



Pre-Service EFL Teachers' Perspectives on AI Integration in Indonesian Urban Schools

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ABSTRACT

This study explores the perspectives of pre-service EFL teachers on integrating Artificial Intelligence (AI) tools in urban classrooms in Indonesia. As AI increasingly influences language teaching and learning, it is important to understand how future teachers perceive its role, benefits, and challenges in their professional practice. Employing a qualitative descriptive design, the study collected data through an online questionnaire completed by seventy pre-service EFL teachers and follow-up semi-structured interviews with twenty volunteers. The findings revealed that participants generally held positive views of AI integration, highlighting its potential to enhance student motivation, provide immediate feedback, and support differentiated instruction for diverse learners in urban settings. At the same time, their confidence in applying AI remained moderate, reflecting limited training and practical experience. Participants also expressed concerns about infrastructural barriers, institutional support, and ethical issues such as plagiarism and over-reliance on AI outputs. These results suggest that while pre-service EFL teachers see AI as a valuable pedagogical tool, they acknowledge the need for critical awareness and proper preparation. The study implies that teacher education programs should embed AI literacy, pedagogical training, and ethical guidance into curricula to better equip future teachers for AI-enhanced classrooms.

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INTRODUCTION

The rapid growth of Artificial Intelligence (AI) across sectors of society has become one of the most significant developments in recent years. In education, AI is no longer a futuristic concept but a reality that is shaping learning, teaching, and

assessment (George & Wooden, 2023). The integration of AI into classrooms is transforming how teachers design instruction, how students access resources, and how institutions manage educational processes. In English as a Foreign Language (EFL) teaching, AI is emerging as a tool that can support personalized learning, provide immediate feedback, and offer access to authentic language materials (Trinovita et al., 2025). These opportunities invite researchers and practitioners to reconsider the ways in which language education is planned and delivered.

Despite the growing visibility of AI in education, the adoption of AI in EFL contexts is uneven. In many parts of the world, AI tools are beginning to appear in teacher education programs and classroom practices, but the extent of their use varies depending on infrastructure, teacher readiness, and institutional support (Zulianti et al., 2024). Urban schools often provide a unique context where technological initiatives are more visible due to access to internet facilities and digital devices (Grassini, 2023). At the same time, these schools face challenges that include large student populations, diverse cultural and linguistic backgrounds, and varying levels of teacher preparedness. The integration of AI in such contexts requires not only technological readiness but also pedagogical vision from teachers who can mediate between technology and learners.

The role of pre-service teachers is central in this process. As future educators, they are preparing to enter classrooms where technology is increasingly part of everyday learning. Their perspectives on AI tools provide valuable insights into how the next generation of teachers may approach EFL teaching (Lee et al., 2025). Pre-service teachers are in a unique position: they are simultaneously learners who engage with AI tools during their training and prospective teachers who must decide how to implement these tools in their future classrooms. Understanding their perspectives is therefore essential for shaping teacher education programs that address the realities of contemporary schooling (Hastomo et al., 2025).

Research on AI in teacher education has shown that pre-service teachers often demonstrate curiosity and enthusiasm for new technologies, but they also experience uncertainty and hesitation (Yetkin & Özer-Altınkaya, 2024). Several studies have indicated that teacher beliefs play a decisive role in whether or not innovative tools are successfully adopted in practice (Kerr & Kim, 2025; Taşçı & Tunaz, 2024). If pre-service teachers perceive AI tools as supportive of their pedagogical goals, they are more likely to integrate them into their teaching. If they perceive AI as a threat to teacher authority, or as irrelevant to language learning, they may resist adoption. In EFL settings, where communicative competence and cultural awareness are core objectives, the question of how AI aligns with pedagogical values becomes particularly important (Zhu et al., 2025).

Urban schools provide a compelling backdrop for this discussion. Unlike rural schools that often struggle with basic access to electricity or internet, urban schools are more likely to experiment with digital innovations (Mandasari et al., 2025).

However, the complexity of urban education introduces additional demands. Classrooms are often crowded, students represent diverse socio-economic backgrounds, and teachers are expected to meet a wide range of learning needs. AI tools hold potential to address these challenges by providing adaptive feedback, supporting differentiated instruction, and assisting in the management of large classes. Yet, the success of these tools depends on the willingness and ability of teachers to integrate them effectively (Gerlich, 2025). Pre-service teachers' perspectives can reveal both the promise and the limitations of AI integration in such environments.

A growing body of literature has begun to explore the use of AI in language education. Studies have examined AI-driven chatbots, automated writing evaluation systems, and intelligent tutoring systems (Shikun et al., 2024). These studies report positive outcomes such as increased learner motivation, improved accuracy in language production, and greater opportunities for autonomous learning. However, concerns remain about over-reliance on AI, ethical issues related to data privacy, and the risk of reducing human interaction in language learning (Akgun & Greenhow, 2021). Most of these studies have been conducted in higher education or in experimental settings, while fewer have focused specifically on pre-service teachers preparing for work in urban schools.

Within the Indonesian context, where this study is situated, the introduction of AI into EFL classrooms is still in its early stages. Teacher education institutions have begun to acknowledge the relevance of digital literacy and AI literacy, but systematic training remains limited (Williyan et al., 2024). Pre-service teachers often rely on their own initiative to explore AI tools such as ChatGPT, translation applications, or AI-assisted writing platforms (Marzuki et al., 2023). Their experiences are shaped by both their exposure to global technological trends and the realities of local educational practices. Urban schools in Indonesia face pressures to modernize, yet teachers' readiness to adopt AI is not consistent (Darwin et al., 2024). Investigating pre-service teachers' perspectives provides an opportunity to anticipate future trajectories of AI integration in EFL classrooms across the country.

Pre-service teachers develop their professional identity through coursework, practicum, and reflection, and their perceptions of AI are shaped not only by technical knowledge but also by pedagogical and ethical considerations (Zulianti et al., 2024). Some may regard AI as a tool to improve efficiency and reduce workload, while others may see it as a means to foster creativity and enrich interaction, though certain individuals may resist its use if they believe it diminishes the teacher's role. Such orientations are important for shaping teacher education that balances proficiency with integrity, particularly as the global discourse on AI stresses the need for critical awareness and responsible use (Nazaretsky et al., 2022). Pre-service teachers must therefore be able to assess AI tools in terms of accuracy,

cultural relevance, and ethical consequences, which in turn reflects the adequacy of their preparation for AI-driven learning environments (Kerr & Kim, 2025). Despite growing interest in AI, research has focused largely on in-service teachers and has rarely considered pre-service teachers in urban schools, leaving an important gap where opportunities and challenges converge. This study addresses that gap by examining pre-service EFL teachers' perspectives on AI integration in urban contexts, aiming to inform teacher education programs and contribute to the wider debate on sustainable and meaningful use of AI in EFL classrooms:

1. What are the perspectives of pre-service EFL teachers on integrating AI tools into urban EFL classrooms?
2. What benefits and challenges do they perceive in using AI for teaching English in urban schools?

METHOD

Research Design

This study adopted an exploratory sequential mixed-methods design (Creswell & Creswell, 2018). In the first phase, a questionnaire was distributed to seventy pre-service EFL teachers, and descriptive statistics (e.g., percentages and means) were used to summarize trends in their perspectives. In the second phase, semi-structured interviews with twenty volunteers were conducted to provide deeper insights into themes that emerged from the survey. While the emphasis of the study was qualitative, the integration of supportive quantitative data enabled triangulation and offered a more comprehensive understanding of pre-service teachers' perspectives.

Participants

The participants of this study were pre-service EFL teachers enrolled in English education programs at Indonesian universities situated in urban areas. The selection of participants was based on purposive sampling in order to ensure that the respondents represented individuals who had potential exposure to AI tools and who were preparing to work in urban schools. Urban universities were chosen as the research sites because they are more likely to have students who are familiar with technological innovations, and they often establish partnerships with schools where AI adoption is possible.

The inclusion criteria required that participants be in the final year of their undergraduate program or currently engaged in teaching practicum. This ensured that they had both theoretical knowledge and practical teaching experience, making their perspectives more grounded in classroom realities. In total, approximately seventy participants took part in the survey phase of the study, while twenty of them volunteered for follow-up interviews. The sample size was sufficient to provide a range of views while allowing for thematic depth in qualitative analysis. The

participants represented diverse socio-economic backgrounds, although all were studying in institutions located in urban contexts such as Lampung, Malang, Pontianak, Yogyakarta, and Bali. This diversity enriched the data by capturing perspectives from future teachers who are likely to work in varied educational environments across Indonesian urban schools.

Instruments

Two main instruments were employed in this study. The first instrument was a semi-structured questionnaire distributed online to capture a broad overview of participants' perspectives (Jeon, 2024). The questionnaire consisted of two sections. The first section gathered demographic information, including age, gender, university affiliation, practicum experience, and prior exposure to AI tools. The second section contained both closed-ended and open-ended items designed to elicit participants' views on the role of AI in EFL teaching. Closed-ended items asked participants to rate their perceptions of AI usefulness, perceived ease of use, and potential challenges on a Likert scale, while open-ended items invited them to elaborate on specific experiences or expectations. This combination of question types allowed for both breadth and depth of data collection.

The second instrument was a semi-structured interview protocol developed to further explore themes that emerged from the questionnaire. Interviews were conducted with twenty participants selected from the survey respondents who expressed willingness to participate in this phase. The interview guide included questions about participants' understanding of AI, their experiences with AI tools in learning or teaching, their views on potential benefits for urban EFL classrooms, and their concerns or reservations. Follow-up questions were used to probe for clarification and elaboration. The interviews were conducted online through video conferencing platforms, each lasting between 40 and 60 minutes. All interviews were recorded with participants' consent and later transcribed for analysis.

Data Collection

Data collection was carried out in two phases over a period of three months. In the first phase, the questionnaire was distributed electronically to pre-service teachers in four major urban universities in Indonesia. Participants were invited to complete the questionnaire through institutional mailing lists and class groups. The survey remained open for three weeks, during which reminders were sent to encourage participation. Responses were automatically recorded in a secure database and exported for analysis.

In the second phase, semi-structured interviews were conducted with twenty participants. Selection was based on variation in responses to the questionnaire in order to capture a range of perspectives. The interviews provided an opportunity to

explore issues raised in the survey in more detail, to clarify ambiguities, and to allow participants to share narratives that could not be captured in closed-ended questions. Each interview was conducted in English to reflect the academic training of the participants and to ensure consistency. Participants were assured that their language proficiency would not be judged and that the purpose of the interview was to gather their perspectives. Transcriptions of the interviews were prepared verbatim and checked for accuracy before analysis.

Data Analysis

The data analysis involved both descriptive statistical analysis of the questionnaire responses and thematic analysis of the qualitative data from open-ended survey items and interviews. Descriptive statistics were used to summarize participants' responses to Likert-scale items, such as the degree to which they agreed with statements about AI usefulness or challenges. These statistics provided an overview of trends within the sample, including the proportion of participants who expressed positive or negative attitudes toward AI integration.

The core of the analysis, however, was qualitative. A thematic analysis approach was applied to interview transcripts and open-ended questionnaire responses (Braun & Clarke, 2021). The process followed five stages: familiarization with the data, generation of initial codes, development of themes, reviewing themes, and producing a narrative report. During familiarization, the researcher read and re-read the data to gain an overall understanding. In the coding stage, relevant segments of text were highlighted and labeled with codes such as "support for differentiation," "concern about teacher role," or "lack of training." These codes were then grouped into broader themes, for example "perceived benefits" and "perceived challenges." The themes were reviewed to ensure internal coherence and external distinctiveness, and they were then refined to form the basis of the findings section.

Ethical Considerations

This study adhered to institutional ethical standards to protect participants' rights and ensure the integrity of the research. Informed consent was obtained prior to participation, and respondents were assured of the voluntary nature of their involvement and their right to withdraw at any stage. Confidentiality was maintained by anonymizing data and removing identifying details from transcripts and reports. All information was stored securely and accessed only by the research team. To enhance credibility, member checking was applied by inviting participants to review interview summaries. The study received approval from the ethics committee of the lead researcher's university and was conducted with full consideration of participants' academic welfare and professional identity.

RESULTS AND DISCUSSION

Results

Pre-service EFL teachers' perspectives on integrating AI tools into urban EFL classrooms

Table 1 below presents the descriptive results of the survey regarding pre-service teachers' perspectives on the integration of AI into urban EFL classrooms. The items asked participants to evaluate the extent to which they perceived AI tools as useful, pedagogically relevant, and aligned with their future teaching practice.

Table 1. Perspectives of Pre-Service EFL Teachers on AI Integration in Urban Classrooms

Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	M
AI tools can enhance student motivation in EFL learning	32%	41%	17%	7%	3%	3.92
AI can support differentiated instruction for diverse learners	28%	46%	15%	8%	3%	3.88
AI aligns with communicative goals of EFL teaching	25%	44%	20%	8%	3%	3.80
AI is reliable for supporting classroom management and assessment	19%	41%	24%	12%	4%	3.58
I feel confident about integrating AI into my future EFL classrooms	21%	36%	26%	12%	5%	3.56

The data indicate that a majority of pre-service teachers hold positive perspectives regarding the integration of AI tools in urban EFL classrooms. More than 70 percent of participants agreed or strongly agreed that AI can enhance student motivation and support differentiated instruction. A slightly lower proportion, but still a majority, perceived AI as aligned with communicative goals of language teaching. Confidence levels in integrating AI were moderate, with only 57 percent expressing agreement or strong agreement, while a considerable number (26 percent) remained neutral. This suggests enthusiasm tempered by uncertainty. Interview data confirmed this trend, as participants expressed excitement about AI's potential to personalize learning, but also admitted limited practical experience in classroom contexts.

Benefits and challenges perceived by pre-service EFL teachers

Table 2 summarizes the perceived benefits and challenges identified by participants. Survey items and open-ended responses were analyzed thematically and grouped into categories.

Table 2. Perceived Benefits and Challenges of AI Integration in Urban EFL Classrooms

Theme	Benefits Identified	Challenges Identified
Pedagogy	Supports differentiated instruction; enhances student motivation; provides formative feedback	Limited training on pedagogical use; fear of reduced teacher–student interaction
Technical Aspects	Provides immediate feedback; assists classroom management; access to authentic resources	Unreliable infrastructure; dependence on internet connectivity
Teacher Development	Reduces workload in assessment; encourages creativity in lesson design	Lack of institutional support; limited digital literacy among peers
Ethics and Reliability	Encourages reflective use of language models; supports fairer assessment practices	Concerns about plagiarism, bias, and over-reliance on AI

The findings indicate that pre-service teachers recognize several benefits of AI for urban classrooms, particularly in supporting diverse learning needs and offering immediate feedback. Many also noted the potential of AI to reduce teacher workload in assessment and to provide authentic resources for language learning. At the same time, participants expressed concerns related to technical infrastructure and the ethical implications of AI use. Interview responses highlighted fears that students might become overly dependent on AI for writing tasks or misuse translation tools. Several participants emphasized that while AI is a valuable support, it should not replace the human role of the teacher in fostering communicative competence and intercultural awareness.

Discussion

The findings of this study demonstrate that pre-service EFL teachers in Indonesian urban universities hold predominantly positive perspectives toward the integration of AI tools in language classrooms. This aligns with recent studies reporting that pre-service and in-service teachers view AI as a valuable support for personalized learning and student engagement (Lee et al., 2025; Ozdemi & Mede, 2024). Similar to these studies, participants in this research emphasized the motivational potential of AI and its capacity to provide differentiated instruction. The recognition of AI as a tool for enhancing communicative competence further suggests that participants see AI not merely as a technological add-on, but as an instrument compatible with core principles of EFL pedagogy.

However, the results also reveal ambivalence, particularly in participants’ self-reported confidence to integrate AI into future classrooms. This finding resonates with Ding et al. (2024), who observed that while teachers acknowledge the promise of AI, their limited experience reduces their confidence in actual classroom implementation. The moderate levels of confidence found in this study indicate a need for structured training within teacher education programs. Without systematic

opportunities to practice AI integration, pre-service teachers may carry uncertainty into their professional careers.

In relation to perceived benefits and challenges, the study confirms patterns reported in previous literature while also offering new insights specific to the urban school context. Benefits such as increased motivation, immediate feedback, and reduced workload mirror findings by Slamet (2024), who noted that AI can streamline assessment and support learner autonomy. At the same time, challenges such as unreliable infrastructure and ethical concerns echo observations from Al-Abdullatif (2025), who highlighted that technical and moral dimensions remain critical barriers. The prominence of infrastructure as a challenge in this study reflects the realities of Indonesian urban schools, where internet access may be uneven despite proximity to technological hubs.

The ethical concerns expressed by participants further expand the discussion on responsible AI use in education. Worries about plagiarism, bias, and over-reliance reflect global debates in the field (Pudasaini et al., 2025). The fact that pre-service teachers are already sensitive to these issues suggests that teacher education should go beyond technical training to include critical discussions on digital ethics. This is consistent with the argument by Long et al. (2023) that AI literacy for teachers must include critical awareness and reflective practice, not only technical competence.

A notable contribution of this study is the urban contextualization. Much previous research has either been conducted in higher education institutions in developed countries or has focused on general teacher populations (Narayan, 2024; Silitonga et al., 2023). By contrast, this study highlights the perspectives of Indonesian pre-service EFL teachers preparing for work in urban schools, where AI integration faces both opportunities and systemic barriers. This contextual emphasis enriches the literature by showing how socio-economic diversity, infrastructural realities, and local educational practices shape the readiness and attitudes of future teachers.

Collectively, these findings underscore the importance of preparing pre-service EFL teachers for AI-enhanced classrooms through targeted training, opportunities for practice, and critical engagement with ethical dimensions. While enthusiasm and positive perspectives are evident, practical barriers remain, and teacher education institutions must respond by equipping future teachers with not only technical knowledge but also pedagogical strategies and ethical frameworks. This dual focus can ensure that AI integration contributes meaningfully to the goals of communicative language teaching while addressing the realities of urban education.

CONCLUSION

This study investigated pre-service EFL teachers' perspectives on integrating AI tools into urban classrooms in Indonesia. The findings revealed that participants generally expressed positive attitudes toward AI, recognizing its potential to enhance student motivation, support differentiated instruction, and provide immediate feedback. However, their confidence in integrating AI into their own future classrooms remained moderate, reflecting both enthusiasm and uncertainty. The study also identified a range of perceived benefits and challenges. While many participants highlighted how AI could reduce teacher workload, enrich lesson design, and provide authentic resources, they also raised concerns about infrastructural limitations, inadequate training, and ethical issues such as plagiarism and over-reliance on AI-generated outputs. These results confirm that while pre-service teachers value AI as a pedagogical aid, they also recognize its limitations and the need for careful, critical adoption.

The implications of this study suggest that teacher education programs should prioritize systematic training in AI literacy, combining technical proficiency with pedagogical and ethical awareness. Universities and policy makers need to provide opportunities for pre-service teachers to practice integrating AI into lesson design and classroom interaction, particularly in urban contexts where student diversity and large class sizes pose unique challenges. Despite its contributions, the study has limitations, including the focus on a sample of pre-service teachers in selected urban universities and reliance on self-reported perspectives, which may not fully capture future classroom practices. Future research could expand to rural settings, include longitudinal studies that track teachers from pre-service to in-service stages, and examine the actual classroom impact of AI integration. Based on the findings, it is recommended that teacher education institutions establish workshops, practicum opportunities, and reflective discussions that prepare pre-service EFL teachers not only to use AI tools effectively but also to guide students in employing them responsibly. In this way, AI integration can contribute to the advancement of communicative language teaching while preserving the central role of human teachers in fostering meaningful learning.

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