, and evaluation, but product-oriented assessment primarily captures the final target text. Under such conditions, a carefully reasoned translation and a minimally edited AI output may receive similar evaluative treatment. This weakens the evidentiary value of assessment because the final product alone cannot show how the student analyzed the source, selected tools, monitored AI suggestions, diagnosed errors, or justified revisions.

Within OBE, the solution is to align Sub-Course Learning Outcomes (Sub-CPMK), activities, and rubrics with both translation quality and the process through which quality is achieved. Self- and peer-assessment research in translator training demonstrates the value of structured assessment literacy (Chen et al., 2023), while process-oriented formative assessment emphasizes evidence collected throughout learning rather than only at its endpoint (Xu et al., 2023). Recent translation-competence assessment discussions similarly highlight emerging challenges created by technological change (Napu & Pakaya, 2026). For MPP-AIM, this means retaining accuracy, acceptability, and readability criteria while adding indicators for pre-translation analysis, strategy selection, prompt/tool documentation, critical monitoring, error diagnosis, post-editing, revision justification, self-evaluation, and ethical disclosure of AI use.

Evidence-to-Design Contribution of the MPP-AIM

The main contribution of this Define-phase study is its evidence-to-design chain. Rather than concluding only that students need more AI literacy, each empirical need is translated into a preliminary module specification. Limited planning leads to source-text analysis worksheets and planning prompts; frequent AI use with weak post-editing leads to structured prompting, comparison, error-diagnosis activities, and revision checklists; limited process evidence in the RPS leads to process-oriented learning outcomes and rubrics; instructor uncertainty leads to an implementation guide and professional development; and limited peer interaction leads to collaborative post-editing and peer review. This direct mapping is the element that differentiates the study from research focused mainly on attitudes, prompting behavior, or AI performance.

The proposed module should therefore function as a metacognitive scaffold rather than a conventional collection of translation texts. Structured supports can interrupt immediate acceptance of AI output by requiring learners to pause, make goals explicit, compare alternatives, and justify decisions. Collaborative activities are also important because translation competence develops through explanation, negotiation, and feedback, not only individual tool use. Zappatore (2024) similarly demonstrates the value of active and collaborative learning in computer-assisted translator education. In the MPP-AIM, peer review and collaborative post-editing can position AI-generated text as an object of inquiry rather than an authority, while process-oriented rubrics preserve traceable evidence of human contribution. The resulting human-AI relationship is neither replacement nor prohibition: AI serves as a fallible resource whose output remains subordinate to informed human judgment.

CONCLUSION

This Define-phase study identified a consistent gap between students' extensive use of Artificial Intelligence and the metacognitive regulation required for critical and responsible translation practice. Students demonstrated high familiarity with AI-mediated translation tools (M = 4.9) and frequent use of AI for translation assignments (M = 4.8), while their self-reported confidence in independently performing translation tasks remained relatively low (M = 2.9). This

contrast was reinforced by classroom evidence showing that 9 of the 11 observed students began translating without systematic pre-translation planning, 10 used AI tools, and 7 performed no post-editing of the generated output. These findings indicate limited engagement in planning, process monitoring, critical evaluation, and revision, suggesting that students' operational familiarity with AI was not yet accompanied by adequate metacognitive regulation.

Instructors similarly identified the limited relevance of existing instructional materials, insufficient process-oriented assessment, and a strong need for curriculum revision, ethical AI guidance, and professional development. Taken together, the student, instructor, observational, and curriculum evidence indicates that the primary instructional need is not greater access to AI, but a structured framework for planning, monitoring, evaluating, and documenting its use.

These findings provide an empirical foundation for the subsequent Design and Develop phases of the Metacognition- and AI-Integrated Translation Practice Module (MPP-AIM). The proposed module should incorporate pre-translation planning prompts, source-text analysis worksheets, structured AI-prompting activities, human–AI comparison tasks, post-editing checklists, reflective self-assessment, peer review, ethical-use guidance, process-oriented OBE rubrics, and instructor support. Such components are intended to position AI as an assistive and critically evaluated resource rather than as an autonomous translator.

The distinctive contribution of this study lies in integrating questionnaire data, instructor perspectives, curriculum analysis, and directly observed student behavior and then mapping each identified need onto a specific module component. This evidence-to-design mapping moves beyond a general recommendation to integrate AI by specifying how AI-assisted translation should be pedagogically regulated through metacognitive scaffolding and process-oriented assessment.

The study is limited by its small and context-specific sample, its focus on a single English Literature Study Program, and the descriptive nature of the questionnaire analysis. In addition, the present article reports only the Define phase and therefore does not yet demonstrate the validity, practicality, or effectiveness of the proposed module. Subsequent research should develop and validate the module prototype, examine its usability with instructors and students, and evaluate its effects on translation quality, metacognitive regulation, self-reported confidence, post-editing competence, and ethical AI use across larger and more diverse participant groups.

Acknowledgments

The authors express their deepest gratitude to Universitas Muhammadiyah Lampung for the financial support provided through the internal grant program for the 2025 implementation year. This support was instrumental in conducting the research and producing this output. Furthermore, we extend our sincere appreciation to all the research respondents for their time, cooperation, and valuable participation, without which this study would not have been possible.

Credit Author

Carla Maretha: Conceptualization, Methodology, and Writing – Original Draft. **Hesti**: Formal Analysis and Visualization. **Musiman**: Supervision, Writing Review, and Editing. **Anisa Maulani**: Investigation and Data Curation.

Funding

This research was financially supported by Universitas Muhammadiyah Lampung through the Internal Grant Program for the 2025 implementation year.

Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Use of Artificial Intelligence

ChatGPT (OpenAI) was used solely to improve the language, grammar, and readability of the manuscript. The authors reviewed, edited, and approved all AI-assisted outputs and take full responsibility for the final content.

REFERENCE

Braun, V., & Clarke, V. (2021). *Thematic analysis: A practical guide*. SAGE Publications.

Cao, L., Doherty, S., & Lee, J. F. (2023). The process and product of translation revision: Empirical data from student translators using eye tracking and screen recording. *The Interpreter and Translator Trainer*, *17*(4), 548–565. https://doi.org/10.1080/1750399X.2023.2207070

Chan, C. K. Y. (2023). A comprehensive AI policy education framework for university teaching and learning. *International Journal of Educational Technology in Higher Education*, *20*, 38. https://doi.org/10.1186/s41239-023-00408-3

Chen, G., Wang, X., & Wang, L. (2023). Developing assessment literacy among trainee translators: Scaffolding self and peer assessment as an intervention. *Assessment & Evaluation in Higher Education*, *48*(6), 888–902. https://doi.org/10.1080/02602938.2022.2142515

Creswell, J. W., & Clark, V. L. P. (2025). *Designing and Conducting Mixed Methods Research*. SAGE Publications.

Dira, B., & Yulianto, A. (2026). Indonesian EFL undergraduates' motivation in writing and generative artificial intelligence: A correlational study. *SIGEH ELT: Journal of Literature and Linguistics*, *6*(1), 871–889. https://doi.org/10.36269/sigeh.v6i1.4736

Farrokhnia, M., Banihashem, S. K., Noroozi, O., & Wals, A. (2024). A SWOT analysis of ChatGPT: Implications for educational practice and research. *Innovations in Education and Teaching International*, *61*(3), 460–474. https://doi.org/10.1080/14703297.2023.2195846

Fetters, M. D., & Tajima, C. (2022). Joint displays of integrated data collection in mixed methods research. *International Journal of Qualitative Methods*, *21*, 1–13. https://doi.org/10.1177/16094069221104564.

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive–developmental inquiry. *American Psychologist*, *34*(10), 906–911. https://doi.org/https://doi.org/10.1037/0003-066X.34.10.906

Group, P. A. C. T. E. (2017). PACTE translation competence model: A holistic, dynamic model of translation competence. In A. H. Albir (Ed.), *Researching translation competence by PACTE Group* (pp. 35–42). https://doi.org/10.1075/btl.127.02pac

Kohnke, L., Moorhouse, B. L., & Zou, D. (2023). ChatGPT for language teaching and learning. *RELC Journal*, *54*(2), 537–550. https://doi.org/10.1177/00336882231162868

Latorraca, R. (2023). Lost in post-editing: An exploratory study on translation trainees' perceived EN–IT post-editing versus translation performance. *Ampersand*, *11*, 100144. https://doi.org/10.1016/j.amper.2023.100144

Male, H., Timu, T. M., & Sabrina, D. (2025). The role of artificial intelligence (AI) in essay writing. *SIGEH ELT: Journal of Literature and Linguistics*, *5*(1), 476–493. https://doi.org/10.36269/sigeh.v5i1.3115

Moorhouse, B. L., Yeo, M. A., & Wan, Y. (2023). Generative AI tools and assessment: Guidelines of the world's top-ranking universities. *Computers and Education Open*, *5*, 100151. https://doi.org/10.1016/j.caeo.2023.100151

Napu, N., & Pakaya, U. (2026). From foundational frameworks to future frontiers: Critical perspectives of translation competence assessment models and emerging challenges. In *Current Issues in Language Planning. Advance online publication*. https://doi.org/10.1080/14664208.2026.2636838.

O'Brien, S., & Ehrensberger-Dow, M. (2020). MT literacy—A cognitive view. *Translation, Cognition & Behavior*, *3*(2), 145–164. https://doi.org/10.1075/tcb.00038.obr

Schraw, G., & Moshman, D. (1995). Metacognitive theories. *Educational Psychology Review, 7*(4), 351–371. https://doi.org/10.1007/BF02212307

Stap, D., & Araabi, A. (2023). ChatGPT is not a good indigenous translator. *Proceedings of the Workshop on Natural Language Processing for Indigenous Languages of the Americas*, 163–167. https://doi.org/10.18653/v1/2023.americasnlp-1.17

Tan, S., & Cho, Y. W. (2021). Towards a higher order thinking skills-oriented translation competence model. *Translation, Cognition & Behavior*, *4*(2), 187–211. https://doi.org/10.1075/tcb.00053.tan

Thiagarajan, S., Semmel, D. S., & Semmel, M. I. (1974). *Instructional development for training teachers of exceptional children: A sourcebook*. Center for Innovation in Teaching the Handicapped, Indiana University.

Tlili, A., Shehata, B., Adarkwah, M. A., Bozkurt, A., Hickey, D. T., Huang, R., & Agyemang, B. (2023). What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education. *Smart Learning Environments, 10*, 15. https://doi.org/10.1186/s40561-023-00237-x

Wang, Y., & Jalalian Daghigh, A. (2023). Cognitive effort in human translation and machine translation post-editing processes: A holistic and phased view. *FORUM: International Journal of Interpretation and Translation*, *21*(1), 139–162. https://doi.org/10.1075/forum

Xu, X., Shen, W., Islam, A. A., & Zhou, Y. (2023). A whole learning process-oriented formative assessment framework to cultivate complex skills. *Humanities and Social Sciences Communications*, *10*, 653. https://doi.org/10.1057/s41599-023-02200-0

Younas, A., Fàbregues, S., & Creswell, J. W. (2023). Generating metainferences in mixed methods research: A worked example in convergent mixed methods designs. *Methodological Innovations*, *16*(3), 276–291.https://doi.org/10.1177/20597991231188121

Zappatore, M. (2024). Incorporating collaborative and active learning strategies in the design and deployment of a master course on computer-assisted scientific translation. *Technology, Knowledge and Learning*, *29*, 253–308. https://doi.org/10.1007/s10758-023-09679-1

Zhang, J., Zhao, X., & Doherty, S. (2025). *Prompt engineering in translation : How do student translators leverage GenAI tools for translation tasks*. *1*, 420–431. https://aclanthology.org/2025.mtsummit-1.33/

Zhang, W., Li, A. W., & Wu, C. (2025). University students' perceptions of using generative AI in translation practices. *Instructional Science*, *53*(4), 633-655. https://doi.org/10.1007/s11251-025-09705-y

Zhou, S., Zhao, S., & Groves, M. (2022). Towards a digital bilingualism? Students' use of machine translation in international higher education. *Journal of English for Academic Purposes, 60*, 101193. https://doi.org/10.1016/j.jeap.2022.101193

Zhu, W., Liu, H., Dong, Q., Xu, J., Huang, S., Kong, L., Chen, J., & Li, L. (2024). Multilingual machine translation with large language models: Empirical results and analysis. In *Findings of the Association for Computational Linguistics: NAACL 2024* (pp. 2765–2781). Association for Computational Linguistics. https://doi.org/10.18653/v1/2024.findings-naacl.176