

INTEGRATING ARTIFICIAL INTELLIGENCE IN ELT: A SYSTEMATIC REVIEW OF TEACHER READINESS AND CHALLENGES

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Abstract:

The rapid advancement of Artificial Intelligence (AI) has transformed English Language Teaching (ELT) by enabling personalized instruction, automated feedback, and efficient learning management. Despite the increasing use of AI tools in ELT, teachers' readiness and the challenges they face in integrating ai pedagogically remain underexplored. This study aims to systematically review empirical research on AI integration in ELT, with a focus on teacher readiness and implementation challenges. Using a Systematic Literature Review (SLR) approach, this study followed established review protocols and PRISMA guidelines. A total of 17 empirical studies published between 2020 and 2024 were selected from Scopus, Eric, and Google Scholar through a structured screening process. The findings indicate that English teachers generally demonstrate strong psychological readiness toward AI integration, reflected in positive attitudes and acceptance of AI's perceived usefulness for supporting teaching efficiency, lesson planning, and assessment. However, this readiness is not consistently accompanied by sufficient technical and pedagogical competence, resulting in AI being used mainly as an instrumental tool rather than being meaningfully integrated into communicative language teaching practices. The review also identifies multidimensional challenges, including limited technological infrastructure, pedagogical uncertainty, ethical concerns related to data privacy and algorithmic bias, and psychological issues associated with teachers' professional identity. Overall, teacher readiness for AI integration is shaped by the interaction of individual, pedagogical, and systemic factors. This study concludes that holistic teacher professional development, integrating technical training, TPACK-based pedagogical competence, and ethical literacy, is essential for the sustainable and responsible integration of AI in ELT.

Keywords:

Artificial Intelligence;
Systematic Literature Review; Teacher Readiness; Teacher Challenges



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INTRODUCTION

The rapid development of Artificial Intelligence (AI) has brought significant transformations in various fields, including English education and English Language Teaching (ELT) (Jeon, 2025; Koç, 2025). AI now no longer serves only as a supportive tool, but has become an integral part of teaching, assessment, and learning support practices. AI integration allows teachers to deliver more personalized, adaptive, and

efficient learning experiences, as well as support activities such as structuring teaching materials, language practice, and automated evaluation of student learning outcomes.

Various AI tools are now commonly used in ELT, including automated writing evaluation (AWE) systems such as Grammarly and other AWE-based platforms; intelligent tutoring systems (ITS) and adaptive learning applications (e.g. systems inspired by the principles of Intelligent Computer-Assisted Language Learning (ICALL) for practice and personalized learning; AI-powered chatbots and generative models (e.g. ChatGPT) for language training and interactive writing or speaking practice; as well as AI-based learning-management systems and tools for lesson planning and material development, all of which have begun to find their place in real-world English-language teaching and learning contexts. Research shows that AWE significantly improves L2 learners' writing quality (e.g., grammar, structure) vs. non-automated editing groups (Al-inbari, 2023). Meanwhile, AI-driven tools also support speaking and pronunciation practice, personalized feedback, and flexible learning paths, reducing pressure on traditional classroom constraints and allowing more adaptive, learner-centered instruction (Mardhiah et al., 2024).

In English classroom practice, AI is used for a variety of purposes, including: vocabulary and grammar practice, conversational simulation, writing support through automated feedback, text reading and comprehension assistance, generative AI for content creation, as well as classroom management and learning monitoring (Kyaw & Deng, 2025). This use of AI enables teachers to provide more personalized learning, support differentiated instruction, and increase student motivation and engagement.

Various studies have documented the benefits of AI integration in ELT, including increased student engagement, reduced teacher workload, improved accessibility, fast and accurate feedback, efficiency of lesson preparation, as well as improved teaching quality (Xing & Saeed, 2025). However, AI integration also presents challenges, such as teachers' low AI literacy, lack of training, pedagogical uncertainties, ethical issues (privacy, bias, plagiarism), as well as concerns that students are too reliant on AI (Makalesi, 2024). Although many studies examine the impact of AI on students, studies on teacher readiness (teacher readiness), their challenges, and barriers in adopting AI are still limited. Most of the literature reviews focused on the effectiveness of AI for learning, rather than on the perspective of teachers as instructors. This raises an important gap: the need for systematic reviews that place teachers at the center of the study.

Based on such conditions, this study aims to conduct a systematic review of empirical studies (2020–2024) related to AI integration in ELT, focusing on: teachers' preparedness, the challenges they face, as well as the latest trends in AI adoption. This study is expected to provide recommendations for educational policies, teacher training programs, as well as effective and responsible implementation of AI. The main research questions were: (1) how ready are ELT teachers to integrate AI into their learning practices? and (2) what challenges do ELT teachers face in integrating AI?

The integration of AI in ELT has been one of the most significant transformations in the development of educational technology today. AI is no longer seen as an add-on tool, but

rather a strategic component capable of improving learning effectiveness through automated feedback systems, material personalization, and data-driven adaptive learning (Chu et al., 2023; Syuhra et al., 2025). Technologies such as Automated Writing Evaluation (AWE), chatbots, and intelligent tutoring systems are proven to help the improvement of writing, speaking, reading, and listening skills more efficiently than traditional methods (Abdelali & Benmhamed, 2025; Ali et al., n.d.; Sharifuddin & Hashim, 2024). Thus, the presence of AI also supports the acceleration of the learning process and increases learners' access to more extensive and flexible learning resources.

On the other hand, the success of AI integration pedagogically is strongly determined by the level of preparedness of teachers as the primary developers and managers of learning. Such readiness includes technological literacy, confidence in operating AI systems, as well as the ability to adapt pedagogy according to technological developments (Aco et al., 2025; Ren & Wu, 2025). Although the majority of teachers have a positive attitude toward AI and are aware of its benefits, some studies mention that there is still a gap between perception and practice due to a lack of formal training, hands-on experience, and understanding regarding the pedagogical value of AI in ELT (Laoha et al., 2025; Makalesi, 2024). This challenge is even more pronounced in the context of prospective teachers (pre-service teachers), who, although more enthusiastic, still require professional coaching in order to be able to use technology in a targeted manner (Gürkan, 2025; Omidvar & Meihami, 2025).

Further, the application of AI in language learning still faces various barriers that are technical, pedagogical, and ethical in nature. Limitations of digital infrastructure and internet access, especially in rural areas, have become one of the main obstacles in the equalization of AI use (Castro et al., 2025; Mulkiyah, 2024). Pedagogically, teachers often experience difficulties in integrating AI without diminishing the essence of human interaction, the authenticity of communication, and students' critical thinking skills (S. M. Hamid et al., 2025; Putu & Pramerta, 2025). Additionally, issues of data privacy, algorithmic bias, and the potential for students' dependency on AI also raise psychological and professional concerns, including the emergence of teacher anxiety regarding the possible replaceability of their roles in the future (Khawa, 2025; Wang et al., 2024).

Despite such challenges, global trends in language education research and policy suggest that AI opens up great opportunities for the realization of more inclusive, efficient, and innovative learning. Teachers are encouraged to transform into learning designers as well as facilitators capable of blending human and machine intelligence in meaningful learning experiences (Karakaya et al., 2025; Kristiawan et al., 2024). Recent studies confirm that AI literacy, digital pedagogy competency strengthening, and institutional support are key aspects in supporting the sustainable adoption of AI in the ELT sector (Abdelaal & Sawi, 2024; Akintunde & Abdallah, 2024; Kyaw & Deng, 2025). Therefore, teacher professional development needs to be designed within a strategic framework that considers ethical aspects, technology sustainability, as well as equity of access.

Although the amount of research regarding AI in ELT is growing rapidly, the majority still focuses on the effectiveness of technology on student learning outcomes, while teachers' experiences as the primary implementers of digital learning are often neglected

(Nurcahyani et al., 2025; Sahmaniasl, 2025). This raises a study gap related to mapping teacher readiness, real challenges in learning practices, as well as the need for policies that can strengthen the implementation of AI in educational institutions. Departing from such research gaps, this systematic review study has the urgency to provide a comprehensive analysis regarding teachers' readiness levels and barriers in integrating AI in ELT, so that it can serve as a reference for the development of educational policies, teacher training programs, and future research directions regarding the utilization of AI in sustainable language learning.

METHOD

This study employed a Systematic Literature Review (SLR) method to identify, evaluate, and synthesize findings from peer-reviewed journal articles addressing the integration of AI in English language learning, with a particular focus on teacher preparedness and the challenges they encounter. This study followed a well-established systematic review protocol (Kitchenham & Charters, 2007; Xiao & Watson, 2017) and referred to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines (Page et al., 2021), ensuring a rigorous, stepwise, and structured process.

The literature search was conducted in the main databases, specifically Scopus, ERIC, and Google Scholar, which were selected for their broad and complementary coverage in the fields of education, linguistics, and AI technology. The keywords used in the search were “*artificial intelligence*”, “*AI*”, “*English language teaching*”, “*ELT*”, “*teacher readiness*”, “*teacher perception*”, “*teacher challenges*”, “*integration*”. Keywords were concatenated using Boolean operators and complemented with truncation symbols when necessary. In addition, a snowball search of the bibliographies of key studies was performed to ensure comprehensive coverage.

The study covers publications between January 2020 and December 2024, a period characterized by the rapid advancement of AI and its increasing application in English Language education. Articles were screened based on predefined criteria, as summarized in Table 1.

Table 1 Exclusion Criteria

CRITERION	DESCRIPTION
Not on the topic	The article covers other topics
Not empirical	The article does not report an empirical study
Not on AI	The article does not focus on AI
No focus on the teacher	The study does not examine teachers as the primary focus
Not related to ELT	The article is not related to ELT
Other language	The article is published in languages other than English and Indonesian

The initial search yielded 198 articles. After 15 duplicates were removed, 183 articles were screened based on title and abstract. From this stage, 58 articles were excluded due to irrelevance. A total of 121 articles were then reviewed in full text; 104 articles were excluded because they did not discuss AI integration, did not focus on teachers, or did not relate to English ELT. Finally, 17 articles met all criteria and were included in the

synthesis. This literature selection process is illustrated in the PRISMA flow diagram in Figure 1.

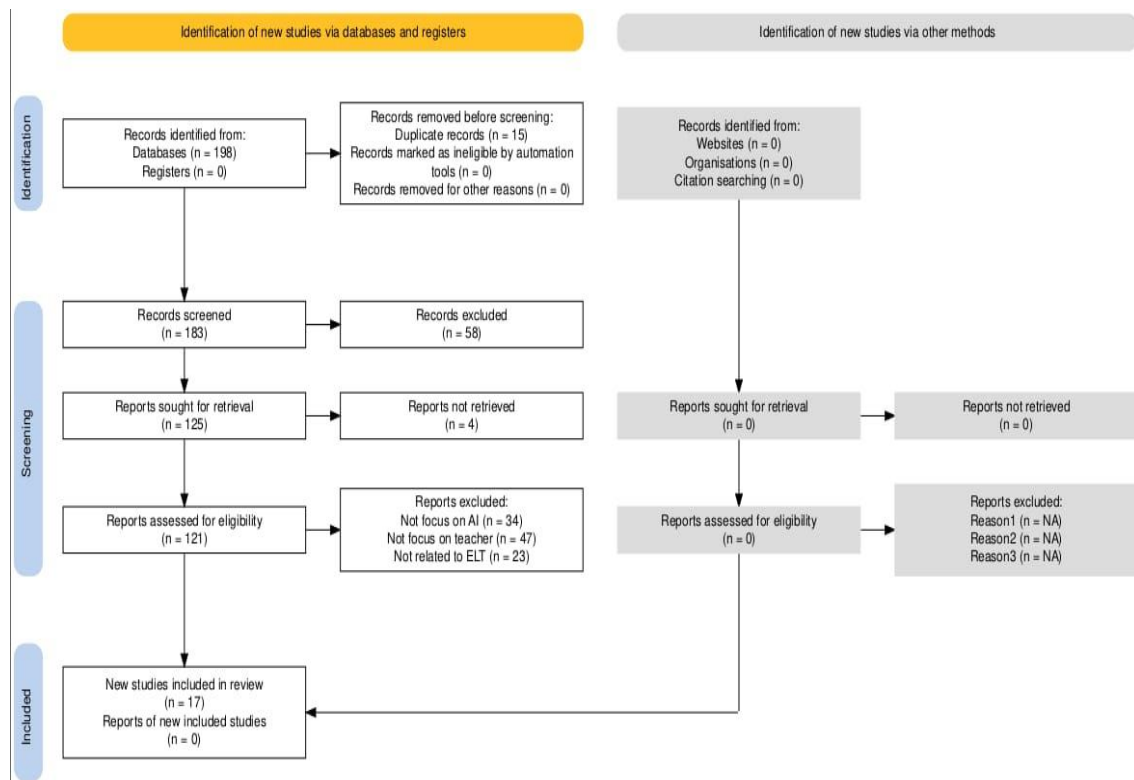


Figure 1 PRISMA Flow Diagram

This systematic review approach allowed a thorough review of the relevant literature, although some limitations remain, such as the variation in search functions on each database, the potential for language bias as only English- and Indonesian-language articles were retrieved, as well as the subjective decision in excluding some studies.

RESULTS AND DISCUSSION

A summary of the data extraction results from the articles in this SLR includes: author name, article title, year of publication, and journal name. A summary of the data extraction can be seen in Table 2 below.

Table 2 Summary of the Coding Data Results

AUTHOR	YEAR OF PUBLICATION	TITLE	JOURNAL
Aco et al.	2025	The Shifting Role of the Teacher: A Systematic Review of Teacher Perceptions and Practices with AI in the EFL Classroom	Australian Journal of Applied Linguistics
Castro et al.	2025	Identifying rural elementary teachers' perception challenges and opportunities in integrating artificial intelligence in teaching practices	Sustainability Journal

AUTHOR	YEAR OF PUBLICATION	TITLE	JOURNAL
Ren & Wu	2025	Examining teaching competencies and challenges while integrating artificial intelligence in higher education	TechTrends
Hamid et al.	2025	Integrating Artificial Intelligence (AI) into EFL in Higher Education: Challenges and Opportunities for Indonesian Teachers and Students	Al-Ishlah: Jurnal Pendidikan
Kyaw & Deng	2025	Systematic Review of Artificial Intelligence Integration in English Language Teaching: Trends, Applications, and Pedagogical Implications	English Education, Linguistics, and Literature Journal
Nurcahyani et al.	2025	Managing Artificial Intelligence Integration In English Language Learning: A Literature Review	SMART: Journal of English Teaching and Applied Linguistics
Ummu Mulkiyah	2024	Integrating Artificial Intelligence in EFL Classrooms: Opportunities and Challenges for Indonesian Teachers	Journal Corner of Education, Linguistics, and Literature
Syuhra et al.	2025	Artificial Intelligence in English Language Teaching: A Systematic Literature Review of Tools, Impact, and Challenges	Voices of English Language Education Society
S. Hamid & Abbas	2025	Artificial Intelligence as a Pedagogical Scaffold in K–12 Language and Literacy Education	Annals of Human and Social Sciences
Manzoor et al	2025	A Systematic Review of AI-Integrated Tools in ESL/EFL Education	Pertanika Journal Science & Technology
Omidvar & Meihami	2025	Computers and Education : Artificial Intelligence Exploring the “ what ” and “ how ” of opportunities and challenges of AI in EFL teacher education	Computers and Education: Artificial Intelligence
Ahimsa & Khawa	2025	The Impact of Artificial Intelligence on English Language Teaching: Opportunities and Challenges in Technology Era	IDEAS Journal of Language Teaching and Learning, Linguistics and Literature
Qureshi et al	2025	The Critical Review of Social Sciences Studies Teacher Perceptions and Readiness for AI-Enhanced Teaching in Developing	The Critical Review of Social Sciences Studies
Laoha et al	2025	Artificial Intelligence and English as a Foreign Language (EFL) Teachers' Competencies: A Systematic Review	Higher Education Studies
Jabeen et al	2025	Transforming Education with AI: Teachers' Views, Challenges, and Pathways to Success	Journal of Engineering Education Transformations
Wahyuningtias et al	2025	Teachers' Perception of the Use of AI Tools in EFL Classroom Sub-area School	JIIP (Jurnal Ilmiah Ilmu Pendidikan)
Singh	2024	Integrating Artificial Intelligence in ELT: Opportunities and Challenges	Kronika Journal

The results of a systematic review indicate that English language teachers generally have positive attitudes toward the integration of AI in English language learning. Various studies report that teachers demonstrate openness and willingness to adopt AI technology, primarily due to the perception that AI can improve teaching efficiency, support lesson planning, and reduce administrative burdens (Aco et al., 2025; Castro et al., 2025; S. M. Hamid et al., 2025; Ren & Wu, 2025). This is in line with the Technology Acceptance Model (TAM), which emphasizes that technology acceptance is influenced by perceptions of usefulness and ease of use (Davis, 1989). This psychological readiness is an important foundation for AI adoption because it indicates teachers' acceptance and willingness to utilize technology in language learning. However, this readiness is not sufficient to ensure meaningful integration, because without the support of pedagogical competence and the ability to link AI to language learning objectives, technology tends to be used superficially as a technical aid, rather than as an integral part of a communicative, outcome-oriented learning design (Davis, 1989; Mishra & Koehler, 2006).

Despite relatively high teacher acceptance of AI, technical and pedagogical readiness still shows significant variation. Several studies have revealed that teachers tend to use AI instrumentally, for example, to create teaching materials, develop questions, or provide automated feedback, without strong integration into communicative learning strategies oriented towards developing students' language competencies (S. M. Hamid et al., 2025; Kyaw & Deng, 2025; Nurcahyani et al., 2025). This situation indicates a gap between the ability to use technology and the ability to integrate it pedagogically. Within the Technological Pedagogical Content Knowledge (TPACK) framework, effective technology integration requires an integration of technological, pedagogical, and content knowledge (Mishra & Koehler, 2006). Low TPACK mastery has the potential to result in AI being used solely as a technical tool, rather than as a pedagogical tool that optimally supports the achievement of language learning goals. However, these limited technical and pedagogical readiness are not isolated but are closely related to the various challenges teachers face in integrating AI in English classes.

In addition to individual readiness, technical challenges are a major obstacle to implementing AI in the classroom. Digital infrastructure limitations, such as a lack of supporting devices and unstable internet connections, particularly in rural areas, significantly limit the sustainable use of AI (Castro et al., 2025; Mulkiyah, 2024; Syuhra et al., 2025). Furthermore, some AI platforms do not fully support local learning contexts, whether in terms of language, curriculum, or student needs, requiring teachers to make manual adaptations, increasing their workload. This situation indirectly limits teachers' pedagogical exploration in utilizing AI creatively and contextually. This emphasizes that teacher readiness cannot be separated from the readiness of the education system as a whole, including policy support and technological infrastructure.

Pedagogical challenges in integrating AI into ELT relate to teachers' limitations in utilizing AI as a learning assistant in a manner that aligns with the principles of communicative language learning. Several studies show that even though AI is used to support assessments, administrative tasks, and the provision of learning media and materials, teachers still struggle to define the boundaries and functions of AI so as not to

diminish the quality of meaningful pedagogical interactions in language classes (S. Hamid & Abbas, 2025; Manzoor et al., 2025; Syuhra et al., 2025). Furthermore, teachers question the extent to which AI-generated feedback can be used as a supporting reference in assessing contextual and spontaneous language skills, such as speaking and language use in authentic situations, thus still requiring validation and professional interpretation by teachers (Omidvar & Meihami, 2025).

In addition to operational, technical, and pedagogical challenges, ethical and psychological aspects also influence teacher readiness to adopt AI. Concerns regarding student data privacy and security, potential algorithmic bias, and the increased risk of academic dishonesty are issues frequently raised in the literature (Ahimsa & Khawa, 2025). Furthermore, teachers' anxiety about the potential displacement of their professional roles by technology also impacts their identity and confidence as educators (Wang et al., 2024). This suggests that teachers' emotional and ethical readiness needs to be treated as an integral part of AI policy and training, rather than as an additional issue.

Overall, the results of this review confirm that teacher readiness and the challenges of AI integration in ELT are multidimensional and interconnected. These findings provide a conceptual contribution by demonstrating that teacher readiness for AI integration is not linear, but rather shaped by the interaction of individual, pedagogical, and systemic factors. Although teachers have demonstrated strong psychological readiness, technical and pedagogical limitations, as well as ethical and psychological challenges, still hamper the effective implementation of AI. Therefore, teacher professional development needs to be designed holistically, encompassing technical training, strengthening TPACK-based pedagogical competencies, and increasing ethical literacy related to the use of AI. The overall meaning of this discussion suggests that AI should be positioned as a supporting tool that strengthens the role and agency of teachers, rather than as a replacement, so that technology integration can contribute sustainably to improving the quality of English language learning.

CONCLUSION

This systematic review indicates that English language teachers generally possess strong psychological readiness to integrate artificial intelligence (AI) into English Language Teaching (ELT), as reflected in positive attitudes and acceptance of AI's potential to support the efficiency of teaching, assessment, and administrative tasks.

However, this readiness has not been fully accompanied by adequate technical and pedagogical readiness to ensure meaningful AI integration oriented toward language learning goals. These findings confirm that technology acceptance, as described in the Technology Acceptance Model (TAM), is an important prerequisite, but is insufficient without mastering pedagogical and integrative competencies as emphasized in the Technological Pedagogical Content Knowledge (TPACK) framework.

Furthermore, this study identified that the challenges of AI integration in ELT are multidimensional and interconnected, encompassing technical, pedagogical, ethical, and psychological aspects. Limited infrastructure and systemic support limit the sustainable

use of AI, while pedagogical dilemmas arise when teachers attempt to utilize AI as a learning assistant without compromising the quality of communicative interactions and their pedagogical authority. On the other hand, concerns about data privacy, algorithmic bias, and the implications of AI for teachers' professional identity demonstrate that technology integration also involves emotional and ethical dimensions of the profession that cannot be ignored.

Conceptually, these findings provide an understanding that teacher readiness to integrate AI is not linear, but rather is formed through a dynamic interaction between individual readiness, pedagogical competence, and educational system support. Therefore, teacher professional development needs to be designed holistically by integrating technical training, strengthening pedagogical competence based on TPACK (Teaching, Speaking, and Speaking), and increasing ethical and reflective literacy related to the use of AI in language learning. By positioning AI as a supporting tool that strengthens the role and agency of teachers, rather than as a replacement, AI integration has the potential to make a sustainable contribution to improving the quality and relevance of English language learning in the digital age.

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