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Integrating Artificial Intelligence Into English Language Teaching: A Systematic Review

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Abstract: This research aims to systematically review the integration of artificial intelligence (AI) in English language teaching and learning. It specifically seeks to analyze the current literature to identify how AI could be utilized in English language classrooms, the specific tools and pedagogical approaches employed, and the challenges faced by educators. Using the PRISMA-guided Systematic Literature Review (SLR) methodology, articles were selected from Scopus, Science Direct, and ERIC, and then analyzed thematically with NVivo software. Findings reveal that AI enhances English teaching through tools like grammar checkers, chatbots, and language learning apps, with writing assistance being the most common application (54.55% of studies). Despite its benefits, challenges such as academic dishonesty, over-reliance on AI (27.27% of studies), linguistic issues, and technical problems remain significant. The study emphasizes the need for ethical considerations and teacher training to maximize AI's potential. It also highlights societal concerns, including the digital divide, underscoring the importance of equitable access to AI-powered education for learners of all socioeconomic backgrounds.

Keywords: *Artificial intelligence, English language teaching, systematic review.*

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Introduction

In the past decade, technology has transformed education, changing the way that traditional teaching and learning are performed (Kinshuk et al., 2016). Due to the growing integration of digital resources, such as online learning platforms and mobile applications, global education is becoming more accessible and effective (Castro, 2019). D. Lee et al. (2018) stated that these developments have made it possible for educators to provide individualized learning experiences by customizing lessons to the needs and learning preferences of each student (Kharchenko et al., 2024). In addition, W. Ali (2020) added that technology has also made remote learning easier, increasing the flexibility and accessibility of education for a broader range of students. Owing to this, digital tools are now an essential component of today's educational environment, providing creative means of involving students and fostering their academic growth.

The education sector, among others, is experiencing a significant shift due to the emergence of artificial intelligence (AI), as maintained by Gruetzemacher and Whittlestone (2022). One of the most significant benefits of AI is its ability to personalize learning experiences (Maghsudi et al., 2021). M. Ali et al. (2024) explained that by using AI-driven platforms, educators may design learning paths to deliver feedback and provide resources tailored to each student's strengths and limitations (Tapalova & Zhiyenbayeva, 2022). Thus, this degree of customization guarantees that students get the support they require while allowing them to learn at their own pace (Uzun, 2023). Additionally, AI-driven tools can handle routine administrative duties, such as grading and attendance tracking, giving teachers more time to concentrate on other important education aspects (Saaida, 2023). As AI tools become increasingly advanced, they have the potential to reshape education fundamentally.

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Artificial Intelligence (AI) has become a game-changer in language learning, especially in improving the teaching and learning of English (Schmidt & Strasser, 2022). As English maintains its status as the global lingua franca, mastering it has become vital in this globalized world since it opens up opportunities in education, business, and international communication (Christiansen, 2015). However, traditional language teaching methods often need to improve in addressing the diverse needs of students (Walia, 2012). These methods may need help catering to students' varying proficiency levels, accommodating different learning preferences, and giving timely, individualized feedback (Chun et al., 2016; Van et al., 2021). For instance, large class sizes and a lack of resources can make it difficult for educators to tailor instruction that meets students' specific needs, resulting in a one-size-fits-all approach that may only effectively support some learners (Bondie et al., 2019). Therefore, AI-powered tools offer innovative solutions by providing personalized learning experiences that adapt to individual proficiency levels and learning paces.

According to Macias Loor et al. (2024), integrating AI into English language education causes the process to be enriched and innovative. Duolingo and Babbel, for example, leverage AI algorithms to deliver personalized and interactive learning experiences that accommodate each student's pace and learning style (Kessler et al., 2023). For speaking practice, Alharthi (2024) stated that virtual assistants like Siri, Google's Read Along, and Alexa offer interactive dialogues and pronunciation assistance, which makes the practice more dynamic and attractive (Tai & Chen, 2024). To improve writing skills, Sánchez Calderón and da Cunha Fanego (2023) added that AI-powered feedback systems like Grammarly and Hemingway Editor can analyze writing and provide necessary feedback on grammar and vocabulary. Meanwhile, translation tools like DeepL and Google Translate facilitate cross-language understanding and communication (Polakova & Klimova, 2023). These applications demonstrate how AI transforms English language teaching into something more interactive, personalized, and effective.

While AI offers significant potential for enhancing English language learning, its integration is not without faults. One main issue is the digital divide, which causes education inequalities. This issue is because access to AI technologies may be limited for students in underdeveloped or isolated places (Salas-Pilco et al., 2022). Ease of access to AI assistance is another concern. Ihekweazu et al. (2023) argued that it is easy for students to misuse AI to cheat on tests or assignments, which undermines academic integrity. In addition, the reliability and accuracy of AI-driven feedback can be problematic. De Cremer and Narayanan (2023) claim that students can quickly become overly dependent on AI tools for writing and language tasks, reducing their own learning and critical thinking skills. Also, Zaghlool and Khasawneh (2023) added that tools like Grammarly often have trouble comprehending cultural context and idioms, which are essential for effective communication. Notably, effective integration of AI tools requires adequate teacher training and support to ensure they are used correctly and to their full potential, which, unfortunately, is still lacking in many educational institutions, according to several studies (Hartono et al., 2023; Jose & Jose, 2024; Simbolon, 2024; Sumakul et al., 2022; Van Den Berg, 2024). Therefore, although AI can improve learning, it cannot replace human educators' unique and crucial role. Although many studies have explored the potential of AI in English language learning (Sharadgah & Sa'di, 2022), there is still a gap in understanding how this technology can be used effectively in various learning contexts. The lack of systematic analysis of previous research trends makes it difficult to identify key challenges and best strategies for implementing AI in the language classroom. Therefore, this study aims to fill this gap by conducting a systematic review of AI integration in English language teaching and learning to comprehensively analyze the existing body of literature. Several systematic reviews have been conducted on AI research in language education, yet many are limited in their methodological scope or only discuss specific technologies without looking at their impact in broader learning contexts. This study addresses these limitations by analyzing the different approaches that have been used in AI research and their impact on teaching strategies and student engagement. This review aims to identify and summarize how AI is currently being utilized in language classrooms, including the specific tools, pedagogical approaches, and challenges encountered. The questions of the research are as follows:

1. In what ways can AI be used to enhance English language teaching?
2. What have English teachers done to integrate AI into their English classrooms?
3. What kinds of AI tools can English teachers use to enhance English language learning?
4. What challenges might teachers face in integrating AI into English language teaching?

By systematically answering these questions, the study seeks to present a comprehensive overview of the current landscape, identify research gaps, and provide recommendations for future practice and exploration. The ultimate goal of this paper is to enable educators to employ AI to improve student learning outcomes and teaching effectiveness by optimizing AI integration in English language teaching and learning.

Methodology

Research Design

This study employed a Systematic Literature Review (SLR) to obtain the data following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) approach (Page et al., 2021). The articles were selected

from three major databases: Scopus, Science Direct, and ERIC. Details and procedures of the PRISMA approach are seen in Figure 1.

To achieve the data, the main keyword "artificial intelligence" was used with its variations such as “generative AI”, and “machine intelligence” to ensure that all relevant articles were included, as presented in Figure 1. The keywords are related to integrating AI in English language teaching and learning in the classroom. The title, abstract, and keywords of published articles were searched for the keywords. Related to the approach, this research consisted of three stages: (a) article selection, (b) article screening and inclusion, and (c) data analysis and extraction.

Sample and Data Collection

The selection process focused exclusively on articles related to integrating artificial intelligence in English language teaching and learning within the classroom. To retrieve relevant studies, a set of keyword strings utilizing Boolean operators was employed (as detailed in Table 1). The search was conducted across three databases, initially identifying 362 records (Figure 1).

Table 1. Keywords for Article Selection

No	Operator	Keywords	Number of Articles
1.	AND	“Artificial intelligence” AND potential OR benefits AND English language teaching	Scopus: 138 Science Direct: 81
2.	AND	“Artificial intelligence” AND integration AND English classrooms	ERIC: 143
3.	AND & OR	“Artificial intelligence” AND tools AND English teaching AND listening OR speaking OR reading OR writing	
4.	AND	“Artificial intelligence” AND Challenges AND teachers	

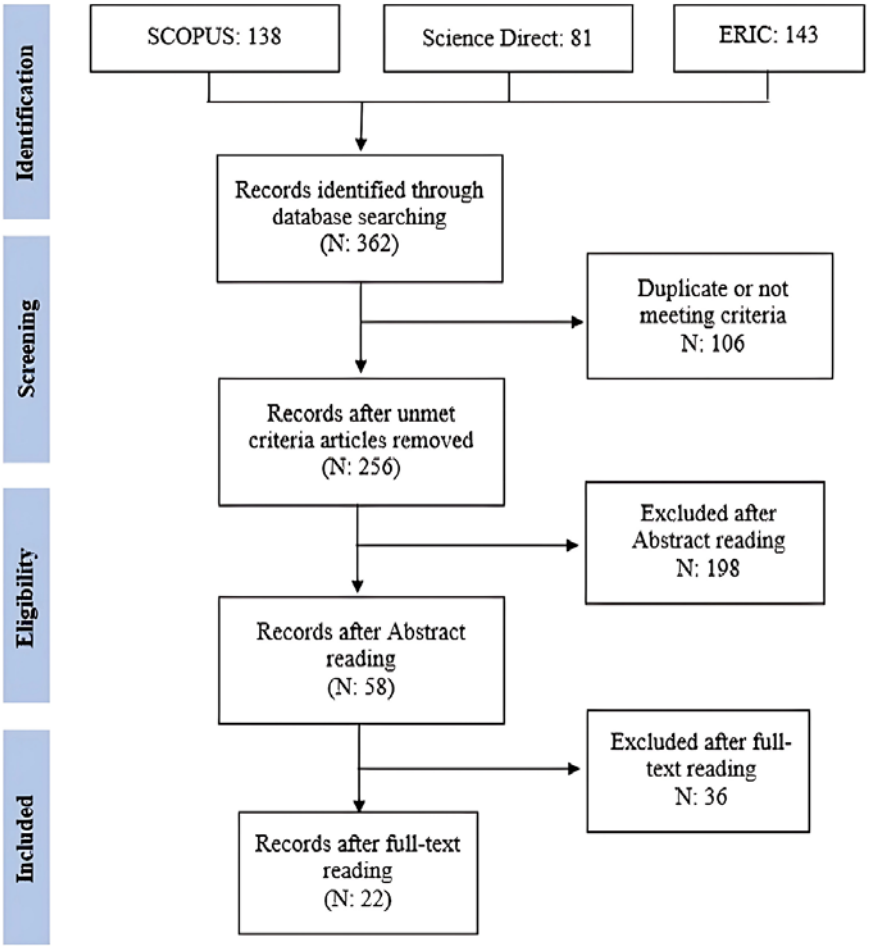


Figure 1. PRISMA Flowchart of Selection Study Process

Screening and inclusion procedures were used to select the articles for the main analysis as follows:

1) The studies must be related to integrating AI into English language teaching and learning.
2) The studies must have been published between 2020 and 2024.
3) The studies must be published in an English academic journal.
4) The studies must employ an empirical research methodology.

The initial screening involved reviewing the abstracts to determine the relevance to the integration of AI in English language teaching and learning. As a result, 198 articles were excluded based on title and abstract. Subsequently, 106 articles were removed due to duplication or failure to meet the inclusion criteria. After a thorough full-text review, 22 articles were ultimately included in the final selection.

Analyzing of Data

Once the final set of 22 articles was determined, the next step involved a detailed data extraction and analysis process. This phase was critical in synthesizing the findings across studies and identifying patterns, themes, and gaps in the current literature on the integration of artificial intelligence (AI) in English language teaching and learning. The articles were selected from three major databases: Scopus (15 articles), ScienceDirect (4 articles), and ERIC (3 articles), as seen in Figure 2.

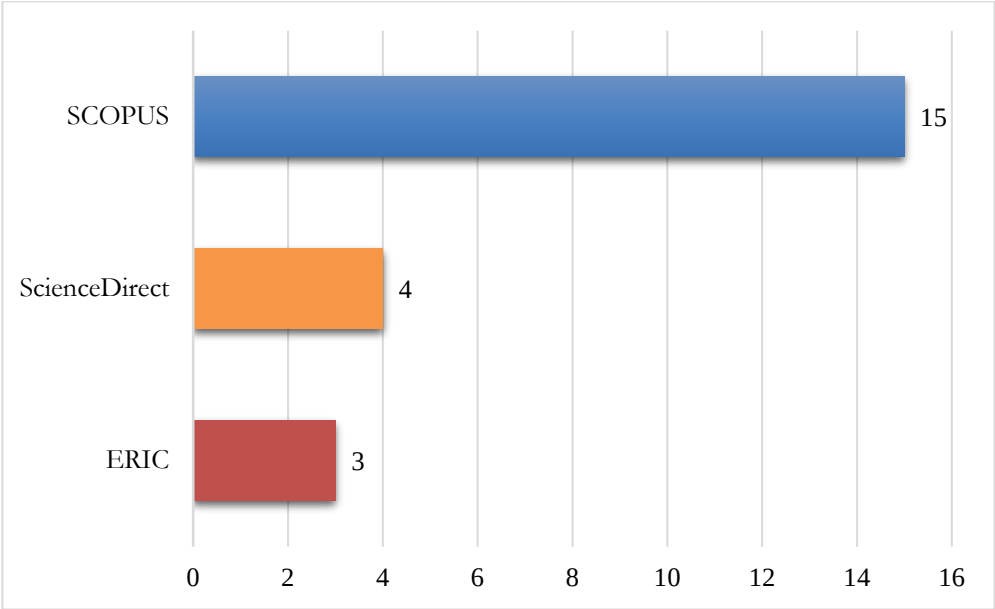


Figure 2. Database Sources of the Selected Articles

The articles from the selected databases that were included in this review were subjected to content analysis and data extraction. A structured data extraction form was developed to systematically capture relevant information from each selected study. Table 2 summarizes the 22 publications that met the inclusion criteria.

Table 2. The Selected Journal Articles

No	Author(S) and Year	Title	Research Method	Journal Name	International Index
1	Cong-Lem et al. (2024)	Academic Integrity in the Age of Generative AI: Perceptions and Responses of Vietnamese EFL Teachers	Qualitative (Open-ended Survey)	*Teaching English with Technology*	Scopus (Q1)
2	Maphoto et al. (2024)	Advancing Students' Academic Excellence in Distance Education: Exploring the Potential of Generative AI Integration to Improve Academic Writing Skills.	Qualitative (Exploratory research)	*Open Praxis*	Scopus (Q2)

Table 2. Continued

No	Author(S) and Year	Title	Research Method	Journal Name	International Index
3	Sumakul et al. (2022)	Artificial Intelligence in EFL Classrooms: Friend or Foe?	Qualitative (Interview study)	*LEARN Journal: Language Education and Acquisition Research Network*	Scopus (Q1)
4	Viktorivna et al. (2022)	Artificial Intelligence in Language Learning: What Are We Afraid of	Qualitative (Open-ended Survey)	*Arab World English Journal*	ScienceDirect
5	Al-khresheh (2024)	Bridging Technology and Pedagogy from A Global Lens: Teachers' Perspectives on Integrating ChatGPT In English Language Teaching	Qualitative (Open-ended Survey)	*Computers and Education: Artificial Intelligence*	Scopus (Q1)
6	Mabuan (2024)	ChatGPT and ELT: Exploring Teachers' Voices	Mixed Method (Survey and Focus group discussion)	*International Journal of Technology in Education (IJTE)*	ScienceDirect
7	Punar Özçelik and Yangın Ekşi Ekşi (2024)	Cultivating Writing Skills: The Role of ChatGPT As a Learning Assistant—A Case Study	Quantitative (Quasi-experiment)	*Smart Learning Environments*	Scopus (Q1)
8	F. Huang and Zou (2024)	English Speaking with Artificial Intelligence (AI): The Roles of Enjoyment, Willingness to Communicate with AI, and Innovativeness	Mixed Method (Experiment & Survey)	*Computers in Human Behavior*	Scopus (Q1)
9	Stornaiuolo et al. (2024	Digital Writing with AI Platforms: The Role of Fun with/in Generative AI	Mixed Method (Survey and Focus group discussion)	*English Teaching*	Scopus (Q1)
10	Mohammad et al. (2024)	Examining EFL Students' Motivation Level in Using QuillBot to Improve Paraphrasing Skills	Mixed Method (Survey and Semi-structured interview)	*World Journal of English Language*	Scopus (Q3)
11	Tseng and Lin (2024)	Enhancing English as a Foreign Language (EFL) Learners' Writing with ChatGPT: A University-Level Course Design	Qualitative (Case study)	*Electronic Journal of E-Learning*	Scopus (Q2)
12	Gayed et al. (2022)	Exploring an AI-based Writing Assistant's Impact on English Language Learners	Quantitative (Case study)	*Computers and Education: Artificial Intelligence*	Scopus (Q1)
13	Kohnke et al. (2023)	Exploring Generative Artificial Intelligence Preparedness among University Language Instructors: A Case Study.	Qualitative (Interview study)	*Computers and Education: Artificial Intelligence*	Scopus (Q1)
14	Belda-Medina and Kokošková (2023)	Integrating Chatbots in Education: Insights from the Chatbot-Human Interaction Satisfaction Model (CHISM).	Mixed Method (Survey)	*International Journal of Educational Technology in Higher Education*	Scopus (Q1)
15	J. E. Lee and Maeng (2023)	Perceptions of High School Students on AI Chatbots Use in English Learning: Benefits, Concerns, and Ethical Consideration	Quantitative (Survey)	*Journal of Pan-Pacific Association of Applied Linguistics*	ERIC (Education Resources Information Center)

Table 2. Continued

No	Author(S) and Year	Title	Research Method	Journal Name	International Index
16	Solak (2024)	Revolutionizing Language Learning: How ChatGPT and AI Are Changing the Way We Learn Languages	Qualitative (Interview study)	*International Journal of Technology in Education (IJTE)*	ScienceDirect
17	Kohnke et al. (2024)	Technostress and English Language Teaching in The Age of Generative AI	Qualitative (Interview study)	*Educational Technology & Society*	Scopus (Q1)
18	Gültekin Talayhan and Babayigit (2023)	The Influence of AI writing Tools on the Content and Organization of Students' Writing: A Focus on EFL Instructors' Perceptions	Qualitative (Interview study)	*Journal of Current Debates in Social Sciences*	ERIC (Education Resources Information Center)
19	Chen (2024)	The Role of Artificial Intelligence in English Language and Literature Reading Management	Quantitative (Quasi-experiment)	*International Journal of Information and Communication Technology Education (IJICTE)*	Scopus (Q3)
20	Alharbi (2023)	The Use and Abuse of Artificial Intelligence-Enabled Machine Translation in The EFL Classroom: An Exploratory Study	Quantitative (Quasi-experiment)	*Journal of Education and e-Learning Research*	Scopus (Q3)
21	Mutammimah et al. (2024)	Understanding Teachers' Perspective toward ChatGPT Acceptance in English Language Teaching	Quantitative cross-sectional research	*International Journal of Technology in Education (IJTE)*	ScienceDirect
22	Phuong (2024)	Using ChatGPT in English Language Learning: A Study on IT Students' Attitudes, Habits, and Perceptions	Mixed Method (Survey and Semi-structured interview)	*International Journal of TESOL & Education*	ERIC (Education Resources Information Center)

Table 2 presents 22 selected journal articles exploring the role of artificial intelligence (AI) in English language teaching and learning, covering topics such as ChatGPT, AI-based writing assistants, academic integrity, and AI acceptance among teachers and students. The studies employ various approaches (qualitative, quantitative, and mixed-method approaches), with qualitative research (e.g., interviews and open-ended surveys) being the most common. The research focuses on AI's impact on writing skills, speaking practice, motivation, and pedagogical integration. Most articles are published in high-impact, internationally indexed journals, primarily in Scopus (Q1–Q3), ScienceDirect, and ERIC, demonstrating the growing academic interest in AI's influence on English language education.

The next step involved a detailed data extraction and analysis process conducted by the research team, consisting of multiple researchers with expertise in artificial intelligence in language education and qualitative data analysis. This phase was critical in synthesizing the findings across studies and identifying patterns, themes, and gaps in the current literature on the integration of artificial intelligence (AI) in English language teaching and learning. The analysis followed a systematic approach, beginning with a thorough review of each selected article, during which the researchers independently coded the findings based on the study's research questions. The initial coding process was conducted by two researchers, who then cross-checked and refined the codes to ensure consistency and reliability. Discrepancies in coding were discussed and resolved through consensus meetings with the entire research team. Once the thematic coding was finalized, the researchers quantified the coded data by calculating the percentage distribution of each theme, allowing for a clearer identification of trends across the articles. This structured approach ensured both qualitative depth and quantitative clarity in analyzing how AI has been integrated into English language teaching and learning.

Findings

This section explores the findings of the systematic review in which the authors examined the main sources concerning the research questions guiding this study. Below, we present the themes that emerged for each research question to highlight the insights gained from the analysis.

RQ 1. In What Ways Can AI Be Used to Enhance English Language Teaching?

In exploring the integration of artificial intelligence in English language teaching, it is essential to understand the various ways AI can enhance educational practices. Table 3 below presents a comprehensive overview of the different AI applications in media for enhancing English language teaching.

Table 3. The Use of AI to Enhance English Language Teaching

No	Emerging Themes	Frequency	Percentage
1	Writing Assistance	12	54.55
2	Language Support	11	50.00
3	Language Assessment	10	45.45
4	Interactive Learning	8	36.36
5	Language Content Creation	6	27.27
6	Personalized Learning	6	27.27
7	Autonomous Learning	5	22.73
8	Language Translation	5	22.73
9	Contextual Learning	4	18.18
10	Accessibility	3	13.64
11	Language Practice	3	13.64
12	Cultural Understanding	2	9.09
13	Collaborative Learning	1	4.55
14	Language Pronunciation	1	4.55

Table 3 summarizes the themes that emerged from the selected articles. AI can support language learning in terms of content and feedback. Of the 14 themes that emerged, the most prominent help in language teaching is in supporting writing, which accounted for more than half the total articles (54.55%). The writing assistance mentioned in the 12 articles includes support in correcting the writing and finding references (Alberth, 2023; Alharbi, 2023; Cong-Lem et al., 2024; Gültekin Talayhan & Babayigit, 2023; Hao & Tasir, 2024; Kohnke et al., 2023; Mabuan, 2024; Maphoto et al., 2024; Punar Özçelik & Yangın Ekşi, 2024; Solak, 2024; Stornaiuolo et al., 2024; Sumakul et al., 2022; Tseng & Lin, 2024). In addition, 'Language Support' and 'Language Assessment' are also of major interest, indicating that AI is increasingly being used to support language comprehension and provide feedback on learning skills, with 11 articles (50.00%) mentioning language support, such as grammar and vocabulary expansion as the major AI contribution to ELT (Alharbi, 2023; Al-khresheh, 2024; Belda-Medina & Kokošková, 2023; Gayed et al., 2022; Gültekin Talayhan & Babayigit, 2023; F. Huang & Zou, 2024; Mabuan, 2024; Mohammad et al., 2024; Solak, 2024; Sumakul et al., 2022; Viktorivna et al., 2022).

Another important benefit of AI is language assessment, which allows learners to receive immediate feedback for their language production. This benefit has appeared in 10 articles (45.45%) being studied (Al-khresheh, 2024; Belda-Medina & Kokošková, 2023; Gültekin Talayhan & Babayigit, 2023; Kohnke et al., 2023; Mabuan, 2024; Mohammad et al., 2024; Punar Özçelik & Yangın Ekşi, 2024; Solak, 2024; Sumakul et al., 2022; Tseng & Lin, 2024). Interaction, personalization, and context are other supports that AI can provide in English language classrooms. Interestingly, while AI is widely used for writing and supporting language learning in general, aspects such as Collaborative Learning (4.55%) and Language Pronunciation (4.55%) are still less explored. This shows that of the four language skills (listening, reading, writing, and speaking), writing seems to be the most-discussed topic when relating ELT with AI, implying that research on the use of AI for speaking and interaction skills in language learning is still very limited.

RQ 2. What Have English Teachers Done in Integrating AI into Their English Classrooms?

In the pursuit of enhancing English language teaching, many teachers have begun to adopt various AI tools and technologies in their classrooms. Table 4 below summarizes the different ways teachers have incorporated AI into their English language teaching methodologies.

Table 4. AI Integration in ELT Classrooms

No	Emerging Themes	Frequency	Percentage
1	Incorporating AI tools	10	45.45
2	Ethical and responsible AI use	8	36.36
3	Engaging students in learning	6	27.27
4	Using AI for assessment and feedback	6	27.27
5	Training and professional development	5	22.73
6	Focusing on students	5	22.73
7	Addressing challenges and concerns	5	22.73
8	Curriculum and instructional design	4	18.18
9	Support and collaboration	4	18.18
10	Innovating teaching methods	4	18.18

Table 4 reveals that English teachers have actively integrated AI into their classrooms through various approaches. The most common strategy, implemented by 45.45% of teachers, involves incorporating AI tools to enhance language learning (Cong-Lem et al., 2024; Mohammad et al., 2024; Viktorivna et al., 2022). This includes the use of AI-powered writing assistants, grammar checkers, and paraphrasing tools to improve students' writing skills (Gültekin Talayhan & Babayigit, 2023). The next significant approach, with 36.36% of mentions, is focusing on ethical and responsible AI use (Mabuan, 2024; Maphoto et al., 2024; Sumakul et al., 2022). Stornaiuolo et al. (2024) specifically highlighted that teachers have facilitated discussions on the ethical implications of AI to help students understand their responsibilities as digital writers. Additionally, 27.27% of articles mention that teachers have used AI to engage students in learning (J. E. Lee & Maeng, 2023; Mutammimah et al., 2024) and to assess and give feedback (F. Huang & Zou, 2024; Punar Özçelik & Yangın Ekşi, 2024). For instance, Belda-Medina and Kokošková (2023) reported that teachers have implemented chatbots to provide immediate feedback on language learning tasks.

Furthermore, training and professional development are crucial, as 22.73% of articles emphasize the importance of equipping teachers with the skills needed to implement AI (Gayed et al., 2022; Hao & Tasir, 2024; Kohnke et al., 2024) effectively. In a similar percentage, there is a focus on addressing student needs and challenges, which shows how AI can be tailored to meet diverse learner requirements and concerns (Alharbi, 2023; Kohnke et al., 2023). Meanwhile, curriculum and instructional design, support and collaboration, and innovative teaching methods are each mentioned in 18.18% of the articles. This underscores the ongoing efforts to integrate AI thoughtfully into various aspects of teaching and learning (Al-khresheh, 2024; Tseng & Lin, 2024).

RQ 3. What Kinds of AI Tools Can English Teachers Use to Enhance English Language Learning?

As the landscape of education evolves, a variety of AI tools have emerged and can significantly upgrade English teaching and learning. These tools offer innovative solutions for teaching, assessment, and student engagement. Table 5 below outlines various AI tools that English teachers can utilize to facilitate and enrich the language learning experience.

Table 5. AI Tools Used by English Teachers

No	Emerging Themes	Frequency	Percentage
1	Grammar Checkers/Writing Assistants	14	63.63
2	Chatbots/Virtual Assistants	14	63.63
3	Language Learning Apps/Adaptive learning Platforms	9	40.9
4	Language Translation Tools	9	40.9
5	Conversation Practice Tools	6	27.27
6	Automated Evaluation and assessment /Scoring tools	6	27.27
7	Paraphrasing Tools	3	13.63
8	Virtual Reality (VR) and Augmented Reality (AR)	3	13.63
9	Content Generation Tools	3	13.63
10	Plagiarism Detection	2	9.1
11	Sentence Refinement Tools	1	4.54
12	Research and Summarization Tools	1	4.54

Table 5 demonstrates the various AI tools that English teachers can utilize in their teaching. Grammar checkers and writing assistants top the list, with 63.63% of articles mentioning their frequent use. These tools can help students refine their writing by providing real-time feedback on grammar and style (Cong-Lem et al., 2024; F. Huang & Zou, 2024; Solak, 2024; Sumakul et al., 2022). Similarly, chatbots and virtual assistants, also at 63.63%, can offer interactive language practice and immediate responses (Tseng & Lin, 2024), which help to simulate real conversations that can be beneficial for teachers to use (Al-khresheh, 2024; Gayed et al., 2022; Mabuan, 2024; Mutammimah et al., 2024; Punar Özçelik & Yangın Ekşi, 2024).

In addition, adaptive learning platforms as well as language translation tools, each at 40.9%, can provide personalized learning experiences and assist in overcoming language barriers (Alharbi, 2023; Belda-Medina & Kokošková, 2023; Kohnke et al., 2024; J. E. Lee & Maeng, 2023; Viktorivna et al., 2022). Then, conversation practice tools and automated evaluation and assessment tools, both at 27.27%, can support students in practicing spoken English and receiving instant feedback on their performance (Chen, 2024; Kohnke et al., 2023; Li, 2023; Phuong, 2024; Stornaiuolo et al., 2024).

Meanwhile, paraphrasing tools, virtual reality (VR) and augmented reality (AR) applications, and content generation tools, each at 13.63%, offer innovative ways to engage students and enrich their learning experiences (Belda-Medina & Kokošková, 2023; Gültekin Talayhan & Babayigit, 2023; Mohammad et al., 2024; Obari et al., 2020; Solak, 2024). Plagiarism detection, sentence refinement tools, and research and summarization tools, though less commonly reported at 9.1% and 4.54% respectively, still play a role in maintaining academic integrity and assisting with in-depth analysis (Kohnke et al., 2023; Li, 2023; Maphoto et al., 2024). All these AI tools give teachers a rich array of options to enhance various aspects of language learning, from writing and grammar to speaking and cultural understanding.

RQ 4. What Are the Challenges the Teachers Might Face in Integrating AI into English Language Teaching?

In integrating AI into English teaching, teachers undoubtedly encounter various challenges. Understanding these obstacles is important for developing strategies to overcome them and ensuring that AI is a beneficial tool in the classroom. Table 6 below outlines some key challenges teachers may face when integrating AI into their teaching methodologies.

Table 6. Challenges in AI Integration into English Language Classroom

No	Emerging Themes	Frequency	Percentage
1	***Ethical Challenges***		
	Academic dishonesty	6	27.27
	Copyright issues	1	4.55
2	***Linguistic Challenges***		
	Linguistic fidelity	5	22.73
	Lack of cultural sensitivity	4	18.18
	Lack of real-world scenarios	2	9.09
	Formality in language	1	4.55
	Intelligibility in writing	1	4.55
	Limited feature for pronunciation and listening	1	4.55
3	***Pedagogical Challenges***		
	Students' Challenges	*12*	*54.54*
	Over-reliance	6	27.27
	Creativity suppression	3	13.64
	Easily distracted	1	4.55
	Equal access	1	4.55
	Passive learning	1	4.55
	Technological Challenges	*9*	*40.91*
	Technicality problem	5	22.73
	Gap of digital competencies	3	13.64
	Teachers' avoidance	1	4.55
	Instructional Challenges	*6*	*27.27*
	Accuracy of information	4	18.18
	Lack of human interaction	2	9.09
	Teachers' Challenges	*5*	*22.72*
	Lack of support	2	9.09
	The effectiveness of the integration	2	9.09
	Academic standards	1	4.55
	Psychological	*4*	*18.18*
	Fear of being replaced	2	9.09
	Technostress	1	4.55
	Frustration	1	4.55

Table 6 gives information about the six themes of challenges faced by English teachers when integrating AI into their teaching. Ethical challenges are highlighted by a significant concern for academic dishonesty (27.27%) and minor issues like copyright (4.55%). This implies that students might use AI tools to complete assignments without actually learning and engage in cheating (Cong-Lem et al., 2024; Kohnke et al., 2023; Solak, 2024). For linguistic challenges, linguistic fidelity (22.73%) and a lack of cultural sensitivity (18.18%) are mentioned the most, which indicates that AI tools may not always produce language that accurately reflects the nuances of human communication; thus, potentially leading to misunderstandings (Alharbi, 2023; Al-khresheh, 2024; Gültekin Talayhan & Babayigit., 2023).

In the pedagogical realm, over-reliance on AI tools (27.27%) and creativity suppression (13.64%) are notable concerns. This implies that students may become dependent on AI for learning, which can hinder their critical thinking and stifle their imaginative capabilities (J. E. Lee & Maeng, 2023; Mabuan, 2024; Maphoto et al., 2024). Meanwhile, technological challenges are marked by technical problems (22.73%) and gaps in digital competencies (13.64%). This indicates that teachers may lack the necessary skills and knowledge to fully use AI technologies, causing them to face difficulties in effectively integrating it into the classroom (Kohnke et al., 2024; Punar Özçelik & Yangın Ekşi, 2024).

Additionally, instructional challenges focus on the accuracy of information (18.18%) and the lack of human interaction (9.09%). This means that teachers must critically evaluate the content generated by AI to ensure it is reliable and educationally sound. The lack of human interaction (9.09%) suggests that AI integration may reduce opportunities for meaningful teacher-student engagement, which is vital for effective learning (Belda-Medina & Kokošková, 2023; Mutammimah et al., 2024; Viktorivna et al., 2022). Lastly, psychological challenges such as fear of being replaced

(9.09%) and technostress (4.55%) reflect the emotional impact of AI integration. This implies teachers may experience anxiety about their job security and feel pressured to adapt to AI, which can lead to stress and frustration (Kohnke et al., 2024; Sumakul et al., 2022). Besides these challenges, some articles also mention potential strategies for dealing with these challenges, as summarized in Table 7.

Table 7. Strategies in Dealing with Challenges

No	Strategy	Frequency	Percentage
1	Need For Policy and Regulations	2	9.09
2	Plagiarism Detector Tools	2	9.09
3	Training Support	2	9.09
4	Community of Practice	1	4.55

These solutions are the need for policies and regulations, plagiarism detector tools, and training support for teachers to properly understand and effectively integrate AI in their teaching (Kohnke et al., 2023; Mutammimah et al., 2024).

Conclusion

AI integration into English language classrooms has grown in importance over the last decades. Many teachers have realized its potential to enhance learning and assessment (Tan et al., 2023; Umar, 2024). From the findings, it is evident that AI offers the most significant benefit in writing and immediate feedback. Teachers have used various AI tools in their teaching, such as grammar checkers/writing assistants, chatbots, and language translation tools. It helps students to generate content, find references, paraphrase, expand vocabulary, summarize, and correct grammar. These findings are in line with previous studies, which reveal that AI integration can support students in language learning as it can provide interactive learning and automated feedback (Crompton et al., 2024; Hao & Tasir, 2024; Rinjeni et al., 2024; Yang, 2022; Zhang et al., 2023).

However, other studies in English for Second Language (ESL) context often highlight other benefits of AI regarding personalized learning and speech recognition (Zhang et al., 2023), which seem to be lacking in this study's findings. The AI tools benefit which allows personalization for English learning, only appears in six articles (27.27%). This might link to several causes, such as academic dishonesty and over-reliance, which emerge in a similar number of articles (27.27%). Whereas, the speech recognition theme only emerged in one article, which might be caused by the fear of over-reliance, academic dishonesty, technical issues, cultural insensitivity, information inaccuracy, and gaps in digital competencies. This is supported by many studies that found similar causes (Herdina & Ningrum, 2023; Walsh et al., 2024; Wu, 2023).

The least found potential benefits of AI integration into English language teaching are its possibility to offer cultural understanding (2 articles), collaborative learning (1 article), and language pronunciation. AI is believed to provide contexts in language learning (Al-khresheh, 2024) and collaboration with people from different parts of the world (Stornaiuolo et al., 2024) which allows students to understand cultures and the language. Although the two articles mention the cultural responsiveness of the AI tools, four articles argue that AI lacks cultural context in English learning. They claim that AI does not reflect real-life situations, which limits students' understanding of the real world, as agreed by some other studies (Kim et al., 2023; Walsh et al., 2024). In the EFL context, English language learning might be difficult due to limited exposure to the language in terms of productive skills like writing and speaking. Language is naturally embedded in culture, which entails the need to understand the culture where the language is spoken. As the two articles reveal the potential of AI tools for cross-cultural understanding, they might indicate the possibility of AI offering culture-sensitive language learning. This means that cultural aspects need further investigation. The debate around the cultural aspects of AI integration makes it worth researching because it might offer promising benefits for culturally responsive English teaching.

Besides, language pronunciation can also be enhanced as they can practice conversation and pronounce words correctly. This can be done using text-to-speech or speech-to-text generative AI. Unlike listening and reading, writing and speaking require active use of the language and feedback so the students can identify their strengths, weaknesses, and areas to improve. With the availability of AI tools, students in EFL classrooms can have more opportunities to learn and correct their pronunciation personally. Nowadays, AI tools such as Google speech-to-text, Alexa, and Siri can recognize speech and provide immediate responses. When students use such tools, they indirectly practice their speaking and pronunciation. If this practice is used by teachers purposefully in their classroom, it can be a significant aid for speaking and pronunciation drills. Therefore, exploring AI use to enhance speaking is a promising area of research.

In EFL practice, teachers have incorporated AI tools in their teaching, with more emphasis on writing, translating, and interactive services. Some of the most popular AI tools that they have employed are ChatGPT, Google Translate, and Grammarly (Ghafar et al., 2023; Godwin-Jones, 2024). Based on the article being assessed, teachers have also been aware of the ethical implications of AI use in English teaching. Many teachers have experienced academic dishonesty by their students, such as cheating and plagiarizing (Akgun & Greenhow, 2022; L. Huang, 2022; Zulkarnain & Yunus,

2023). They are also aware of the importance of plagiarism detection tools. However, a very limited number of articles found teachers' use of plagiarism detection AI. This implies that despite the plagiarism issues, the use of AI tools for plagiarism detection is still underexplored.

Another thing to point out is that while many articles reveal the popular use of AI as an assessment tool, only a limited number of articles show that teachers have integrated AI into their pedagogical skills, such as in designing curriculum and instruction, innovating teaching methods, and encouraging collaboration. These findings are in line with the popular use of automated evaluation and assessment tools and the less widespread use of the content generation tools. The possible solutions mentioned in some articles to address the limited use of AI in designing learning instruction are training support and community learning. This is expected to equip teachers with the necessary skills to utilize AI tools to design their teaching.

The existence of AI has transformed the way teachers teach and students learn. In the EFL context, AI can be a significant help to improve students' experience in English learning because it offers more personalized, interactive, contextual, and automated learning and assessment. Teachers have become familiar with this technological advancement and incorporated it into their teaching. Many articles highlight the use of AI in grammar correction, writing assessment, and language assessment. However, AI applications for collaboration, pronunciation, and cultural understanding are still underexplored. Therefore, further research should explore how AI can facilitate collaborative learning in language acquisition. Studies on AI-driven pronunciation training tools should investigate their effectiveness in improving learners' speaking skills, considering various language proficiencies and accents. Cultural understanding, which is crucial for language learning, could also be examined through AI-mediated intercultural communication experiences, such as virtual exchanges or AI-driven cultural immersion programs.

The study also identifies several challenges faced by teachers when integrating AI into their teaching, such as the fear of academic dishonesty, over-reliance, technical problems, and linguistic fidelity. The findings also suggest that teachers need training and peer support to learn about the technical skills of using AI. They also need support in the form of regulation to give more room for them to integrate AI into their classrooms.

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Conflict of Interest

The authors declare that there is no conflict of interest regarding this study.

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Generative AI Statement

As the author(s) of this work, we used the AI tool Chat-GPT to enhance language. After using this AI tool, we reviewed and verified the final version of our work. As the author(s), we take full responsibility for our published work's content.

Authorship Contribution Statement

Daud: Conceptualization, design, final approval. Aulia: Securing funding, supervision. Muryanti: Drafting manuscript, data analysis. Harfal: Editing/reviewing. Nabila: Statistical analysis, technical support. Ali: Data acquisition, statistical analysis, admin.

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