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Pre-service Teacher Strategies in Empowering Ethics in Using AI in Classroom

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Abstract

This study aims to examine the strategies used by pre-service teachers to promote the ethical use of Artificial Intelligence (AI) in the classroom and the challenges they face in the teaching process. This study uses a descriptive qualitative approach, and the data were collected through semi-structured interviews with five pre-service teachers. The data were analyzed using Reflexive Thematic Analysis, following Braun and Clarke's framework and guided by the perspectives of AI-TPACK and Teacher Agency frameworks. The results show that pre-service teachers apply four main teaching strategies to encourage the ethical use of AI in the classroom, including scaffolding strategies, modelling strategies, assessment design, and critical literacy. These strategies help students use AI as a learning support tool rather than replacing their own thinking. However, in implementing the strategies, pre-service teachers face four main challenges, such as knowledge gaps, institutional barriers, student resistance, and unclear boundaries between acceptable language support and AI-generated content. Overall, the findings highlight the need for better preparation in AI literacy and AI ethics in teacher education programs and emphasize the importance of integrating ethical AI pedagogy into pre-service teacher training.

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1. Introduction

The rapid development of Artificial Intelligence (AI) has brought a significant impact on the field of education, specifically in higher education, and in the context of English Language Teaching (ELT). The use of AI allows the learning process to be more efficient, personalized, and interactive, because AI can give instant feedback, help teachers manage learning materials, and also can customize learning based on the needs of each student (Ko et al. 2025). In the context of ELT, the function of AI is not only as a tool that can help teaching, but AI is also part of digital literacy that teachers and students need to master (Zhang et al. 2023). Along with this development, many pre-service teachers have started to utilize several AI-based technologies, such as chatbots, AI learning assistants, and writing support tools. The purpose of this action is to support the English language learning process could be more interesting and effective.

In recent years, Artificial Intelligence (AI) is widely used to create adaptive learning systems that adjust materials to students' learning pace and styles, while also providing automatic feedback and instructional support based on data (Holmes et al. 2019). This technology enables teachers to monitor students' progress more efficiently and create more personalized learning experiences (Chen et al. 2020). Especially in language learning, AI tools like chatbot and pronunciation AI bot can improve writing and speaking ability and promote students' independent learning (Kessler, 2018). However, the growing presence of AI in learning environments also raises questions about how these tools influence students' responsibility, originality, and engagement in the learning process.

However, although AI offers several conveniences in learning, the use of AI can also cause new concerns, especially regarding the responsibility and ethical use of AI. Hwang et al. (2020) show that besides the benefits such as instant feedback and support in independent learning, the use of AI can also potentially cause risks, especially plagiarism, misuse of data, and a lack of originality in academic work if the aspect of ethics is ignored. For that reason, the understanding of pre-service teachers regarding digital ethics becomes more important. According to Borenstein & Howard (2021), the ethics education in AI should not only emphasize how to use the technology, but also on the understanding of the impact and the consequences of using AI. Pre-service teachers should be provided with a comprehensive understanding, which includes technical skills and ethical awareness, so that the implementation of AI in the learning process aligns with the values of honesty, responsibility, and justice as the foundation of academic integrity.

The understanding of ethics among pre-service teachers is formed through the learning and training that they receive during their studies. Several studies show that there is still a gap between the use of AI and ethical awareness among pre-service teachers. Many of them use AI tools without proper ethical guidance, which can cause overreliance on the AI as a primary tool for problem solving and writing to finish their assignments without considering academic integrity

(Zawacki-Richter et al. 2019). A study by (Selwyn, 2019) highlights that there is often an unquestioned logic in the adoption of technology, where teachers and pre-service teachers are driven to use technology without a deep understanding of the social implications and the ethical dimensions. As a consequence, as found in the study by (Ng et al. 2021), although AI can improve independent learning, it can also cause practical problems, such as plagiarism and a decline in critical thinking, if not used wisely. These studies suggest that ethical AI use requires not only awareness but also structured pedagogical guidance from teachers.

Research on teacher education has also shown that pre-service teachers' readiness to use digital technologies influences the quality of their teaching practice during microteaching. A study conducted in a teacher education program in Yogyakarta found that technological self-efficacy played an important role in shaping pre-service teachers' instructional performance (Rahma Amalia & Ari Widhiatama, 2023). While such studies highlight the importance of technological competence, limited attention has been given to how pre-service teachers develop ethical awareness and pedagogical strategies when using AI tools in teaching simulations.

Therefore, the responsibility to create an ethical environment in using AI cannot be imposed only on pre-service teachers. Educational institutions must also take the lead by establishing clear policies and guidance. However, although several previous studies have discussed pre-service teachers' perspectives on AI and the ethical issues they face, only a few studies have specifically investigated their pedagogical strategies for applying AI ethics in the classroom, especially in the context of English Language Teaching (ELT) (Wafa & Sulistyaningsih, 2025). Most existing research focuses more on ethical awareness rather than on how ethical principles are translated into concrete teaching strategies. This indicates a clear need to explore how pre-service teachers enact ethical AI use through specific classroom strategies and how they navigate related challenges.

This study uses two theoretical frameworks that complement each other. First, the AI-TPACK (Technological Pedagogical Content Knowledge) framework, as proposed by Ning et al. (2024), which views teachers' knowledge in integrating artificial intelligence (AI) as a development of Technological Pedagogical Content Knowledge (TPACK) by explicitly introducing elements of knowledge related to artificial intelligence (AI).

This framework highlights teachers' understanding of how AI works, their potential, and their limitations in the learning process, as well as their ethical awareness in using AI to support English language learning. Second, the Teacher Agency framework, as outlined in the ecological approach by (Priestley et al. 2015), is employed to investigate the challenges of implementation. This theory views teachers' behavior as shaped by interactions between personal capacity (international dimension), situational context (practical-evaluative dimension), and future aspirations (projective dimension). By combining these two lenses, this

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study not only examines what pre-service teachers do, but also why they are able or unable to apply specific strategies in real classroom contexts.

Based on the research gap and supported by the theoretical framework above, this study aims to answer two main research questions: (1) What strategies do pre-service teachers employ to empower ethics in using AI in the microteaching classroom? Furthermore, (2) What challenges do pre-service teachers face in implementing ethical use of AI in the microteaching classroom? This study is designed as a qualitative exploratory investigation that seeks to provide a deeper understanding of how ethical AI practices are translated into pedagogical strategies and how contextual factors influence their implementation in microteaching practice.

The findings of this research are expected to enrich the theoretical understanding of the integration of AI and ethics in teacher education, contribute to the development of AI-TPACK and Teacher Agency perspectives in ELT microteaching contexts, and also provide practical guidance for the training program of pre-service teachers and institutions in designing policies that support the use of AI responsibly in the classroom.

2. Method

This study employed a descriptive qualitative design to explore the strategies and challenges faced by pre-service teachers in using AI ethically in their teaching practice (Creswell, 2014). This approach was selected because it allowed researchers to understand experiences, perceptions, and the practice of pre-service teachers contextually, and also capture the complexity of the implementation of AI in real educational settings. The study was positioned as an exploratory qualitative inquiry aimed at gaining an in-depth understanding of participants' perspectives rather than producing generalizable findings.

The participants in this research consisted of five pre-service teachers from the English Education Study Program at one private university in Yogyakarta who had completed the Field Introduction Program. The participants were selected using purposive sampling based on their experience in using AI for their academic or teaching purposes as well as their willingness to participate in the study. Although the number of participants was limited, qualitative research prioritizes depth over breadth. The five participants provided rich and detailed information, and recurring patterns across responses indicated that the data were sufficient to address the research questions.

The data were collected through asynchronous semi-structured interviews. In this study, "asynchronous" means that the interviews were conducted through text-based online communication, allowing participants to respond at different times rather than in real-time interaction. The research was conducted at one private university in Yogyakarta, and the participants were involved as research informants who provided in-depth information related to the research focus. The

data collection process was carried out over a specific period during the academic semester after the participants completed their teaching practice. The interviews were conducted using an online platform that is WhatsApp, and on average participants spent approximately 15-30 minutes responding to the questions. The interview guide, which consisted of 11 main questions, was developed by the AI-TPACK (Ning et al., 2024) framework, which aims to examine the pedagogical strategies in the ethical use of AI and Teacher Agency (Priestley et al., 2015) framework to explore the challenges faced by pre-service teachers during the implementation of the learning process. All of the participant responses were digitally documented and used as research transcript data.

Ethical considerations were addressed prior to data collection. Participants were informed about the purpose of the study and provided their informed consent before participating. Participation was voluntary, and participants had the right to withdraw at any time. To ensure confidentiality, participants' identities were anonymized using codes (e.g., P1, P2, P3), and all data were stored securely for research purposes only.

Data analysis followed a Reflexive Thematic Analysis approach as outlined by Braun & Clarke (2006). Data were analyzed to identify patterns related to strategies and challenges in ethical AI use. Coding was used as an analytical process within thematic analysis rather than as a separate method. The analysis involved three main stages: familiarization with the data through repeated reading of transcripts, deductive coding based on theoretically informed categories, and the generation of themes by grouping related codes.

The coding process was primarily deductive, guided by concepts derived from the AI-TPACK and Teacher Agency frameworks, which helped structure the identification of themes related to strategies and challenges. Eight themes were identified, including four strategy related themes (scaffolding, modelling, assessment design, and critical literacy) and four challenge related themes (knowledge gap, institutional barriers, student resistance, and the grey area challenge). Direct quotations were used to preserve the authenticity of participants' perspectives.

3. Result

This section focuses on the data results and research findings conducted on five pre-service teachers from the English Education Study Program at Universitas Mercu Buana Yogyakarta who have completed the Field Introduction Program. After analyzing the data that has been collected, the results are then grouped into eight themes as follows: 1) Scaffolding strategy, 2) Modelling strategy, 3) Assessment design, 4) Critical literacy, 5) Knowledge gap, 6) Institutional barriers, 7) Student resistance, and 8) The 'grey area' challenge.

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Students Strategies in Empowering Ethics while Using AI in Microteaching Class

Pre-service teachers encourage their students to use AI as their assistant

Scaffolding strategy is a learning approach where teachers provide assistance and guidance to students step by step so that they are able to complete difficult tasks independently. However, along with the improvement of students' understanding and abilities, the assistance is slowly reduced so that students can learn more independently (Katia Mayumi Umekita, 2025). In the context of AI ethics, this strategy is manifested through providing clear guidelines on how to use AI technology responsibly (Holmes et al., 2022). Based on participants' experiences, most pre-service teachers emphasized the importance of setting clear rules and boundaries for AI use at the beginning of the lesson.

They viewed AI as a support tool rather than a replacement for students' thinking. Instead of only relying on students' awareness, participants actively guided students step by step in understanding what types of AI use were acceptable. P1 explained that she clearly told students that AI could help with ideas and grammar but should not be copied entirely. A similar view was expressed by P2, who stated that AI could be used for assistance but not for replacing students' own thinking. In line with them, P4 compared AI to a dictionary that supports learning but does not do the task for students.

"I clearly explain the rules for using AI. I tell my students that AI can help them find ideas and grammar, but they shouldn't completely copy and paste AI's answers, as this will eliminate their critical thinking. AI can help learning, but cheating replaces their own thinking." (P1)

"I explain that AI can be used for assistance, such as checking grammar, generating vocabulary lists, or getting examples, but not for replacing their own thinking." (P2)

"I set clear rules from the beginning: AI can assist but should not replace students' thinking. I often explain AI as a support tool, similar to a dictionary." (P4)

These responses indicate that scaffolding was mainly implemented through structured guidance and explicit rule-setting to develop students' ethical awareness. In other words, participants combined instruction with supervision to ensure students understood both the possibilities and limitations of AI use.

Pre-service teachers demonstrate AI use to develop critical evaluation

Modelling strategy is a learning approach in which teachers provide direct examples of how to complete a task, including the thinking process behind it, so that students understand the expected steps before trying independently (Gadd & Parr, 2025). In the context of AI literacy, critical modelling can be used to show the

limitations, bias, or potential errors in AI output. Several participants not only convey the rule but also actively demonstrate the limitations of AI through live demonstrations in front of students. For example, P1 showed students that AI could make mistakes and invited them to check the answers together. Similarly, P4 demonstrated AI errors and guided students to critique the outputs. However, not all participants had implemented this strategy, P2 admitted she had not modelled AI use yet but believed it was important.

"I showed students how AI can make mistakes. I asked AI a question and checked the answer together with the class. Students learned not to trust AI fully." (P1)

"I have shown students examples of AI errors and guided them to critique the output, helping them see that AI is not always reliable." (P4)

"I've never directly modeled the use of AI in class. However, I recognize that this practice is important to help students understand the limitations of AI and how to use it critically." (P2)

These responses indicate that scaffolding was mainly implemented through structured guidance and explicit rule-setting to develop students' ethical awareness. In addition, participants combined instruction with supervision to ensure students understood both the possibilities and limitations of AI use.

Pre-service teachers design tasks to reflect students' own thinking

Assessment design refers to the planning and development of evaluation methods that can measure authentic learning achievement (Vlachopoulos & Makri, 2024). In the AI era, this design needs to be adapted to prevent the misuse of technology and ensure that assessment results truly reflect the ability of students (Ng et al., 2021). Participants described adjusting their assessment practices to minimize unethical AI use. They tended to design tasks that required students' personal engagement and real-time performance. P1 mentioned using oral presentations and in-class tasks to see students' actual abilities. This was supported by P2 and P4, who emphasized in-class writing, contextual tasks, and personal reflections. P3 added that even without introducing AI in class, she redesigned assignments because students were already familiar with AI tools outside school.

"As I mentioned earlier, I'm exploring new ideas for using AI in designing assignments, and I definitely use oral presentations and written materials in class to gauge students' true abilities." (P1)

"I focus more on oral presentations, in-class writing, and contextual tasks that require students' own experiences. These types of assignments make it harder for students to rely fully on AI-generated content." (P2)

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"I have designed different assignments several times to avoid the use of AI. Because I believe that even though I have never introduced AI tools to them, in today's sophisticated era, they surely already know about it." (P3)

"I design more tasks that involve oral presentations, in-class writing, and personal reflection to reduce unethical AI use." (P4)

"I focus more on oral presentations, reflections, and in class tasks to reduce unethical AI use." (P5)

These findings show a shift toward more authentic and process-oriented assessment to reduce overreliance on AI-generated content. The participants intentionally designed activities that measured individual understanding rather than AI-assisted outputs.

Pre-service teachers guide students to check AI outputs critically

Critical literacy in the context of AI refers to the ability to analyze, evaluate, and question content generated by AI systems, including identifying bias, verifying facts, and understanding the underlying agenda (Pangrazio & Selwyn, 2023). Several participants encouraged students to compare AI outputs with reliable sources. P1 asked students to check AI answers using books or trusted websites. Similarly, P4 and P5 guided students to fact-check AI responses and identify possible bias. However, P2 admitted she had not specifically taught students how to critique AI outputs.

"I ask students to compare AI answers with books or trusted website. They learn to question information, not just accept it." (P1)

"I have started teaching students to fact-check AI responses and identify bias by comparing them with other sources." (P4)

"I encourage students to compare AI output with reliable sources and question its accuracy." (P5)

"I haven't specifically taught students how to fact-check or critique AI-generated content." (P2)

This indicates an effort to train students not only to use AI but also to question and evaluate its reliability. Participants emphasized that ethical AI use includes critical evaluation, not just functional application.

Challenges Faced by Pre-service Teachers in Implementing Ethical AI Use

Pre-service teachers' limited understanding of AI systems

A knowledge gap refers to a limited technical understanding or difficulty in adopting and utilizing new technology (Hwang et al., 2020). In the context of pre-service teachers, a lack of understanding of the mechanisms of work, limitations,

and also ethical consequences AI users have the potential to become an obstacle in guiding students to use the technology responsibly (Ng et al., 2023). A common challenge among participants was their limited technical understanding of AI systems. Most of them felt they still needed deeper knowledge about how AI works and its ethical implications. P1 and P2 both admitted they only had basic knowledge, while P4 and P5 mentioned lacking understanding of issues such as bias, data privacy, and AI detection tools. Only P3 felt relatively confident in her knowledge.

"I have basic knowledge, but not deep technical skills. I still need more training about how AI works and its limitations." (P1)

"Not completely. While I understand basic ethical principles, I feel I'm still lacking in deeper technical knowledge." (P2)

"I feel I have sufficient technical knowledge to answer questions from students about AI ethics." (P3)

"I still feel I lack deeper knowledge about how AI works, especially regarding data privacy, bias, and training." (P4)

"Partly. I understand ethical issues, but I lack deeper knowledge about AI systems, bias, and detection tools." (P5)

This lack of deeper AI literacy affected their confidence in guiding students comprehensively. Participants' awareness of their own limitations sometimes constrained their ability to model or scaffold effectively.

Pre-service teachers' limited understanding of AI systems

Institutional barriers refer to the rules, norms, or formal policies at the school level or within the education department that can limit or influence teachers' pedagogical choices (Priestley et al., 2015). Participants' experiences with institutional policies varied. Some felt that school rules did not conflict with their beliefs, while others experienced tension. P1 and P2 reported no significant conflict, but P4 and P5 noted that some school policies were more restrictive than their own views about guided AI use.

"I didn't really feel a conflict between my ethical beliefs and the school's." (Participant 1)

"So far, I haven't faced any major conflicts." (Participant 2)

"There have been moments of tension when school policies are more restrictive than my own beliefs about teaching AI responsibly." (Participant 4)

"Yes, potentially. Some schools limit AI use, while I believe guided use is more educational." (Participant 5)

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This suggests that institutional context played a role in shaping how far teachers could implement ethical AI practices. Constraints from school regulations sometimes limited the pedagogical strategies participants could apply.

Students' resistance in AI use

Student resistance arises when students question or reject the rules established by teachers, especially by comparing them with practices that they consider normal among their friends' environment (Dağhan & Aktaş, 2024). In the context of ethics in the use of AI, this resistance is often seen when students reject the gap between the rules set by the teacher, citing that using AI has become common among students (Wafa & Sulistyaningsih, 2025). Some participants encountered students who questioned the rules about AI use. P1 and P4 said that some students argued that "everyone uses AI," making it harder to enforce boundaries. However, P2 and P5 observed that students generally followed the rules after receiving explanations.

"Some students accept the rules, while others say everyone uses AI." (Participant 1)

"Some students accept the boundaries, while others push back by saying that everyone uses AI." (Participant 4)

"Students' reactions tend to be neutral and follow the rules after being given an explanation." (Participant 2)

"All of the students accept the rules, while leads to discussion about ethics in using AI." (Participant 5)

This means that a clear communication and discussion appeared to reduce resistance and promote ethical understanding. Teachers' strategies in explaining rules and expectations were crucial to gaining student compliance.

Difficulty distinguishing support vs. unethical AI use

The grey area refers to a condition where the boundaries between acceptable and unacceptable practices become unclear, especially in the use of technology in education (Crompton & Burke, 2024). Participants described difficulties in distinguishing between acceptable language support and unethical AI-generated content. P1, P4, and P5 explained that they allowed grammar correction tools but did not allow AI to generate full content. They often checked students' understanding through discussions or oral explanations to ensure originality.

"I sometimes struggle with grammar correction and AI writing. I allow grammar correction tools, but I don't allow content generation. I still ask students to explain their writing verbally to deepen their understanding." (Participant 1)

"It can be challenging. I allow grammar correction but emphasize that ideas, structure, and voice must come from the student." (Participant 4)

"I allow grammar correction but monitor content through discussion and oral checks." (Participant 5)

This ambiguity created uncertainty in establishing consistent ethical guidelines for AI use. Participants had to balance practical support with maintaining academic integrity, which sometimes left room for subjective judgment.

Overall, pre-service teachers used multiple pedagogical strategies to promote ethical AI use while facing personal, institutional, and pedagogical challenges. The combination of scaffolding, modelling, assessment design, and critical literacy contributed to developing students' ethical awareness. At the same time, limitations in AI knowledge, school policies, student doubts, and unclear boundaries posed challenges in implementing consistent ethical practices.

4. Discussion

Based on these findings, the scaffolding strategy plays an important role in establishing the first ethical framework for the use of AI in the classroom. This practice represents the implementation of Pedagogical Knowledge (PK) in the AI-TPACK framework, where teachers do not only integrate technology into learning, but also guide students to understand the characteristics, limitations, and ethical implications of AI tools in order to achieve responsible learning objectives (Ning et al., 2024). By setting clear and transparent expectations, pre-service teachers guided students to use AI as a learning tool assistant rather than a replacement for their own thinking. Participants consistently emphasized the importance of distinguishing between AI assistance and AI replacement, explaining that AI can support grammar, vocabulary, and idea generation but should not replace students' critical thinking.

Live modelling has proven to be an effective pedagogical strategy for building students' critical digital literacy, as demonstrated by Participants 1 and 4. However, some participants have not implemented this strategy, indicating a gap between awareness and practical application in the classroom. Furthermore, all participants adapted their assessment design to reduce student dependency on AI, focusing on direct performance assessment (oral presentations and in-class writing) and tasks that are personal and contextual. This reflects the practical-evaluative dimension of the Teacher Agency, showing how teachers evaluate context and utilize resources to prevent misuse of technology (Priestley et al., 2015).

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The shift towards authentic assessment reflects pre-service teachers' evaluation of AI threats to academic integrity and their practical application of the Teacher Agency. Participants adapted assessment designs to reduce student dependency on AI, focusing on direct performance assessment (oral presentations, in-class writing) and tasks that are personal and contextual. These strategies demonstrate the alignment of Pedagogical Knowledge (PK) with AI-related Technological Knowledge (TK) to create ethical learning experiences. There is variation in the implementation of critical literacy teaching on AI, reflecting differences in understanding and pedagogical readiness among pre-service teachers, indicating areas for further professional development

Most participants (four out of five) acknowledged gaps in technical and in-depth knowledge about AI, feeling confident in basic ethical principles but lacking understanding of mechanisms, algorithm bias, data privacy, and AI detection tools. Only Participant 4 felt confident in technical knowledge. This reflects limitations in the iterative dimension of Teacher Agency, affecting confidence and effectiveness in answering complex student questions (Priestley et al., 2015; Selwyn, 2021). Experiences with institutional policies varied which are Participant 4 faced direct resistance, Participant 5 anticipated conflict, and others felt supported. These differences impact practical-evaluative aspects of Teacher Agency, as institutional rules can enable or restrict teachers' actions in implementing ethical AI pedagogy.

Student responses to ethical boundaries in AI use varied. Participants 1 and 4 faced students rejecting rules because AI use is common, while others reported students accepted rules or engaged in positive discussions. This shows that promoting ethical AI use depends on classroom context and teacher explanation. Experienced teachers (Participants 1, 4, and 5) struggled to distinguish acceptable language assistance from AI-generated content. They allowed AI in technical aspects like grammar correction but required critical thinking in idea development. Verification methods, such as class discussion or oral explanations, ensured students' understanding and originality.

These findings indicate AI ethics in language learning is a negotiated pedagogical process requiring professional judgment. Importantly, this has implications for teacher education programs in Indonesia, which should prepare pre-service teachers to integrate AI literacy, ethical reasoning, and assessment strategies. Treating AI as a tool rather than replacement reflects competencies in content understanding, critical awareness of AI, and pedagogical strategies within AI-TPACK (Ning et al., 2024).

5. Conclusion

This study aims to examine how pre-service teachers apply strategies to empower the ethical use of Artificial Intelligence (AI) in the classroom, while also identifying the challenges that they face during the implementation of these strategies. Based on interview results with five pre-service English teachers, this study found eight main themes that reflect pedagogical practices and challenges in implementing the ethical use of AI in the context of learning.

Based on the research findings, pre-service teachers applied several learning strategies to encourage the ethical use of AI, including scaffolding, modeling, assessment design, and critical literacy. Through a scaffolding strategy, teachers give clear guidance and rules about the limitations in the use of AI as a tool in the learning process, not as a replacement for the critical thinking of the students. The modeling strategy is applied by directly showing the limitations and potential errors of AI so that students are not passively accepting the results of AI. In addition, through assessment design, teachers customize the form of assessment by focusing on authentic tasks such as in-class writing, oral presentations, and personal reflections. Critical literacy is also being integrated by pushing students to evaluate, compare, and question information produced by AI.

However, during the implementation, pre-service teachers face several challenges, which are a knowledge gap, institutional barriers, students' resistance, and the grey area challenge. The knowledge gap arises because most pre-service teachers feel that they do not yet have a deep understanding of how AI works, algorithmic bias, and data privacy issues. Institutional barriers are experienced in the form of school policies that are unclear or tend to limit the pedagogical use of AI. In addition, student resistance also becomes a challenge when students question or reject the rules on AI use on the grounds that the technology is already commonly used. Another challenge is the 'grey area' challenge, which is the difficulty in distinguishing the boundaries between the acceptable use of AI for language assistance and the use of AI to generate unethical content.

Based on these findings, it can be concluded that pre-service teachers have the awareness and initiative to apply the ethical use of AI through various learning strategies. However, the effectiveness of implementing these strategies is still influenced by a knowledge gap, institutional barriers, and the dynamics of student responses in the classroom. Therefore, the need for more systematic support in teacher education is essential, especially by strengthening AI literacy and AI ethics, and by providing clear institutional policies that support the responsible application of AI in learning.

This study has several limitations that need to be acknowledged. First, the number of participants was limited to five pre-service teachers from one private university, which means the findings cannot be generalized to all pre-service teachers in different contexts. Second, the data were collected only through interviews, so the study relied on self-reported experiences without classroom

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observations. Future studies may include more participants from diverse institutions and combine interviews with classroom observations to obtain richer data.

Based on these limitations, future research is recommended to explore the implementation of AI ethics in broader educational contexts, including in-service teachers and different subject areas. Further studies may also investigate students' perspectives on the ethical use of AI to provide a more comprehensive understanding of classroom dynamics. In addition, experimental or mixed-method studies could be conducted to examine the effectiveness of specific pedagogical strategies in promoting ethical AI use.

6. References

Borenstein, J., & Howard, A. (2021). Emerging challenges in AI and the need for AI ethics education. AI and Ethics, 1(1), 61–65. doi:10.1007/s43681-020-00002-7

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology.

Chen, L., Chen, P., & Lin, Z. (2020). Artificial Intelligence in Education: A Review. IEEE Access, 8, 75264–75278. doi:10.1109/ACCESS.2020.2988510

Creswell. (2014). creswell.

Crompton, H., & Burke, D. (2024). The Educational Affordances and Challenges of ChatGPT: State of the Field. TechTrends, 68(2), 380–392. doi:10.1007/s11528-024-00939-0

Dağhan, Z., & Aktaş, B. Ç. (2024). Resistance Behaviors of Secondary School Students: Teacher and Student Views. International Electronic Journal of Elementary Education, 17(1), 203–215. doi:10.26822/iejee.2024.373

Gadd, M., & Parr, J. M. (2025). Modelling as an instructional component of writing pedagogy in the upper primary school: what does it look like and how important is it? Australian Journal of Language and Literacy, 48(1), 77–94. doi:10.1007/s44020-025-00077-x

Febriana, L. (2025). Effective EFL Teachers: Non-English Department Students' Perspectives. IDEAS: Journal on English Language Teaching and Learning, Linguistics and Literature, 13(1), 1038-1059.

Holmes, W., Bialik, M., & Fadel, C. (2019). Praise for Artificial Intelligence in Education from International Organizations.

Holmes, W., Porayska-Pomsta, K., Holstein, K., Sutherland, E., Baker, T., Shum, S. B., … Koedinger, K. R. (2022). Ethics of AI in Education: Towards a Community-Wide Framework. International Journal of Artificial Intelligence in Education, 32(3), 504–526. doi:10.1007/s40593-021-00239-1

Hwang, G. J., Xie, H., Wah, B. W., & Gašević, D. (2020). Vision, challenges, roles and research issues of Artificial Intelligence in Education. Computers and Education: Artificial Intelligence, 1, 100001. doi: 10.1016/J.CAEAI.2020.100001

Katia Mayumi Umekita, K. M. U. (2025). Scaffolding as a Pedagogical Strategy in a Course Delivered Using English as a Medium of Instruction (EMI). Innovative Teaching and Learning, 7(1), 83–106. doi:10.4208/itl.20250108

Kessler, G. (2018). Technology and the future of language teaching. Foreign Language Annals, 51(1), 205–218. doi:10.1111/FLAN.12318; Requestedjournal: Journal:19449720; Wgroup: String: PUBLICATION

Ko, U. H., Hartley, K., & Hayak, M. (2025). Exploring Ai in Education: Preservice Teacher Perspectives, Usage, And Considerations. Journal of Information Technology Education: Research, 24. doi:10.28945/5592

Mubarok, I., Listyowati, R., & Hanna, I. D. (2025). Teacher's Perception on the Implementation of Clustering Techniques Using Sticky Note Media in Teaching Writing Recount Text at the Tenth Grade of Senior High School. IDEAS: Journal on English Language Teaching and Learning, Linguistics and Literature, 13(1), 1423-1432.

Ng, D. T. K., Lee, M., Tan, R. J. Y., Hu, X., Downie, J. S., & Chu, S. K. W. (2023). A review of AI teaching and learning from 2000 to 2020. Education and Information Technologies, 28(7), 8445–8501. doi:10.1007/s10639-022-11491-w

Ng, D. T. K., Leung, J. K. L., Chu, S. K. W., & Qiao, M. S. (2021). Conceptualizing AI literacy: An exploratory review. Computers and Education: Artificial Intelligence, 2, 100041. doi: 10.1016/J.CAEAI.2021.100041

Ning, Y., Zhang, C., Xu, B., Zhou, Y., & Wijaya, T. T. (2024). Teachers' AI-TPACK: Exploring the Relationship between Knowledge Elements. Sustainability (Switzerland), 16(3). doi:10.3390/su16030978

Pangrazio, L., & Selwyn, N. (2023). Critical Data Literacies. The MIT Press. doi:10.7551/mitpress/14155.001.0001

Priestley, M., Biesta, G., & Robinson, S. (2015). The role of beliefs in teacher agency. Teachers and Teaching: Theory and Practice, 21(6), 624–640. doi:10.1080/13540602.2015.1044325

Rahma Amalia, F., & Ari Widhiatama, D. (2023). The Effect of Students Self-Efficacy Level in Using Technology on Pre-Service Teacher Teaching Performance. Jurnal Ilmiah Wahana Pendidikan, Desember, 2023(24), 311–326. doi:10.5281/zenodo.10431725

Selwyn, N. (2021). Ed-Tech Within Limits: Anticipating educational technology in times of environmental crisis. E-Learning and Digital Media, 18(5), 496–510. doi:10.1177/20427530211022951

Selwyn, Neil. (2019). Should robots replace teachers? : AI and the future of education.

Vlachopoulos, D., & Makri, A. (2024). A systematic literature review on authentic assessment in higher education: Best practices for the development of 21st century skills, and policy considerations. Studies in Educational Evaluation, 83. doi: 10.1016/j.stueduc.2024.101425

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

Wafa, Z., & Sulistyaningsih, E. F. (2025). Exploring the Integration of Artificial Intelligence in English Language Teaching: Trends, Challenges, and Pedagogical Implications, 5, 2025.

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019, December 1). Systematic review of research on artificial intelligence applications in higher education – where are the educators? International Journal of Educational Technology in Higher Education. Springer Netherlands. doi:10.1186/s41239-019-0171-0

Zhang, C., Schießl, J., Plößl, L., Hofmann, F., & Gläser-Zikuda, M. (2023). Acceptance of artificial intelligence among pre-service teachers: a multigroup analysis. International Journal of Educational Technology in Higher Education, 20(1). doi:10.1186/s41239-023-00420-7