eISSN 2721-5016 | pISSN 2721-5024
Journal of Research on English and Language Learning (J-REaLL)
http://riset.unisma.ac.id/index.php/JREALL/user
https://doi.org/10.33474/j-reall.v7i1.24655
Volume 7 | Number 1 | p. 147-164
Published on February 13th, 2026

Reimagining teacher professional development in the age of AI: Indonesian EFL teachers' beliefs and pedagogical adaptations in writing classrooms

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ABSTRACT

Although artificial intelligence has gained growing attention in language education, previous research has largely emphasized technical effectiveness and student outcomes, while teachers' professional experiences remain insufficiently examined. This study explores how Indonesian EFL lecturers perceive the use of artificial intelligence in academic writing instruction, how they adjust their pedagogical practices, and how these experiences shape their professional development and professional identity, particularly in writing assessment. Employing a phenomenological approach, data were collected through semi-structured interviews, classroom observations, and teaching documents involving twelve lecturers from East Java and Central Indonesian regions. The findings reveal interconnected experiences influenced by institutional readiness, access to digital infrastructure, and lecturers' pedagogical beliefs. Participants reported a shift in professional identity from primary evaluators of student writing toward facilitators who guide learners in critically engaging with artificial intelligence-generated feedback. In the absence of systematic institutional training, lecturers relied heavily on informal peer communities as spaces for learning, reflection, and sharing instructional strategies. The study suggests that professional development for artificial intelligence-supported writing instruction should move beyond technical orientation and provide sustained, context-sensitive support that integrates ethical awareness, reflective practice, and collaborative learning. While the qualitative design and limited number of participants require cautious interpretation, the findings contribute to broader discussions on teacher professional development in technologically evolving educational contexts.

Keywords: artificial intelligence; EFL writing; pedagogical adaptation; professional development; teacher identity

First Received:	Revised:	Accepted:	Published:
December 5th, 2025	February 3rd, 2026	February 4th, 2026	February 13th, 2026

How to cite (in APA style):
Halimah, N., Muslimin, A. I., & Prabjandee, D. (2026). Reimagining teacher professional development in the age of AI: Indonesian EFL teachers' beliefs and pedagogical adaptations in writing classrooms. *Journal of Research on English and Language Learning (J-REaLL)*, *7*(1), 147–164. https://doi.org/10.33474/j-reall.v7i1.24655

INTRODUCTION

The integration of artificial intelligence (AI) into education has transformed how teachers and students interact with language learning and teaching processes across the globe. The rapid development of AI-powered tools such as ChatGPT, Grammarly, and QuillBot has introduced new modes of engagement, feedback, and assessment in English as a foreign language (EFL) classrooms (Campos, 2025; Dizon & Gold, 2023; Hidayat et al., 2025; Hidayatullah et al., 2025; Ridwan, 2025). In writing instruction, these technologies provide opportunities for instant feedback, linguistic correction, and content generation, which can foster greater learner autonomy and writing fluency. Recent studies have demonstrated that AI integration enhances students' linguistic performance, motivation, and engagement when used as part of writing instruction (Escalante et al., 2023; Khurma et al., 2024; Muslimin et al., 2024). As a result, the role of AI has expanded from a supplementary tool to a pedagogical partner that influences how students learn and how teachers teach. This paradigm shift requires teachers to navigate an increasingly complex instructional landscape that blends human and machine collaboration in literacy development.

Within this context, the professional identity and development of EFL teachers have become more dynamic and multifaceted than ever (Masitoh & Suryati, 2026). Teachers are now expected to integrate technological literacy with pedagogical expertise while maintaining their professional values and instructional effectiveness. Professional development that once focused on linguistic and methodological competencies now needs to include a strong emphasis on digital literacy, critical awareness of AI ethics, and adaptive teaching practices. Research has shown that teachers who engage in continuous professional learning are more likely to adapt successfully to technological innovations and maintain a sense of agency in changing educational contexts (Gondwe, 2021; Pathiranage & Karunaratne, 2023). In EFL contexts, where linguistic accuracy and writing competence are central, teachers' ability to mediate between AI-generated feedback and human judgment becomes a core professional skill. This transformation signals that teacher professional development (TPD) must evolve beyond traditional training models to support reflection, critical dialogue, and identity negotiation in AI-mediated classrooms.

Despite the growing research on AI in EFL education, most studies tend to focus predominantly on students' perspectives and learning outcomes, leaving teachers' experiences and professional growth underexplored. For instance, research conducted in Indonesian and Taiwanese EFL contexts revealed that students viewed AI writing assistants as useful tools for improving grammar, vocabulary, and organization, but also expressed concerns about overreliance and authenticity of learning (Pratiwi & Ridha, 2025; Saravanakumar et al., 2023). While such studies enrich understanding of learner engagement, they offer limited insight into how teachers interpret the pedagogical implications of AI integration or how they reshape their instructional practices accordingly. The few existing studies that investigate teachers' adaptation suggest that educators often face tension between embracing technological affordances and maintaining control over the teaching process (Djamdjuri et al., 2023). This tension raises fundamental questions about teacher identity, professional confidence, and readiness to integrate AI meaningfully in classroom settings. Moreover, professional development initiatives in many institutions still focus on surface-level technical training rather than on addressing the deeper pedagogical and psychological shifts that AI introduces into teaching (Hakel & Magin, 2026).

At the policy level, the Indonesian government has actively promoted digital transformation in education through national initiatives such as *Merdeka Belajar* and the Emancipated Curriculum, which encourage higher education institutions to adopt technology-supported teaching and learning practices (Fitra, 2022). These initiatives emphasize flexibility, innovation, and the development of digital competence among teachers and lecturers. Nevertheless, existing studies suggest that the translation of these policies into professional development programs remains uneven and largely concentrated on general digital skills rather than pedagogically grounded uses of artificial intelligence. Research on teacher professional development in Indonesian higher education indicates that institutional training often prioritizes the use of learning platforms, administrative systems, and basic

instructional technologies, with limited attention to how artificial intelligence can be meaningfully integrated into subject-specific pedagogy, assessment practices, and ethical decision-making (Iskandar et al., 2025; Qamariah & Hercz, 2025; Revina et al., 2023). As a consequence, many EFL teachers continue to experience artificial intelligence as an individual initiative rather than as part of a coherent institutional or governmental strategy, which contributes to fragmented adoption and varying levels of readiness across regions and institutions.

Within this broader policy context, artificial intelligence increasingly shapes Indonesian EFL teachers' professional development experiences and their sense of professional identity, particularly in relation to writing assessment (Rahmiati et al., 2025). The growing use of AI-assisted feedback tools in academic writing challenges traditional assessment practices in which teachers are positioned as the primary source of evaluation and correction. Instead, teachers are required to assume a mediating role that involves guiding students to interpret, evaluate, and justify AI-generated feedback in relation to task goals and academic conventions. Previous studies indicate that such shifts influence teachers' professional self-understanding, as assessment becomes a reflective and dialogic process rather than a purely judgment-oriented activity (Tsai et al., 2024; Yağan et al., 2022). However, because formal professional development related to AI-based assessment remains limited in many Indonesian institutions, teachers often develop these competencies through informal learning, peer collaboration, and classroom-based experimentation (Kolleck et al., 2021; Wijarwadi et al., 2025). These conditions suggest that artificial intelligence not only alters assessment practices in EFL writing classrooms but also plays a significant role in reshaping teachers' professional identities and learning trajectories in technologically mediated educational environments.

In Indonesia, where English education continues to evolve alongside global technological change, these issues are particularly salient. Indonesian teachers are required to align with national policies promoting digital transformation in education, while simultaneously dealing with infrastructural and pedagogical limitations (Gufron & Rosli, 2021; Maylawati et al., 2025; Onyema et al., 2020). Although recent initiatives have encouraged teachers to use AI for lesson design and assessment, there is still little empirical evidence on how such integration influences teachers' professional beliefs, self-efficacy, and identity formation. Furthermore, the intersection between AI integration and teacher professional development in writing classrooms has received scant attention in Southeast Asian scholarship. Previous research on teacher professional identity construction mainly focused on teaching practicum or institutional culture (Chong et al., 2011; Rojas et al., 2021, Rojas et al., 2025; Toom, 2020), yet the influence of AI as a transformative pedagogical force remains largely unexamined. This lack of exploration presents a critical research opportunity to understand how teachers conceptualize their professional growth within AI-enhanced contexts, particularly in EFL writing instruction that demands high levels of interaction, feedback, and creativity.

The present study seeks to address these gaps by investigating how Indonesian EFL teachers perceive their professional roles, adapt their pedagogical practices, and identify their professional learning needs in writing classrooms enhanced by AI technologies. Specifically, this research explores how AI integration reshapes teacher identity, influences pedagogical adaptation, and informs the design of more responsive professional development models. By examining these aspects, the study not only contributes to the theoretical discourse on teacher professional development in the digital age but also provides practical implications for policymakers and teacher educators in Indonesia and similar EFL contexts. The findings are expected to enrich understanding of how teachers can maintain their pedagogical integrity while leveraging AI to improve student learning outcomes and professional growth. Ultimately, this study aspires to reimagine teacher professional development as a transformative process that enables educators to thrive in AI-augmented educational environments. To achieve these objectives, the study addresses the following research questions:

1. How do Indonesian EFL writing teachers perceive the integration of AI in their professional practices?
2. In what ways does AI integration influence teachers' professional identity and pedagogical adaptation?

3. What forms of professional development do teachers perceive as most relevant and supportive in AI-enhanced writing classrooms?

LITERATURE REVIEW

Artificial intelligence in EFL writing instruction

The emergence of artificial intelligence has fundamentally reshaped contemporary writing pedagogy in EFL contexts. AI-based writing tools such as ChatGPT, Grammarly, and QuillBot have introduced new forms of feedback, scaffolding, and linguistic support that operate alongside traditional teacher mediation. From a sociocognitive perspective, writing is understood as a meaning-making process that develops through interaction, feedback, and revision. AI tools extend this process by offering immediate responses that allow learners to experiment with language, test hypotheses, and refine their drafts iteratively. Empirical studies indicate that AI-assisted feedback contributes positively to grammatical accuracy, lexical choice, and overall writing fluency, particularly when learners are guided to reflect on suggestions rather than accept them mechanically (Escalante et al., 2023; Malik et al., 2023).

To analyze how artificial intelligence is integrated into EFL writing instruction, this study draws on pedagogical perspectives that view technology integration as a continuum of instructional use rather than a binary adoption. Previous frameworks on technology integration suggest that teachers employ digital tools at varying levels, ranging from supporting existing instructional practices to reshaping pedagogical processes and learning interactions. In the context of AI-supported writing instruction, integration may take the form of automated feedback, idea generation support, language refinement, or assessment assistance, each requiring different degrees of pedagogical decision-making and teacher mediation (Jiang, 2025; Li & Wilson, 2025). These forms of integration provide an analytical lens to examine how Indonesian EFL teachers position AI within their instructional routines and how pedagogical adaptation emerges in response to AI affordances and constraints.

However, recent scholarship also cautions that the pedagogical value of AI in writing instruction is not inherent but depends on how it is framed and mediated by teachers. Dong (2024) argues that AI feedback should be positioned as dialogic input that invites critical engagement, rather than as an authoritative source of correctness. Without such mediation, students may develop surface-level revisions and reduced ownership of their texts. This concern is echoed in Indonesian contexts, where learners appreciate the efficiency of AI tools but remain uncertain about ethical boundaries and academic integrity (Octaberlina et al., 2024; Pratiwi & Ridha, 2025). These findings suggest that teachers play a central role in shaping how AI is pedagogically enacted in writing classrooms.

Teacher professional identity in technology-mediated contexts

Teacher professional identity refers to how educators understand and enact their roles, values, and responsibilities within particular instructional settings. Identity is not fixed but continuously shaped through teachers' experiences, reflective practices, and interactions with institutional and sociocultural environments (Rojas et al., 2021; Toom, 2020). In technology-mediated contexts, this process becomes more complex as teachers negotiate established pedagogical beliefs alongside emerging digital practices. When new technologies disrupt conventional instructional routines and authority structures, teachers are often required to reinterpret their professional roles and reassess what it means to teach effectively in changing educational landscapes (El-Soussi, 2025).

In the context of artificial intelligence-enhanced writing instruction, negotiations of professional identity become especially visible. Teachers are no longer positioned solely as evaluators of students' written products but increasingly assume the role of facilitators who guide learners in interpreting, evaluating, and ethically engaging with artificial intelligence generated feedback. Research in higher education settings suggests that this shift can strengthen teachers' reflective awareness and pedagogical sensitivity, particularly when they retain agency over instructional and assessment decisions (Mantei & Kervin, 2025; Su, 2023). However, when artificial intelligence is perceived as substituting rather than supporting teacher expertise, educators may experience professional insecurity or resistance

toward its use (Djamdjuri et al., 2023). These tensions indicate that identity transformation in AI-supported classrooms is neither uniform nor linear but shaped by teachers' perceptions of control, responsibility, and pedagogical purpose.

For this reason, teacher professional identity serves as a critical analytical lens for examining pedagogical adaptation in AI-supported writing classrooms. Identity-related indicators include teachers' perceptions of their role in writing assessment, their sense of authority over instructional decisions, and their positioning as facilitators, evaluators, or co-learners alongside students (Djamdjuri et al., 2023). By foregrounding these indicators, the present study investigates how the integration of artificial intelligence influences Indonesian EFL teachers' sense of professionalism, agency, and pedagogical responsibility within technology-mediated teaching contexts.

Pedagogical adaptation and teacher agency

Pedagogical adaptation refers to teachers' capacity to adjust instructional strategies in response to contextual demands, learner characteristics, and ongoing technological developments. This process is closely connected to teacher agency, which reflects educators' ability to exercise professional judgment and make intentional pedagogical decisions rather than merely responding to externally imposed expectations (Pathiranage & Karunaratne, 2023). Within educational settings shaped by rapid technological change, adaptation is not a passive reaction but an active process through which teachers reinterpret curriculum goals, teaching methods, and assessment practices in light of new instructional possibilities.

In artificial intelligence integrated writing instruction, teacher agency is enacted through decisions regarding how, when, and for what purposes AI tools are incorporated into classroom practices. Agency becomes visible when teachers determine the extent to which AI supports drafting, feedback, or revision processes, as well as when they guide students to critically evaluate AI-generated output rather than accept it unreflectively. Empirical studies indicate that teachers with strong digital literacy and pedagogical confidence are more likely to integrate AI in ways that support learning objectives and promote higher-order thinking (Gondwe & Maseko, 2022; Muslimin et al., 2023). In such cases, AI is positioned as a pedagogical resource that complements, rather than replaces, teacher expertise.

However, pedagogical adaptation does not occur in isolation from institutional and contextual conditions. Limited professional development opportunities, uneven access to digital infrastructure, and unclear institutional guidelines may constrain teachers' ability to exercise agency in AI-mediated classrooms. Under these circumstances, educators often rely on informal experimentation, peer collaboration, and self-directed learning to navigate instructional challenges (Fauzan et al., 2022). These findings suggest that pedagogical adaptation emerges from the interaction between individual competence and broader structural support, highlighting the need to consider teacher agency as both a personal and contextual phenomenon in AI-supported educational environments.

Teacher professional development in the age of AI

Teacher professional development has traditionally emphasized methodological competence and subject matter knowledge. In the digital age, this focus has expanded to include technological literacy and pedagogical integration. Recent reviews suggest that effective professional development for AI integration should move beyond short-term technical workshops toward sustained, reflective, and collaborative learning models (Dogan et al., 2025; Gondwe & Maseko, 2022). In AI mediated teaching contexts, indicators of professional development include teachers' willingness to explore unfamiliar tools, their capacity to critically evaluate AI-generated outputs, and their ability to align AI use with pedagogical goals and assessment standards (Tammets & Ley, 2023; Tan et al., 2025). These indicators allow the study to capture professional learning as it is experienced and enacted in everyday teaching practices rather than as participation in institutional training alone.

In Indonesian higher education, professional development initiatives often prioritize general ICT skills while offering limited guidance on AI-specific pedagogy and ethics (Rasmitadila et al., 2024).

As a result, many teachers rely on informal learning communities, such as peer discussion groups and online forums, to make sense of AI in their teaching practices (Rogers et al., 2024; Rojas et al., 2025). These communities function as spaces where teachers negotiate meaning, share classroom strategies, and reconstruct their professional identities. The literature, therefore, points to a gap between the institutional provision of professional development and teachers' actual learning needs in AI-enhanced writing contexts.

Although existing studies have explored the use of AI in EFL writing and teachers' digital competence, several gaps remain. First, much of the literature privileges student outcomes, with limited attention to teachers' lived experiences and identity transformations. Second, few studies examine how regional and institutional disparities shape teachers' pedagogical adaptation to AI. Third, the relationship between AI integration, teacher identity, and professional development in writing classrooms remains under theorized, particularly in Southeast Asian EFL contexts. Addressing these gaps requires an interpretive approach that foregrounds teachers' perspectives and situates AI integration within their professional trajectories. By examining how Indonesian EFL writing teachers perceive AI, adapt their pedagogy, and articulate their professional learning needs, this study contributes to a more nuanced understanding of teacher development in AI mediated education.

METHOD

Research design and approach

This study employed a qualitative research approach with a phenomenological design to explore how English lecturers in Indonesia perceived and experienced professional development within AI-enhanced EFL classrooms. The phenomenological approach was selected to understand participants' lived experiences, beliefs, and pedagogical responses to the integration of artificial intelligence in language teaching (Creswell & Cresswell, 2018). Through this lens, the study sought to examine how lecturers perceived the integration of artificial intelligence in writing instruction, how they adapted their pedagogical practices in response to its use, and how these experiences shaped their professional development and professional identity. This approach aligns with the study's purpose to generate in-depth and contextualized insights rather than statistical generalizations.

Participants

The participants of this study were twelve EFL lecturers (P1–P12) who were actively teaching at universities across two Indonesian time zones. Seven participants (P1–P7) were based in higher education institutions within the Central Indonesian Time zone (WITA), encompassing universities in Lombok, Sumbawa, and Bima. The remaining five lecturers (P8–P12) are teaching at universities located in East Java province, representing the Western Indonesian Time zone (WIB), specifically in the cities of Malang, Sidoarjo, Surabaya, Tulungagung, and Kediri. The inclusion of these two zones aimed to capture regional variations in AI integration and institutional digital readiness, as universities outside Java often experience distinct infrastructural and pedagogical challenges compared to those in Java.

The research settings were selected based on their representativeness of diverse institutional contexts and their relevance to examining how artificial intelligence is integrated into EFL writing instruction and professional development practices. East Java was chosen due to its status as one of Indonesia's most technologically advanced provinces with a strong academic ecosystem, while the WITA regions provided contrasting perspectives from developing educational environments. According to Fauzan et al. (2022), Regional economic development often correlates with digital literacy competence (DLC) among lecturers, as modernized areas tend to have faster knowledge dissemination. However, these assumptions require further investigation in the context of AI integration in EFL classrooms. To maintain ethical principles, participants' identities and institutional affiliations were anonymized. Their data are presented in verbatim form to preserve authenticity. Table 1 summarizes the demographic information of the participants.

Table 1

Demographic Profile of Participants

Categories	Participants
Teaching Experiences	
4–6 years	3
7–9 years	2
10–13 years	3
More than 13 years	4
Teaching Subjects	
English Language Teaching (ELT)	8
English for Specific Purposes (ESP)	2
Linguistics	2
Institutional Type	
Public Universities	6
Private Universities	6
Geographical Distribution	
Central Indonesia (WITA)	7 (P1–P7)
East Java (WIB)	5 (P8–P12)

Instruments

The data were collected through three main instruments: an interview guide, an observation protocol, and a document analysis framework. The interview guide was designed to elicit participants' beliefs, practices, and reflections related to AI-assisted teaching and professional growth. The questions were adapted from prior frameworks on teacher professional learning and technology-enhanced pedagogy (Gondwe & Maseko, 2022; Napitupulu et al., 2024). Each interview session lasted between 60 and 90 minutes, conducted either online or face-to-face, depending on accessibility. Classroom observations were conducted for eight of the twelve participants to record their instructional interactions with AI tools such as ChatGPT, Grammarly, and QuillBot. Complementary document analysis was carried out on lesson plans, reflective journals, and institutional policy documents related to teacher development.

Data collection procedures

Data were collected using three primary research instruments, namely an interview guide, an observation protocol, and a document analysis framework. The interview guide was developed to explore participants' beliefs, instructional practices, and reflective experiences related to artificial intelligence-assisted teaching and professional learning. The interview questions were informed by established frameworks on teacher professional development and technology-enhanced pedagogy (Gondwe & Maseko, 2022; Napitupulu et al., 2024). Each interview session lasted between sixty and ninety minutes and was conducted either online or in person, depending on participants' accessibility and availability.

Classroom observations were conducted with eight of the twelve participants to document instructional practices and teacher mediation when using artificial intelligence tools such as ChatGPT, Grammarly, and Quillbot in writing instruction. In addition, document analysis was carried out using a structured framework to examine lesson plans, reflective journals, and institutional policy documents related to teacher professional development and assessment practices. This combination of instruments enabled the triangulation of data sources and supported a comprehensive understanding of lecturers' experiences with artificial intelligence integration.

Data analysis

The data were analyzed thematically following the qualitative framework proposed by Braun and Clarke (2006). Interview transcripts were read repeatedly to develop an overall understanding of lecturers' experiences with artificial intelligence in writing instruction, followed by inductive coding to capture recurring meanings related to perceptions, pedagogical responses, and professional learning.

Observation notes were examined alongside interview data to identify consistent patterns in instructional practices and teacher mediation when artificial intelligence tools were used in classroom contexts. Relevant documents, including lesson plans, reflective journals, and institutional policy materials, were analyzed to provide contextual support for the emerging interpretations.

Data from interviews, observations, and documents were then compared and integrated to construct broader themes across data sources (Dogan et al., 2025). This process resulted in three central themes, namely evolving teacher professional identity, pedagogical adaptation and technological agency, and emerging professional learning pathways in artificial intelligence contexts. To ensure credibility, member checking was conducted by sharing interview summaries with participants, while data triangulation across instruments strengthened the trustworthiness of the analysis.

Ethical consideration

Ethical integrity was upheld at every stage of the study. Prior to data collection, participants were informed about the study's objectives, procedures, and confidentiality measures. Written consent was obtained electronically. To protect anonymity, participants' names and institutional affiliations were replaced with coded identifiers (P1–P12). Data were stored securely in encrypted digital files accessible only to the research team. Ethical approval was granted by the institutional review board of the researchers' affiliated university. The study also adhered to the general ethical guidelines for research involving human subjects set by the Indonesian Ministry of Education and Culture.

FINDINGS

Perceptions of AI integration in professional practice

Findings from the semi-structured interviews indicate that lecturers perceived artificial intelligence as a noticeable shift in the way writing instruction was enacted in their classrooms. These perceptions were not formed instantaneously but developed through repeated engagement with artificial intelligence tools in daily teaching routines. When describing their instructional practices, participants frequently referred to tools such as ChatGPT, Grammarly, and QuillBot, particularly in relation to feedback provision, student engagement, and assessment-related activities. Through interviews, lecturers consistently positioned artificial intelligence as a supportive pedagogical resource that enhanced classroom practices rather than replacing their professional roles as teachers.

This perception was strongly associated with lecturers' experiences in managing writing instruction more efficiently. Several participants emphasized that artificial intelligence enabled students to identify linguistic issues independently and arrive in class with clearer learning needs. As one lecturer from East Java explained, *"AI is not replacing us but extending what we can do as teachers. It helps students to self correct and gives them faster feedback"* (P3). Another participant shared a similar experience, stating, *"When students use AI, they can immediately see their mistakes and come to class with clearer questions"* (P1). These accounts suggest that lecturers perceived artificial intelligence as a means of redistributing instructional focus, allowing teachers to dedicate more attention to higher-level aspects of writing instruction.

The role of artificial intelligence in managing large writing classes further shaped lecturers' perceptions. Participants noted that artificial intelligence was particularly helpful in handling repetitive and surface-level corrections. One lecturer stated, *"With many students, AI helps handle simple corrections so I can focus more on ideas and organization"* (P4). This perception reflects a shift in how lecturers conceptualized their pedagogical responsibilities, moving from error-focused correction toward more substantive guidance in content development and text organization.

Classroom observation data corroborate these interview findings and provide insight into how lecturers operationalized their perceptions in practice. During observed writing lessons, lecturers permitted students to use artificial intelligence tools at specific stages of the writing process, primarily during drafting and revision. At the same time, lecturers consistently emphasized the need for critical engagement with artificial intelligence output. Students were reminded to evaluate suggestions rather

than apply them uncritically, and final decisions regarding revisions remained the responsibility of the students. These observed practices indicate that lecturers' perceptions of artificial intelligence were closely tied to maintaining pedagogical control and fostering student autonomy.

Perceptions of artificial intelligence were also shaped by regional and contextual factors. Interview data reveal that lecturers from East Java described artificial intelligence use as an integrated part of their regular teaching routines. They reported higher familiarity with digital tools and highlighted the role of stable internet access in enabling consistent classroom implementation. One lecturer stated, *"AI has become part of how we manage writing activities in class"* (P2). In contrast, lecturers from Central Indonesian regions described more conditional and situational use of artificial intelligence. Although they expressed awareness of the pedagogical potential of artificial intelligence, their perceptions were influenced by infrastructural limitations and classroom realities. A lecturer from Lombok explained, *"Sometimes it is difficult to use AI in class because the connection is not always stable"* (P6), while another participant added, *"We use AI when possible, but it depends on the situation and students' access"* (P7).

Document analysis of lesson plans further reflects these differing perceptions and practices. Lesson plans from East Java institutions explicitly incorporated artificial intelligence tools into writing activities, particularly during drafting and revision stages. In contrast, lesson plans from Central Indonesian contexts rarely formalized artificial intelligence use, although some documents included brief notes indicating occasional or situational classroom implementation. This documentary evidence suggests that lecturers' perceptions of artificial intelligence were shaped not only by individual beliefs but also by institutional readiness and contextual support.

Taken together, these findings demonstrate that lecturers' perceptions of artificial intelligence emerged through an ongoing process of interaction between belief, classroom practice, and contextual conditions. Perceptions were formed through experimentation, reinforced by observed instructional outcomes, and negotiated within institutional and infrastructural constraints. As a result, artificial intelligence was perceived not merely as a technological tool but as a pedagogical resource that reshaped instructional decision-making, professional judgment, and lecturers' evolving roles in EFL writing classrooms.

Professional identity and pedagogical positioning in AI-mediated writing instruction

Findings from the interviews indicate that the use of artificial intelligence influenced how lecturers articulated and enacted their professional identity in writing instruction. In this study, professional identity is indicated by how lecturers defined their roles, exercised professional judgment, and positioned themselves in relation to students and technological tools during instruction and assessment. Changes in professional identity were reflected not only in what lecturers said about their roles but also in how these roles were performed in classroom interactions.

Interview data show that lecturers experienced a shift in how they positioned themselves during writing activities and assessment processes. Rather than focusing primarily on evaluating students' written products, lecturers described spending more time guiding students through the writing process and mediating how artificial intelligence feedback should be interpreted and applied. One participant described this change by stating, *"AI changed my role from correcting writing to guiding students on how to use feedback properly"* (P9). Another lecturer shared, *"I still assess their work, but now I pay more attention to how students make decisions when using AI"* (P5). These accounts indicate a movement from a product-oriented assessor role toward a process-oriented mentor role, which represents a central indicator of professional identity transformation.

Classroom observation data further illustrate how this identity shift was enacted in practice. During observed lessons, lecturers frequently paused writing activities to discuss artificial intelligence suggestions with students. Instead of directly accepting artificial intelligence output, lecturers asked students to explain why certain suggestions were chosen or rejected. In several classes, lecturers prompted students to compare artificial intelligence feedback with their own understanding of tone, context, or task requirements before revising their texts. These observed practices demonstrate how

lecturers maintained professional authority and judgment while repositioning themselves as facilitators of critical engagement rather than sole evaluators of correctness.

Interview data also reveal that professional identity was shaped through pedagogical adaptation, particularly in how lecturers regulated the use of artificial intelligence in classroom settings. Lecturers from East Java described more structured approaches to artificial intelligence integration, reflecting an identity orientation toward instructional planning and control. They reported deliberately determining when artificial intelligence could be used and setting explicit boundaries for its application. One participant noted, *"I decide in advance when students can use AI and when they should work without it"* (P2). This structured regulation indicates a professional identity grounded in curricular responsibility and assessment integrity.

In contrast, lecturers from Central Indonesian regions described more flexible and situational pedagogical responses. Their professional identity was enacted through adaptive decision making in response to contextual constraints such as internet access and student readiness. One lecturer explained, *"Sometimes I change the activity depending on whether students can access AI at that moment"* (P6). Another participant added, *"We adapt during the lesson because the situation is not always predictable"* (P7). These accounts suggest a form of professional identity characterized by contextual sensitivity and improvisational teaching expertise rather than fixed instructional routines.

Document analysis of lesson plans further supports these distinctions in professional identity enactment. Lesson plans from East Java institutions included explicit instructions regarding when and how artificial intelligence could be used during writing activities, reinforcing a more formalized and planned expression of professional role. In contrast, lesson plans from Central Indonesian contexts contained fewer formal references to artificial intelligence use, although some documents included brief notes indicating adjustments made during classroom practice. This documentary evidence reflects how professional identity was not only articulated verbally but also embedded in instructional planning and documentation.

These findings demonstrate that professional identity in artificial intelligence-mediated writing instruction was constructed through lecturers' ongoing negotiation of roles, responsibilities, and pedagogical authority. Identity was expressed through decisions about guidance, assessment focus, classroom interaction, and regulation of artificial intelligence use. Rather than diminishing lecturers' professional roles, artificial intelligence prompted a rearticulation of identity in which instructional judgment, facilitation, and ethical responsibility remained central to teaching practice.

Relevant and supportive forms of professional development

Analysis of the data reveals three main forms of professional development that supported lecturers' engagement with artificial intelligence in writing instruction. These forms include limited institutional training, peer-based professional learning, and self-directed classroom experimentation. Together, these forms illustrate how lecturers developed their professional capacity to integrate artificial intelligence despite the absence of structured and sustained institutional support.

The first form relates to institutional professional development programs provided by universities. Interview data indicate that such programs were generally perceived as insufficient in addressing the practical integration of artificial intelligence in writing instruction. Participants commonly reported that institutional training focused on general digital platforms or learning management systems rather than on the pedagogical use of artificial intelligence for feedback and assessment. One lecturer from Jember explained, "Most workshops talk about digital platforms like gamification tools such as Kahoot, Mentimeter, etc., but they rarely discuss how to use AI in teaching writing" (P12). Another participant stated, "We are trained to use the tools, but not how to apply them in real classroom situations" (P10). Several lecturers also noted that ethical considerations related to artificial intelligence use in academic writing were rarely addressed in formal training sessions.

In response to these limitations, peer-based professional learning emerged as a second and more influential form of professional development. Interview data show that many lecturers relied on informal learning communities to exchange knowledge and teaching strategies related to artificial

intelligence. Lecturers from East Java described active participation in small peer groups using digital communication platforms. One participant noted, "We learn a lot from colleagues through WhatsApp and Telegram groups because there is no regular training" (P9). These peer interactions enabled lecturers to share classroom experiences, discuss instructional challenges, and exchange artificial intelligence prompts used in writing activities.

Classroom observation data support the role of peer learning in shaping instructional confidence. Lecturers who reported active involvement in peer learning communities appeared more confident when guiding students' use of artificial intelligence during writing tasks. They frequently explained how artificial intelligence feedback should be evaluated and discussed rather than directly applied. In contrast, lecturers with limited access to peer support tended to restrict artificial intelligence use to occasional classroom situations, suggesting that peer learning contributed to more sustained pedagogical engagement.

The third form of professional development involved self-directed learning through classroom experimentation. Document analysis indicates that lecturers often developed their own approaches to artificial intelligence integration based on personal experience and reflection. Lesson plans and teaching materials rarely referenced institutional guidelines on artificial intelligence use. Instead, documents reflected individual pedagogical decisions shaped by trial and error. Some lesson plans included brief notes reminding students to review artificial intelligence suggestions or justify their revisions, indicating that lecturers independently incorporated reflective practices into their instruction.

Lecturers from Central Indonesian regions reported similar reliance on peer learning and self-directed development but described slower access to shared knowledge due to infrastructural constraints. One participant stated, "We also share with colleagues, but sometimes information comes late because not everyone can access it easily" (P6). These contextual conditions influenced how consistently lecturers could refine and sustain their artificial intelligence-related teaching practices.

The findings demonstrate that professional development related to artificial intelligence integration was driven largely by lecturers' initiative rather than by formal institutional structures. While institutional training opportunities were limited and often misaligned with classroom needs, lecturers actively constructed alternative learning pathways through peer collaboration and reflective classroom practice.

Proposed conceptual model for AI-oriented teacher professional development

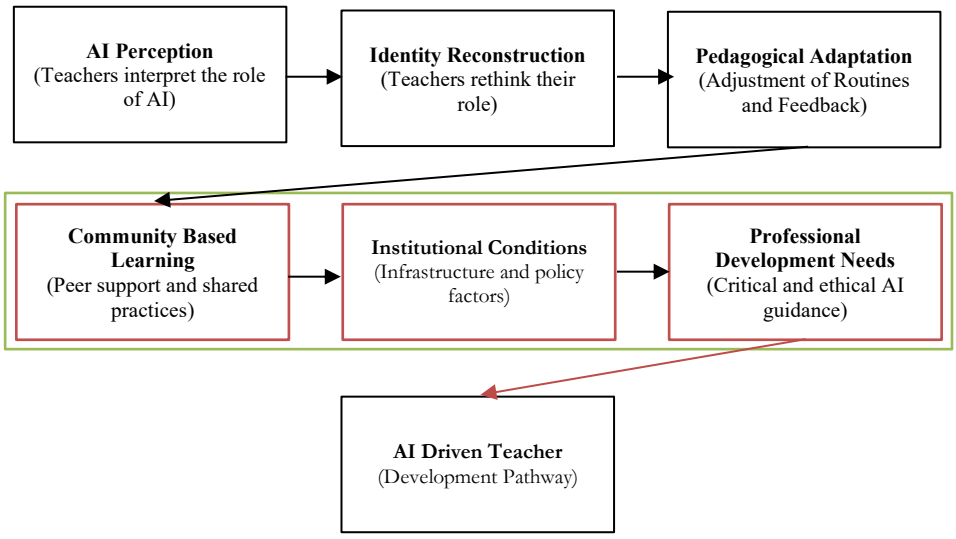
Based on the thematic analysis of participants' experiences, this study formulates a conceptual model that illustrates the interconnected processes shaping teacher professional development in AI-enhanced writing instruction. The model begins with teachers' sense-making of artificial intelligence, which influences their confidence, perceived professional responsibility, and willingness to engage with AI-based tools. These initial interpretations contribute to a reconfiguration of professional identity, as lecturers reassess their roles in supporting student writing alongside automated feedback systems.

The findings further indicate that pedagogical adaptation operates as a dynamic and ongoing process in which teachers negotiate the balance between human judgment and AI support. This process is strengthened through collaborative learning communities, where shared reflection and peer dialogue facilitate professional learning. At the same time, institutional conditions emerge as a key factor shaping the pace and depth of AI integration, with supportive environments enabling more seamless adoption, whereas constrained contexts encourage cautious, situational use.

Collectively, these elements form a nonlinear pathway of professional development that moves between interpretation, adaptation, collaboration, and reflection (see Figure 1). Rather than representing a purely technical shift, the integration of artificial intelligence is experienced as a pedagogical and identity-oriented process grounded in teachers' agency and contextual realities.

Figure 1

Conceptual Model for AI-Oriented Teacher Professional Development



DISCUSSION

Perceptions of AI integration in professional practice

The findings of this study indicate that Indonesian EFL writing lecturers generally perceive artificial intelligence as both an enabling and demanding innovation in their professional practice. Artificial intelligence tools are understood as reshaping feedback practices, student engagement, and assessment processes in writing instruction, confirming earlier research that positions artificial intelligence as a catalyst for pedagogical transformation rather than a replacement for teachers' roles (Hidayat et al., 2025; Khurma et al., 2024; Muslimin et al., 2024; Steiss et al., 2024). From this perspective, artificial intelligence is interpreted as extending teachers' instructional capacity by accelerating feedback cycles and supporting students' independent revision processes, which has been shown to contribute to improved writing fluency and learner confidence (Lachheb et al., 2025; Malik et al., 2023). These patterns of perception form the initial interpretive layer of the conceptual model presented in Figure 1, shaping how teachers make sense of artificial intelligence in relation to their professional roles.

However, these perceptions are not uniform across institutional and regional contexts. Lecturers working in settings with more established digital ecosystems tend to view artificial intelligence integration as a natural continuation of ongoing educational digitalization. In contrast, those operating in resource-constrained environments express more cautious orientations, shaped by infrastructural instability and limited institutional support. This contrast reinforces prior findings that emphasize the role of contextual readiness in shaping teachers' engagement with educational technologies (Elice et al., 2025; Labibunnajah et al., 2024). Rather than reflecting resistance, such cautious perceptions appear to signal pragmatic awareness of the conditions required for sustainable artificial intelligence use in teaching.

These differences highlight how infrastructure and institutional support mediate not only access to artificial intelligence but also teachers' confidence and professional agency. In environments where technological resources are reliable, artificial intelligence is more readily integrated into everyday pedagogical routines. In less supported contexts, artificial intelligence is perceived as potentially widening professional gaps unless accompanied by adequate structural support. This interpretation aligns with broader discussions on technostress and digital inequality in higher education, where uneven access continues to shape educators' experiences with emerging technologies (Díaz & Nussbaum, 2024).

Professional identity and pedagogical adaptation

Beyond shaping instructional practices, artificial intelligence integration also influences lecturers' professional identity. The findings suggest that teachers are engaged in an ongoing process of identity negotiation, as artificial intelligence challenges traditional understandings of the teacher as the sole authority in writing evaluation. Instead, teachers increasingly position themselves as facilitators who guide students in critically engaging with artificial intelligence-generated feedback. This shift resonates with recent scholarship that frames artificial intelligence as prompting a redefinition of pedagogical roles rather than their erosion (El-Soussi, 2025).

Importantly, lecturers consistently emphasize the continued importance of human judgment in writing instruction. While artificial intelligence is valued for providing immediate and surface-level feedback, teachers maintain that nuanced evaluation of argumentation, voice, and contextual appropriateness remains a fundamentally human responsibility. This perspective aligns with studies highlighting the limits of automated feedback in capturing rhetorical sensitivity and disciplinary conventions (Pratiwi & Ridha, 2025; Rojas et al., 2021). As a result, artificial intelligence is interpreted not as an authoritative evaluator but as a pedagogical resource that must be mediated through teachers' professional expertise. As illustrated in Figure 1, these shifts in professional identity are closely connected to pedagogical adaptation, as teachers negotiate the balance between human judgment and artificial intelligence support in writing instruction.

Pedagogical adaptation unfolds differently across institutional contexts. In settings with stronger organizational support, artificial intelligence is systematically embedded in lesson planning and assessment design. In contrast, teachers in more constrained environments rely on individual experimentation, peer collaboration, and contextual improvisation. These adaptive strategies reflect varying forms of technological agency, ranging from planned innovation to responsive creativity, as described in studies on teacher learning in diverse educational settings (Burns et al., 2022; Gondwe & Maseko, 2022). Together, these patterns illustrate that identity reconstruction is closely tied to the material and social conditions in which teachers work.

Relevant and supportive forms of professional development

Figure 1 further reflects how collaborative learning and institutional conditions influence the trajectory of teacher professional development, reinforcing or constraining engagement with artificial intelligence in practice. The findings further indicate that existing professional development initiatives have not fully addressed the demands of artificial intelligence-enhanced pedagogy. Lecturers consistently report that institutional training remains focused on basic digital skills, with limited attention to pedagogical design, ethical considerations, and critical engagement with artificial intelligence in writing instruction. This gap echoes concerns raised in recent research on higher education professional learning, which calls for a shift from tool-oriented training toward integrative models that connect technology, pedagogy, and ethics (Alzakwani et al., 2025; Rasmitadila et al., 2024).

In response to these limitations, lecturers increasingly rely on informal learning networks to develop their artificial intelligence-related competencies. Peer-based communities function as spaces for sharing classroom strategies, discussing ethical dilemmas, and collectively interpreting institutional expectations regarding artificial intelligence use. Such practices align with research emphasizing the value of collaborative and situated professional learning in fostering sustainable pedagogical change (Rogers et al., 2024). Nevertheless, access to these learning opportunities remains uneven, particularly in contexts affected by infrastructural constraints.

Lecturers consistently emphasize that effective professional development should be continuous, reflective, and context sensitive. Rather than focusing solely on technical proficiency, teachers call for programs that support pedagogical decision making, ethical awareness, and critical evaluation of artificial intelligence-generated feedback. This view supports arguments that sustainable artificial intelligence integration depends on balancing technological competence with pedagogical judgment and professional values (Küçükuncular, 2025). Clear institutional policies and guidance are also seen as essential for aligning professional learning with broader educational goals.

CONCLUSION

This study examined how Indonesian EFL teachers perceive and adapt to the integration of artificial intelligence in writing instruction. Overall, the findings indicate that teachers perceive artificial intelligence as both enabling and challenging, as it supports feedback practices and student engagement while simultaneously raising ethical and pedagogical concerns related to authenticity and critical thinking. These perceptions shape how teachers respond to artificial intelligence in practice and form the basis for subsequent pedagogical decisions. In response to these conditions, teachers increasingly redefine their professional identities, shifting from the role of primary assessors toward facilitators who guide students in critically evaluating and using artificial intelligence-generated feedback. This identity shift is accompanied by ongoing pedagogical adaptation as teachers balance human judgment with automated support. At the same time, clear regional differences emerged. Teachers in well-resourced institutions in East Java tended to integrate artificial intelligence more systematically, whereas those in Central Indonesian contexts relied largely on peer-based and informal professional communities to adapt their practices under constrained conditions. These differences highlight the importance of institutional context in shaping artificial intelligence adoption. In addition, the findings show that existing professional development initiatives remain limited, as they often prioritize general digital literacy rather than pedagogically grounded and ethically informed artificial intelligence use in writing classrooms. This underscores teachers' preference for continuous professional development that combines technological competence with reflective practice and ethical awareness. Nevertheless, the qualitative design and the limited number of participants restrict the generalizability of the findings. Accordingly, future research should consider mixed-methods approaches with broader samples across educational levels, as well as longitudinal studies that examine the long-term influence of artificial intelligence integration on teacher identity and student learning. Overall, this study emphasizes the central roles of teacher agency, peer collaboration, and institutional support in shaping meaningful and responsible integration of artificial intelligence into EFL writing education.

ACKNOWLEDGEMENTS

The authors would like to express their sincere gratitude to all participants who generously shared their time, experiences, and reflections during the data collection process. The authors also acknowledge the valuable support and constructive insights provided by colleagues and academic peers who contributed through discussion, feedback, and informal consultation throughout the research process. Their support has been instrumental in refining the ideas and strengthening the quality of this study.

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CONFLICT OF INTEREST STATEMENT:
The authors declare that there is no conflict of interest regarding the publication of this research.

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