

Reimagining AI in Teaching: A Five-Year Review of Research, Trends, and Pedagogical Shifts

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Abstract—The integration of Artificial Intelligence (AI) in English Language Teaching (ELT) has grown rapidly in the past five years, fueled by the increasing sophistication of generative tools, intelligent feedback systems, and data-driven personalization. This systematic review aims to map the latest research developments from 2020 to 2025, identify key emerging trends, as well as analyze the pedagogical transformations triggered by AI in the context of ELT. Through a systematic review that refers to the PRISMA protocol, selected articles from leading databases such as Scopus, Web of Science, and ERIC are analyzed. The findings confirm that AI has significantly changed the English learning landscape, not only from the aspect of instructional technology, but also from the way teachers and students interact with content, learning strategies, and evaluation. The most prominent trends in AI use include text-based applications (such as ChatGPT and Grammarly), speech recognition, and automated assessment platforms. However, this transformation has not come without challenges: serious concerns have arisen regarding plagiarism, over-reliance on AI, and teachers' limitations in understanding and making the most of technology. On the other hand, this study also explores the concerns that arise from teachers regarding autonomy in teaching, ethics in assessment, and the suitability between the curriculum and applied technology. The results of this study provide critical insights that are important for policymakers, education practitioners, and researchers in designing and implementing AI effectively in English language teaching, without sacrificing pedagogical quality.

Index Terms—AI, English language teaching, AI trends, pedagogical shifts

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I. INTRODUCTION

In the past decade, the development of digital technology has brought fundamental changes in the realm of global education. Among the various rapidly developing technologies, artificial intelligence (AI) is the most significant disruptive force that is redefining the way teaching and learning is carried out, especially in the context of English Language Teaching (ELT) (Liando et al., 2025). AI not only serves as a learning tool, but has revolutionized teaching methods, the way material is delivered, the form of assessment, and even the pattern of interaction between teachers and students. Rahman (2024) said that the COVID-19 pandemic accelerated the massive adoption of this technology, as educational institutions were required to shift the learning process to online platforms, and at the same time began to integrate chatbots, *intelligent tutoring systems*, and natural language processing models such as ChatGPT to support learning continuity (Adamopoulou & Moussiades, 2020; Chiu et al., 2023). However, this transformation is not without consequences both in terms of pedagogy, ethics, and the readiness of educational actors in responding to the presence of AI in English classrooms.

Responding to arguments related to the presence of AI in the world of English learning, a bridge is needed between the understanding and reality of the use of AI in English learning so that it can minimize misunderstanding biases about the use of AI. Therefore, the urgency of this study rests on the fact that although the adoption of AI in the world of education has seen a significant surge, there is a gap between the speed of adoption and a critical understanding of its implications. Many institutions and educators implement AI-based technology without first evaluating its suitability with local contexts, language learning needs, and digital capacities possessed by teachers and students (Wang et al., 2024; AlGhamdi, 2022). In a study by Hang et al. (2024), it was found that only 36% of language teachers in developing countries feel confident enough to use AI technology in learning. In addition, various reports reveal an increase in cases of plagiarism, algorithmic bias, and decreased critical thinking skills due to over-reliance on generative AI (Derakhshan & Noughabi, 2024; Bielak & Mystkowska-Wiertelak, 2024). This condition raises concerns about the degradation of pedagogical values in ELT, where learning is supposed to encourage active participation, deep cognitive processes, and the development of learning autonomy.

As Zong and Yang (2025) mentioned that in the current research landscape, the study of the use of AI in ELT is still fragmented and often does not touch the pedagogical and ethical dimensions in depth. Many studies have only highlighted the potential of technology from the functional side for example the effectiveness of AI in improving test scores or teaching time efficiency without exploring the long-term implications for learning approaches, teacher roles, and interaction patterns in language classrooms (Tatipang et al., 2024; Ningsih et al., 2024; Ali, 2020). In addition, existing studies have not sufficiently highlighted the gap between global AI, which is dominated by the corpus of Western languages and cultures, and the contextual needs of learners in Indonesia and other non-English countries (Khoso et al., 2025). On the other hand, discourse on the ethics of using AI in education, such as data privacy issues, misuse of technology for plagiarism, and representation bias, is still very minimally discussed in the context of ELT (Díaz & Nussbaum, 2024). Therefore, studies that are able to provide a comprehensive mapping of AI usage trends, shifts in pedagogical approaches, and urgent research gaps to be filled, are very important to be put forward.

This study aims to conduct a systematic review of scientific publications between 2020 and 2025 to answer three main questions: (1) What are the dominant trends in the use of AI in ELT classrooms? (2) How does AI affect the transformation of pedagogical approaches in English teaching? (3) What research gaps and ethical issues arise from the integration of this technology? By answering these questions, the study offers significant theoretical and practical contributions. Theoretically, the results of this study can be a critical reference for developing an ethical, contextual, and sustainable AI-based pedagogical framework. Meanwhile, practically, the findings of this study can be a reference for policy makers, curriculum developers, and language teachers in designing AI adoption strategies that are not only oriented towards efficiency, but also uphold humane educational values. In the midst of the rapid wave of digitalization, it is important for the world of education not only to go with the flow, but also to be able to do critical reflection on the direction, impact, and value of each technology that is integrated into the learning process.

II. REVIEW OF POTENTIAL STUDIES

Emerging Applications of AI in ELT Classrooms

The integration of AI technologies into English Language Teaching (ELT) has intensified over the last five years, marked by the proliferation of AI-driven applications designed to enhance learner autonomy, personalization, and immediacy of feedback. Tools such as ChatGPT, Elicit, and YouGlish exemplify a shift from content delivery to interaction-based language modelling, where learners engage in authentic, AI-mediated communication (Xin & Derakhshan, 2025; Wang et al., 2024). Several studies have identified key areas where AI contributes to ELT: writing support (Rahman, 2024), pronunciation feedback (Duong & Suppasetseree, 2024), real-time grammar correction (Emerson, 2024), and vocabulary retention (Chea & Xiao, 2024). Crucially, the pedagogical utility of these tools lies not merely in their technological capabilities but in their alignment with instructional goals. For instance, AI chatbots used in EFL speaking tasks have shown positive results in improving learner fluency and reducing speaking anxiety (Duong & Suppasetseree, 2024). However, much of the research remains context-dependent and lacks generalizability across diverse learner populations and proficiency levels. Moreover, many AI tools were designed with native English speakers in mind,

thereby ignoring the sociolinguistic needs of EFL learners in multilingual, culturally distinct contexts (Ji et al., 2023). These limitations call for a critical evaluation of how AI's affordances are leveraged in real pedagogical settings, especially within the constraints of non-Western, low-resource ELT environments.

Pedagogical Shifts and Teacher Agency in the AI Era

AI adoption in ELT is not a neutral process; it entails a reconfiguration of classroom roles, instructional strategies, and teacher authority. Studies by Bhatt and Muduli (2023) and Díaz and Nussbaum (2024) underscore a growing tension between teacher-led and machine-assisted instruction, raising concerns about the marginalization of human pedagogy. On one hand, AI facilitates adaptive learning paths tailored to individual student performance, enhancing engagement and retention (Khoso et al., 2025). Meanwhile, it challenges traditional teacher responsibilities by automating feedback, assessment, and even content creation. Recent research has documented an emergent pedagogy of "AI-assisted instruction", where teachers act as facilitators who curate and regulate the use of AI in the classroom (Xin & Derakhshan, 2025). However, a critical gap persists in teacher training and digital literacy. Many ELT instructors remain uncertain about how to evaluate the quality, accuracy, and bias of AI-generated output, and few institutions provide robust professional development on this front (Alasgarova & Rzayev, 2024). The imbalance between AI capabilities and teacher preparedness risks reducing instructors to supervisors of algorithmic activity, rather than reflective practitioners with pedagogical autonomy. As such, meaningful AI integration requires a pedagogical paradigm that emphasizes human-in-the-loop design, ethical awareness, and teacher empowerment.

Ethical and Contextual Considerations in AI-Driven ELT

While much of the literature celebrates the efficiency and innovation of AI in ELT, relatively fewer studies address the ethical and contextual complexities of its use. Issues such as data privacy, algorithmic bias, equity in access, and cultural misalignment remain underexplored. For instance, research by Yuan and Liu (2025) warned of the uncritical acceptance of AI tools without attention to how learner data is collected, stored, and analyzed. In ELT, where personal language production is continuously monitored, the ethical implications of data misuse are significant, especially for underage or vulnerable learners (Liando & Tatipang, 2025; Tatipang et al., 2026; Tatipang et al., 2025). Moreover, much of the AI-ELT literature disproportionately focuses on technologically advanced contexts, ignoring the challenges in low-resource settings where internet infrastructure, device availability, and institutional readiness are limited (Ji et al., 2023). This creates a research bias that privileges elite educational contexts and sidelines rural or underfunded institutions, where teacher-centered methods still dominate. Additionally, the linguistic models embedded in AI tools often reflect standard varieties of English, marginalizing local norms and accents, which contradicts the pluralistic goals of World Englishes and intercultural ELT pedagogy (Xin & Derakhshan, 2025).

III. METHOD

This study adopts a systematic literature review approach to explore the integration and impact of artificial intelligence (AI) within English Language Teaching (ELT) classrooms over the past five years. A systematic literature review offers a structured, transparent, and replicable method of synthesizing prior research, with the aim of minimizing bias and presenting a comprehensive overview of empirical findings (Booth et al., 2021). This methodology was chosen to trace pedagogical transformations, identify dominant trends, and provide critical insights into the evolving landscape of AI-enhanced language education.

Research Design

The research is designed as a qualitative systematic review, employing the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework adapted from Moher et al. (2009) to guide the process. PRISMA offers a four-stage protocol identification, screening, eligibility, and inclusion which enhances transparency and replicability in article selection. This review focuses on peer-reviewed studies published between 2020 to 2025, specifically addressing the use, implementation, and pedagogical implications of AI technologies in ELT contexts worldwide, with a contextual lens on Indonesia and other non-native English settings.

Research Questions

To guide the inquiry, the following research questions were formulated:

1. How has artificial intelligence been applied in ELT classrooms based on empirical studies from 2020 to 2025?
2. What pedagogical changes and instructional strategies have emerged from AI implementation in ELT?
3. What are the reported challenges, ethical concerns, and best practices in integrating AI into English language teaching?

Inclusion and Exclusion Criteria

The review applied the following criteria to ensure relevance and quality of the selected literature:

TABLE 1
INCLUSION AND EXCLUSION CRITERIA

Criteria	Inclusion	Exclusion
Publication Type	Peer-reviewed articles, dissertations, proceedings, and institutional reports	Blogs, editorial/opinion pieces, preprints, and non-academic texts
Language	English only	Languages other than English
Time Frame	Published between 2020 to 2025	Studies published before 2020
Focus	Studies discussing AI integration in ELT pedagogy	Studies unrelated to AI, ELT, or pedagogical practices
Methodology	Empirical research (qualitative, quantitative, or mixed-methods)	Theoretical papers without applied research

Data Sources and Search Strategy

Relevant literature was retrieved from the following academic databases:

- Scopus
- ERIC (Education Resources Information Center)
- WoS (Web of Science)
- SINTA (Science and Technology Index – Indonesia)
- Garuda (Garba Rujukan Digital)

A combination of Boolean search operators was used with strings such as:

- “Artificial Intelligence AND English Language Teaching”
- “AI tools AND EFL classrooms”
- “ChatGPT AND ELT pedagogy”
- “AI in language education AND Indonesian”

Search results were managed and organized using Zotero for citation tracking and reference management.

Screening and Selection Process

The initial search yielded 206 records. After removing duplicates ($n = 159$), 159 studies remained. Based on title and abstract screening, 126 articles were shortlisted for full-text review. Following an in-depth evaluation of methodological quality and relevance, 80 empirical studies were selected for the final synthesis.

PRISMA Flow Summary:

- Identification: 206
- Screening: 159
- Eligibility: 126
- Inclusion: 80

Data Extraction and Thematic Analysis

A data extraction sheet was developed to systematically collect the following information from each selected study:

- Author(s) and publication year
- Research context and educational setting
- AI tool(s) utilized and instructional application
- Research design and sample size
- Key findings on language skills, pedagogy, and learner outcomes
- Challenges, ethical considerations, and teacher/student perceptions

The extracted data were analyzed thematically using Clarke and Braun's (2017) six-phase framework: familiarization, coding, generating themes, reviewing themes, defining themes, and final synthesis.

Four dominant themes were identified:

1. Innovative Teaching Practices and AI Integration Models
2. Impact of AI on Learner Engagement, Autonomy, and Skill Mastery
3. Teacher Readiness, Perceptions, and Professional Development Needs
4. Barriers and Ethical Dimensions in AI Implementation.

IV. FINDINGS AND ANALYSIS

In the past five years, the teaching landscape of English as a Foreign Language (ELT) has undergone a fundamental shift in response to the influx of artificial intelligence (AI) into the classroom. These technological developments have not only expanded access to various digital resources, but also brought significant changes in the dynamics of teaching and learning. The study maps the integration of AI in ELT by highlighting three main aspects: the types of AI applications that are most predominantly used, the resulting pedagogical shifts, and ethical issues and research gaps that remain open. This mapping is important given the massive use of AI-based tools such as chatbots, automated writing assistants, and automated feedback systems that are now an integral part of the learning process. Not only in terms of technology adopted, but the transformation is also seen in the pedagogical approach: from being teacher-centered to more participatory, data-based, and adaptive to individual student needs. On the other hand, AI integration also poses new challenges, especially in terms of data use ethics, technology dependence, and the potential for algorithmic bias that has not been critically

studied in the local context. Therefore, the findings of the 80 articles systematically analyzed in this study aim not only to record trends and changes, but also to highlight areas that have not received adequate academic attention. The presentation of the following findings through three main tables acts as a conceptual map illustrating the complexities of using AI in ELT, including the pedagogical opportunities offered and the accompanying epistemological and ethical challenges.

TABLE 2
DOMINANT AI APPLICATIONS IN ELT

AI Application	Frequency (Studies)	Description
AI Writing Assistants (e.g., Grammarly)	48	Widely used in writing lessons for grammar, style, clarity.
AI Chatbots (e.g., ChatGPT, Replika)	36	Used for speaking & conversation practice.
Speech Recognition Tools (e.g., ELSA Speak)	25	Helps with pronunciation and speaking fluency.
Automated Feedback Systems	42	Provides automatic correction in assignments and assessments.
AI Reading Support Tools	18	For scaffolding reading comprehension and vocabulary.
AI-based Assessment Platforms	27	Provides automatic tests, rubrics, and analysis of results.

Key findings from a synthesis of 80 articles reviewed in the 2020 to 2025 period show that the use of Artificial Intelligence (AI) in the realm of English teaching has undergone significant diversification of functions and applications. One of the most dominant forms of applications is AI Writing Assistants such as Grammarly, which appeared in 48 studies and proved to be a key support device in learning writing skills. Not only does this tool help with grammatical aspects and clarity of expression, but it also provides instant feedback on writing styles, sentence effectiveness, and even discourse suitability. These findings are in line with a study by Rahman (2024), which showed that the use of Grammarly significantly improved EFL students' grammatical accuracy in writing academic essays, while also encouraging metacognitive awareness of the structure of writing. In this context, AI does not simply act as a technical assistant, but also serves as a learning scaffold that is adaptive to the needs of individual students.

Meanwhile, AI Chatbots such as ChatGPT and Replika were found in 36 studies and received special attention due to their interactive capabilities that resemble human communication. This tool functions as a conversation partner in speaking practice and has been widely used in tasks based on dialogue simulations, reflective discussions, and assisted debates. The main advantages of chatbots are the consistency of responses, unlimited time availability, and the ability to adjust the context and complexity of the language according to the user's level. Research by Vaccino-Salvadore (2023) confirms that the use of ChatGPT in speaking drill sessions help reduce student anxiety, improve oral fluency, and provide situational feedback that is difficult for teachers to achieve in conventional classroom settings. Nevertheless, it should be noted that the effectiveness of chatbots is highly dependent on the digital competencies of teachers and learners, as well as a critical understanding of ethical limitations in the use of AI as a substitute for human interaction.

The use of Automated Feedback Systems and AI-based Assessment Platforms has also emerged as a form of strategic integration of AI in learning evaluation systems. The automated feedback system, which appeared in 42 studies, has replaced many manual correction processes in both written and oral tasks. AI is capable of detecting errors, classifying them, and providing extensive data-driven suggestions for improvements. These findings are reinforced by the research of Yaseen et al. (2025), which shows that automated feedback systems speed up students' revision processes and encourage autonomous learning because students can independently correct errors based on AI detection results. In addition, AI-based Assessment Platforms identified in 27 studies provide added value in formative and summative testing through automated rubrics, performance recognition, and learning analytics. However, a critical challenge that remains not fully answered is the extent to which the accuracy and fairness of AI scoring algorithms can guarantee objectivity in a wide range of user socio-cultural contexts. This leaves a large room for further studies that question systemic bias in machine-based evaluation systems, particularly in subjective and nuanced language teaching.

In this regard, the pedagogical transformation in the teaching of English as a Foreign Language (ELT) due to the integration of artificial intelligence (AI) is increasingly evident in 21st-century classroom practice. An analysis of 80 synthesized articles shows that the presence of AI not only serves as an aid, but also as a catalyst in changing learning approaches, teacher-student interactions, and the role of teachers as a whole. These shifts include the adaptation of more personalized teaching strategies, the improvement of data-driven orientation in pedagogical decision-making, as well as the evolution of a curriculum that emphasizes digital literacy and technology ethics. These changes illustrate a transition towards a more adaptive, autonomous, and collaborative learning paradigm, which requires significant adjustments in teachers' professional competencies and instructional design. These findings are summarized in the following Table 3 as a reflection on the learning dynamics shaped by the sophistication of AI in ELT Indonesia's classrooms.

TABLE 3
PEDAGOGICAL SHIFTS DUE TO AI IN ELT

Pedagogical Shift	Frequency (Studies)	Key Insight
Increased Learner Autonomy	45	Students are more independent with AI tools to learn outside the classroom.
Shift to Blended/Hybrid Learning	39	The combination of AI with conventional methods is starting to dominate.
Task-based Integration of AI	33	AI is used in projects & assignments that stimulate critical thinking.
AI as Peer Feedback Tool	26	AI is used as an alternative to peer feedback.
Reduced Teacher Workload	30	Teachers are helped in correcting assignments and evaluating students.
Emergence of Critical AI Literacy	28	Increasing awareness of the importance of understanding AI critically.

In the past five years, the integration of artificial intelligence (AI) in the teaching of English as a foreign language (ELT) has triggered a paradigmatic shift in pedagogical approaches. Findings from the 80 studies analyzed showed that learner autonomy was the most dominant manifestation of AI adoption, with 45 studies highlighting how AI allows students to learn independently, beyond the confines of traditional classrooms. Tools like ChatGPT, Grammarly, or Elsa Speak have facilitated access to real-time feedback, individual needs-based exercises, and self-paced linguistic exploration, without always relying on instructors. In line with the findings of Wang et al. (2024), AI not only expands students' learning horizons, but also enables them to take an active role as agents in their learning process. However, this increase in autonomy also requires the presence of adequate metacognitive skills, so that students are not only consumers of technology, but also able to evaluate and manage their learning process reflexively and critically.

Along with this increase in autonomy, as many as 39 studies indicate that the shift towards blended and hybrid learning has become an increasingly established practice. This model combines face-to-face interaction with the use of AI-based digital platforms that allow for the delivery of materials, formative assessments, and automatic tracking of student progress. According to the results of a study by Dai and Wang (2024), AI-based hybrid learning not only provides flexibility, but also redesigns the role of teachers from content presenters to learning facilitators. Teachers are now focusing more energy on the affective aspects and learning strategies of students, while administrative and repetitive tasks such as grammar correction or listening exercises can be delegated to automated AI-based systems. However, these dynamics also create new challenges, especially in terms of digital inclusion and infrastructure readiness, which are often significant barriers in the context of developing countries such as Indonesia.

Furthermore, a total of 33 studies highlighted the integration of AI in task-based integration, which is a new approach to developing higher-level thinking skills. In this context, AI is used as an integral part of task design that drives analysis, evaluation, and creation the three highest levels in Bloom's taxonomy. For example, in learning academic writing, students are asked to design arguments based on data collected through AI search agents or to draft collaborative essays developed through interaction with chatbots such as ChatGPT. This approach opens up space for more contextual and relevant learning, but also demands digital competence and ethical awareness of the use of AI-generated information. This is supported by studies by Chen (2024) and Gian et al. (2024), which emphasize that the use of AI in project-based tasks increases students' cognitive engagement, but must be balanced with explicit guidance from teachers so that learning outcomes are not superficial or repetitive.

No less important is the finding that 26 studies show the use of AI as a peer feedback tool. This model shifts the exclusivity of teachers in providing evaluations, opening the way for collaboration and reflection between students with the help of AI. Apps like Write & Improve or Quillionz allow students to get immediate feedback on their writing or answers before class discussions, thus reinforcing the revision process and active learning. On the other hand, 30 studies indicated that teachers significantly felt a decrease in administrative workload, particularly in the aspects of correction and assessment. AI enables automation in assessing grammar, checking for plagiarism, or providing structural feedback. However, this has given rise to a new discourse about the position of teachers in the technological era, whether AI is just a tool or even shifts the pedagogical authority of teachers themselves. Finally, 28 studies highlight the urgent need for critical AI literacy among students and teachers. Being critical in this context means not only understanding how AI works, but also being aware of the ethical implications, algorithmic biases, and limitations of the data used by those systems. If not managed properly, AI integration has the potential to reproduce inequality and unhealthy dependency in the learning process. Therefore, as stated by Gian et al. (2024), AI literacy must be part of the curriculum, not just a complement, so that students and teachers are not only users, but also active critics of the technologies they use.

Along with the increasingly massive integration of artificial intelligence (AI) in the realm of English language learning (ELT), various ethical implications and research gaps have emerged that have not been systematically highlighted in the literature. While AI has enriched learning strategies through personalization, automation, and broader access to information, these advances have also posed serious challenges related to academic responsibility, technological knowledge inequality, and sensitivity to local cultural and linguistic contexts. Table 4 summarizes the findings of 80 systematically analyzed scientific articles, and presents six of the main issues most frequently raised in AI and ELT-related studies. From plagiarism, cultural bias, to the lack of locally-based tools, this data illustrates the importance of mapping ethics and contextual research needs so that AI integration is not only innovative, but also inclusive and responsible.

TABLE 4
ETHICAL ISSUES AND RESEARCH GAPS

Ethical Concern / Research Gap	Frequency (Studies)	Key Notes
Plagiarism & Academic Dishonesty	41	Many students use AI to cheat or complete assignments.
AI Bias in Language or Culture	32	Some AI models do not recognize cultural/local context well.
Lack of Teacher AI Literacy	44	Teachers are not familiar or confident in using AI.
Data Privacy & Consent Issues	29	Lack of understanding of privacy when using AI platforms.
Over-reliance on AI	37	Students' over-reliance on AI answers.
Lack of Localized AI Tools	22	Minimal development of AI based on Indonesian context or local languages.

Significant findings from the synthesis of 80 articles show that the ethics and research gaps in the integration of AI into ELT (English Language Teaching) are crucial points that have not been reached holistically. One of the main concerns is the increasing practice of plagiarism and academic cheating (41 studies), which is caused by the misuse of generative tools such as ChatGPT, Grammarly, or AI-assisted translators. Many students report using AI not as a reflective tool, but as a full substitution in completing writing tasks, answering questions, or even during online assessments. This phenomenon is agreed by a report from Hang et al. (2024), which shows that 57% of students in the East Asian region rely on AI without mentioning the source or being aware of the academic ethical violations that occur. This condition indicates that in the absence of digital literacy and strong ethics, AI adoption is actually widening the gap between innovation and integrity. Therefore, the openness of access to technology needs to be accompanied by strengthening academic character and a supervisory system that is adaptive to the digital era.

Another issue that arises quite intensely is algorithmic bias towards local culture and language (32 studies). Many popular AI models such as GPT, Bard, or Claude are developed and trained using the English-speaking corpus of western contexts, so they often fail to capture the nuances of non-native languages, local idioms, or Indonesian cultural references. For example, some AI applications are unable to recognize the contextual meaning of phrases such as "eat liver" or "crocodile tears," which have their own connotations in local discourse. A study by Ningsih et al. (2024) stated that AI-based NLP technology has a low level of accuracy in understanding the Asian cultural context, especially when used in multicultural classrooms. This bias not only has an impact on semantic miscommunication, but can also reinforce western linguistic standards as the dominant measure, which in the long run has the potential to marginalize the expression and identity of local languages. Thus, AI research and development for ELT in Indonesia requires contextual linguistic and policy interventions, not just the adoption of global instruments.

Another biggest concern lies in the low level of AI literacy among teachers (44 studies). Many ELT teachers feel unfamiliar, unconfident, or even tend to avoid using this technology because they feel they do not have enough technical or pedagogic capacity. This unpreparedness is a serious obstacle to the ongoing digital transformation. Teachers often lack specialized training, curriculum guidance, or adequate professional support to integrate AI into daily teaching practices. In fact, in some cases, teachers see AI more as a threat than as a pedagogical collaborator. This is in line with the findings from Chen (2024) who underlined that the integration of advanced technology in language education will remain uneven if it is not accompanied by continuous training and teacher capacity building. Therefore, structural interventions from higher education institutions and national policies are urgently needed to encourage the development of AI literacy for educators, both through workshops, digital certifications, and the preparation of AI-awareness-based curriculum.

The last and equally important aspect is data privacy, technological dependence, and the absence of local AI tools. A total of 29 studies noted that learners and educators often do not fully understand the data mining mechanisms performed by AI platforms, and are unaware of the need for explicit consent when using cloud-based tools. On the other hand, 37 studies noted an over-reliance on AI, especially by students who rely on it for all linguistic needs without considering the process of internalizing meaning or reflection learning. This dependence keeps learners away from the critical and creative thinking process that is at the core of language learning. At the same time, only 22 studies showed the use or development of Indonesia-based AI, indicating a large gap in terms of learning aids that fit the national language, culture, and curriculum context. A study by Guo et al. (2024) stated that the lack of locally-based tools causes a mismatch between AI features and the needs of English learning in Indonesia. Therefore, these challenges open up new research spaces, ranging from the development of locally-based AI, the study of the ethics of technology in ELT, to the design of pedagogy that is adaptive and based on critical digital awareness.

Discussion

Emerging Patterns of AI Integration in ELT Classrooms

The integration of artificial intelligence (AI) in ELT classrooms over the past five years has shown new patterns that have not only revolutionized pedagogical approaches, but also reimaged the relationship between teachers, students, and teaching materials. From the results of a synthesis of 80 scientific articles, the most prominent pattern is the increasing use of generative AI tools such as ChatGPT, QuillBot, Grammarly, and Jenni AI, which are used to write, proofread, and formulate ideas in English. Research by Ho and Nguyen (2024) underscored that college students tend to use ChatGPT as a self-counseling tool when teachers are not available, signaling a shift in the role of AI from just an assistive technology to a pedagogical agent. Similar findings were also confirmed by Zong and Yang (2025), who noted that EFL students in

China are leveraging AI to practice speaking through simulated dialogue, creating a new form of interaction that was previously difficult to realize in traditional learning. However, this trend also raises critical questions about the extent to which AI replaces or complements the role of teachers in building holistic and contextual language competencies.

On the other hand, the pattern of AI integration also shows a shift in teaching and assessment strategies. Several studies show that teachers are increasingly adopting AI as a diagnostic tool to identify students' learning difficulties, as shown by Rahman (2024) in his research in the context of Indonesian universities. Teachers use AI to proofread writing, provide instant feedback, and curate enrichment materials based on students' needs. In this context, AI integration not only has an impact on the information transfer process, but also changes the essence of the role of teachers to facilitators of technological literacy. However, there is still a huge gap in teachers' readiness to integrate AI critically and ethically. As shown in the previous ethics table, the low level of AI literacy among educators (44 studies cited it as a major issue) is a serious obstacle in ensuring that the use of AI truly supports learning, rather than simply following the flow of digitalization without a mature understanding.

The discussion also needs to be directed at the emergence of new challenges that accompany this pattern of AI integration, especially related to student dependency and the validity of the learning process. Findings from 37 studies highlighting over-reliance on AI show that many students are starting to lose out on self-learning initiatives because they rely on instant answers from machines. This is in line with the criticism put forward by Ningsih et al. (2024), who stated that AI in ELT has the potential to create the illusion of proficiency, where students feel that they have mastered the language only because they can compose good texts with the help of technology. In fact, authentic communication skills require social training, human feedback, and cultural sensitivity that current AI models do not fully possess. In addition, linguistic and cultural biases in AI (cited in 32 studies) reinforce the dominance of Western English, eroding representations of local contexts such as Indonesian or Java varieties in existing generative models. This indicates that without the development of locally-based AI, language learning practices will continue to be decontextualized.

Finally, the discussion would not be complete without highlighting the pedagogical implications and the urgent need for the development of AI-adaptive policies and curricula. From the 22 studies that noted the lack of locally-based AI tools, there was a demand to create an AI-empowered curriculum that emphasized not only the functional aspects of the technology, but also the ethical, cultural, and critical pedagogical dimensions. A study by Yaseen et al. (2025) emphasizes the importance of digital literacy-based teacher training and AI ethics as part of ELT curriculum reform in the artificial intelligence era. Without this kind of strategic integration, the use of AI could potentially become just a momentary trend that doesn't have a significant impact on long-term learning quality. Therefore, policymakers and researchers in the field of language education are challenged to formulate new approaches that not only accommodate AI as an aid, but also as a catalyst for developing more reflective, contextual, and technologically equitable ELTs.

Impact on Learner Engagement, Skill Development, and Motivation

The influence of AI on student engagement, skill development, and motivation in English language learning shows a significant shift in the pedagogical paradigm in the last five years. The results of a synthesis of 80 analyzed studies indicate that AI not only acts as a learning aid, but also as an interactive mediation that encourages students to be more active in the learning process. NLP (Natural Language Processing)-based chatbots, generative applications such as ChatGPT, and other AI platforms have been shown to increase learner engagement through real-time dialogue and personalized automated feedback (Yaseen et al., 2025; Alasgarova & Rzayev, 2024). This engagement is not only reactive, but also reflective, where students are given space to experiment with language in a more authentic context. Research by Zong and Yang (2025) stated that student engagement increases significantly when they are given the opportunity to interact with an AI system that adjusts the difficulty level of the material to their performance. On the other hand, such involvement is inseparable from challenges; some studies note that students tend to rely too much on AI, which actually lowers their initiative and creativity in composing English sentences or arguments (Lee et al., 2024; Crompton et al., 2024).

In the context of skill development, especially in the aspects of writing, speaking, and reading comprehension, the use of AI has had a very positive impact but also given rise to new dynamics that need to be observed. Most of the studies analyzed noted significant improvements in students' writing abilities after using AI platforms that provide automatic grammar correction and suggest more effective sentence structures (Duong & Suppasetserree, 2024; Lee et al., 2024). In addition, in project-based learning, AI is used to compile narrative texts, reports, or presentation scripts, thereby speeding up the learning process while increasing students' confidence in composing complex discourses. However, some studies warn that the use of AI for automated essay scoring (AES) can overlook aspects of substance and creativity (Hang et al., 2024), so there is a need for teacher supervision in balancing automatic feedback and human-based holistic evaluation. In terms of speaking skills, the use of AI avatars and conversational applications such as ELSA Speak and Google Read Along is considered to be able to significantly increase students' fluency and intonation (Kruk & Kałużna, 2024), although overly mechanistic interactions often ignore pragmatic nuances in intercultural communication.

Students' motivation to learn has also undergone an interesting reconstruction since the presence of AI in ELT classrooms. Many studies show that AI creates a more inclusive, personalized, and adaptive learning environment, thus fostering students' intrinsic motivation to explore English independently (Alasgarova & Rzayev, 2024). Technology-based learning environments give the impression of flexible control and learning speed for students, in accordance with the principles of self-determination theory (Yuan & Liu, 2025). Nevertheless, motivation that relies too much on the quick and instant response of AI also has the potential to create an addictive effect, where students become reluctant to face a

more challenging and reflective learning process. A study by Khoso et al. (2025) even found that students who intensively use AI in learning tend to experience a decline in metacognitive awareness, as they become accustomed to quick answers without an in-depth internal evaluation process. Therefore, the integration of AI in ELT needs to be strategically designed so that this technology not only serves as a motivational facilitator, but also as a catalyst for the development of lifelong learning skills that are critical and reflective.

Pedagogical Challenges, Ethical Concerns, and Teacher Preparedness

Digital transformation through the adoption of AI in English teaching not only changes the pattern of learning interactions, but also poses fundamental pedagogical challenges. One of the main challenges is the emergence of students' over-reliance on artificial intelligence, as revealed by 37 out of 80 studies analyzed. The passive use of tools such as ChatGPT, where students simply receive answers without a critical thinking process, has degraded the cognitive qualities that are the essence of language teaching (Khoso et al., 2025; Díaz & Nussbaum, 2024). Research by Xin and Derakhshan (2025) emphasizes that learners tend to rely on AI to complete academic tasks quickly, rather than to understand material in depth. This phenomenon not only disrupts the internalization process of language skills, but also blurs the boundaries between learning and copying. In this context, teachers are faced with a pedagogical dilemma, should they accommodate AI as a learning tool, or should they control it so as not to erode the integrity of the learning process?

The issue of ethics emerged as the second common thread in this discussion. From the results of the synthesis, 41 studies stated that there was an increase in cases of plagiarism and academic dishonesty due to the careless use of AI. Research by Lee et al. (2024) and Rahman (2024) showed that AI writing tools increase students' chances of submitting work that is not the result of original thinking. In addition, as many as 29 studies also highlighted the weak privacy awareness of users towards the data entered into AI platforms. When students and teachers use apps that do not have strong data protection regulations, they risk exposing sensitive personal information, especially in developing countries such as Indonesia that do not yet have AI-based educational data security standards (Ningsih et al., 2024). On the other hand, 32 studies highlight the cultural and language biases inherent in many generative AI models, where local contexts are not accurately recognized or represented. This is in line with the findings of Law (2024) that most AI systems are trained using a Western-based English corpus, which then results in linguistic, ideological, and even gender biases that disrupt learning fairness.

Central to these issues is the low level of AI literacy among educators. Of the 80 studies, 44 of them explicitly mentioned the lack of teacher readiness to understand, manage, and integrate AI technology into learning critically and strategically. Teachers are often positioned as passive users of technology, rather than as learning curators who are able to adapt AI to the context and needs of students (Crompton et al., 2024; Kohnke & Moorhouse, 2025). Many of them even feel alienated from the technology they use themselves, because they do not receive adequate training (Duong & Suppasetserree, 2024). In the Indonesian context, research by Novawan et al. (2024) stated that 65% of English teachers at the secondary level do not know comprehensively how generative AI platforms work. This leads to misconceptions, for example, treating AI as the only source of material, rather than as a reflective tool in the development of students' communication skills. This is very critical considering that the role of teachers is not just as a facilitator of technology, but as a guardian of ethical and pedagogical values in the classroom.

Interestingly, 22 of the studies studied also noted the lack of locally-based AI tools both in terms of language and learning context, which causes dissonance between the technology system and the reality of the classroom in Indonesia. While global platforms such as Grammarly, Quillbot, or ChatGPT can help with certain aspects of language learning, incompatibility with local socio-cultural and linguistic nuances can decrease the effectiveness of learning (Vaccino-Salvadore, 2023; Al-khresh, 2024; Chea & Xiao, 2024). In this case, the development of AI that is rooted in the needs of the Indonesian curriculum, including regional languages and cultural contexts, is an urgency. This inequality also creates a widening digital divide, where teachers and students from remote areas have limited access to technology tools and training (Crompton et al., 2024). Therefore, the discourse on AI in ELT cannot be separated from the issue of educational justice and the distribution of technological resources.

Overall, this discussion emphasized that the use of AI in ELT is not solely about the adoption of advanced technology, but how it is managed pedagogically, ethically, and contextually. In line with the opinion of Liando et al. (2025) and Kohnke and Moorhouse (2025), educational technology should not replace teachers, but strengthen reflective and humanistic practices in teaching. Therefore, it is necessary to reconstruct education and teacher training policies to be able to integrate AI critically and ethically. The study, by synthesizing 80 recent articles, provides an important foundation for building future ELT curricula that are not only technology-based, but also rooted in the principles of justice, data sovereignty, and humanity. Otherwise, language education risks becoming mere mechanistic activities that lose the communicative meaning and cultural values inherent in them.

Best Practices and Recommendations

The findings of a synthesis of 80 scientific articles show that the application of artificial intelligence (AI) in the learning of English as a foreign language (ELT) not only brings a transformation in pedagogical approaches, but also demands holistic best practices rooted in local contexts. One of the approaches most often associated with successful AI implementation is the integration of AI-based tools in project-based learning and collaborative tasks. This approach is considered to be able to encourage students' critical thinking and communication skills, as students are actively involved in the process of searching, verifying, and presenting information with the help of AI (Duong & Suppasetserree, 2024). In

practice, collaboration between students with technology-enabled results in a more authentic and contextual learning experience, while reducing passive reliance on instant answers from chatbots or automated text generators (Chen et al., 2024). More than just technical utilization, the use of AI in the framework of the project also fosters the metacognitive awareness and agency of students as learning subjects.

However, the success of AI integration cannot be separated from the urgency of establishing clear guidelines regarding its use, particularly in the context of assessment and academic writing. Studies such as those from Kruk and Kałużna (2024) and Lee et al. (2024) emphasize the importance of internal regulations at the grade and institutional levels that explain the limitations, goals, and impact of the use of AI on the authenticity of students' work. This is where the role of teachers as ethical and academic mediators is important. Teacher training on the functions, limitations, and suitability of AI with the curriculum is crucial. Without adequate understanding, teachers tend to adopt technology superficially, or otherwise reject it altogether because they feel threatened or unprepared (Hsu et al., 2024). This is where case-based training, real-world studies, as well as reflective practices play a crucial role in building critical AI literacy among educators. A study by Díaz and Nussbaum (2024) even confirms that the success of AI in ELT is determined more by the pedagogical readiness of the teacher than the technological sophistication itself.

Furthermore, the best practice discourse also highlights the importance of a reflective approach in guiding students to be more aware of how AI helps or even misleads in understanding the nuances of language. Several studies (Tatipang et al., 2024; Ji et al., 2023; Du & Daniel, 2024) show that reflective journals that students write after using tools such as ChatGPT or Grammarly can reveal the perceptual gap between the "correct" understanding of linguistic structures according to AI and the context of pragmatically appropriate language use. Through this reflective activity, students not only practice writing more critically, but also build sensitivity to the social and cultural context in the use of the English language. In addition, the urgency of developing AI applications tailored to the local context is an important highlight. A study by Rahman (2024) underscores that reliance on global AI tools oriented to the context of Anglo-Saxon cultures creates inequities in linguistic representation and practice. Therefore, collaboration between technology developers, educators, and local researchers is needed to create tools that represent the needs, language, and context of Indonesian education in a more fair and relevant manner. In other words, best practices in the application of AI in ELT speak not only about effectiveness, but also about linguistic fairness and partiality in the local context.

V. CONCLUSION

This study provides an in-depth synthesis of 80 scientific studies that discuss the implementation of artificial intelligence (AI) in the context of English Language Teaching (ELT), with a focus on dominant trends, pedagogical shifts, and emerging ethical gaps and issues. The findings confirm that AI has significantly changed the English learning landscape, not only from the aspect of instructional technology, but also from the way teachers and students interact with content, learning strategies, and evaluation. The most prominent trends in AI use include text-based applications (such as ChatGPT), speech recognition, and automated assessment platforms. However, this transformation has not come without challenges: serious concerns have arisen regarding plagiarism, over-reliance on AI, and teachers' limitations in understanding and making the most of technology.

This research discussion shows that the effectiveness of AI in ELT is greatly influenced by the extent to which the technology is integrated with contextual and ethical pedagogical approaches. Best practices such as integration with project-based learning, teacher training, and the use of reflective journals have been proven to strengthen the quality and relevance of learning. Furthermore, the urgency to develop locally-based AI tools underscores the importance of collaboration between education stakeholders. In conclusion, AI is not just a tool, but a transformative agent that needs to be guarded with pedagogical strategies, ethical policies, and inclusive technological literacy. Future studies need to explore the development of AI applications that are aligned with local linguistic and cultural needs, as well as examine the long-term impact of AI on students' cognitive processes in language mastery. In addition, longitudinal research involving teachers as key agents of change needs to understand how continuous training can impact the effectiveness of AI implementation in ELT curricula in a sustainable and ethical manner.

DECLARATION OF THE USE OF AI

Through this declaration, the authors declare the use of artificial intelligence (AI) in this paper, where AI is used as a translation medium, language checking and grammar error checking.

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