Exploring ESL Teachers' Perceptions of AI Integration: A Systematic Literature Review (2019-2025)

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DOI: https://dx.doi.org/10.47772/IJRISS.2025.907000488

Received: 18 July 2025; Accepted: 25 July 2025; Published: 25 August 2025

ABSTRACT

This systematic literature review explores English as a Second Language (ESL) teachers' perceptions of the integration of Artificial Intelligence (AI) in language education. With the rapid advancement of AI technologies, their application in ESL teaching has become increasingly prominent, prompting the need to understand educators' attitudes, expectations, and concerns. The review systematically analysed peer-reviewed studies published between 2019 and 2025, sourced from major academic databases including Google Scholar, ERIC, and Scopus. Using thematic analysis, the review identified key trends in ESL teachers' perceptions, including enthusiasm for the potential of AI to personalize learning and automate administrative tasks, as well as concerns about data privacy, reliability, and the potential loss of human interaction in language learning. Findings suggest that while ESL teachers generally acknowledge the value of AI, effective integration depends on factors such as digital literacy, institutional support, and ethical guidance. This study contributes to the field by synthesizing current knowledge, highlighting gaps in teacher training, and offering recommendations for future research and practice in AI-assisted ESL teaching.

Keywords: ESL teachers, Artificial Intelligence, AI in education, language teaching, teacher perceptions, technology integration, systematic literature review

INTRODUCTION

The rapid advancement of artificial intelligence (AI) has significantly impacted various sectors, including education. In the field of language learning, particularly English as a Second Language (ESL), AI applications are emerging as powerful tools to support teaching and learning processes. From intelligent tutoring systems and AI-driven assessment tools to virtual assistants and personalized learning platforms, AI has the potential to transform traditional classroom practices and enhance learner engagement and outcomes (Wang et al., 2024).

In Malaysia and many other multilingual contexts, the demand for innovative solutions to improve English language proficiency continues to grow which enhanced the shift towards digital learning environments. AI tools offer several advantages, such as instant feedback, automated scoring, personalized learning pathways, and accessibility support. These capabilities are particularly relevant in ESL classrooms, where learners often have mixed levels of proficiency and require differentiated instruction.

The focus of this study is on ESL context rather than general education because ESL learners face particular challenges, such as limited language exposure, lack of confidence, and the need for scaffolded support. AI technologies can help to bridge these gaps by offering interactive, multimodal, and adaptive learning experiences that address individual needs (Godwin-Jones, 2023). Furthermore, in many countries, including Malaysia, English is taught as a second language within formal schooling systems, making ESL classrooms a primary setting for the integration of AI tools aimed at language acquisition.

However, the successful integration of AI in ESL classrooms is greatly influenced by teachers' perceptions and attitudes. Teachers act as the primary facilitators of educational technology, and their readiness to integrate AI tools depends on various factors, including their digital literacy, prior experiences, pedagogical beliefs, institutional support and usefulness of AI technologies (Peñafiel-Jurado et al., 2024; Fahreni et al., 2023).

Technological considerations, lack of training, and ethical concerns such as data privacy and student autonomy also play a crucial role in shaping teachers' acceptance of AI.

Despite the growing body of empirical research on AI in language education, no systematic review has so far synthesized specific findings on ESL teachers' perceptions of AI integration between 2019 and 2025. Most existing reviews tend to focus on general education or students' perspectives, leaving gaps in understanding how teachers, who are at the central of these AI uses and technologies, perceive AI.

Hence, this systematic literature review aims to:

1. Explore how ESL teachers perceive the integration of AI applications in their classrooms.

2. Identify the benefits and challenges associated with AI use from teachers' perspectives.

By synthesizing recent empirical and theoretical research, this review contributes to a deeper understanding of how educators interact with AI technologies and the support systems needed to enhance effective implementation. These findings will be useful for policymakers, school administrators, and educational technology developers who wish to promote the meaningful use of AI in language education.

1.0 Research Objectives and Questions

This systematic literature review aims to present a synthesis of empirical evidence found in the past studies on ESL teachers' perceptions towards AI integration in language classroom. The purpose of the study is to answer the following research questions:

RQ1: What are ESL teachers' perceptions regarding the integration of AI tools in language classrooms?

RQ2: What benefits and challenges do ESL teachers identify regarding the integration of AI tools?

METHODOLOGY (PRISMA FRAMEWORK)

This systematic literature review aims to provide a comprehensive overview of existing literature that analyzes teachers' perceptions on AI integration in education. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology was employed in this study to ensure a thorough and clear review process. PRISMA comprises four sequential phases: identification, screening, eligibility, and inclusion. These phases are visually illustrated in Figure 1. This methodology was selected for its comprehensiveness and adaptability, making it an ideal framework for synthesizing research on the teachers' perceptions towards the integration of AI-tools in ESL classroom. The implementation of PRISMA for the current study involved the following key stages and is detailed in the following methodology section.

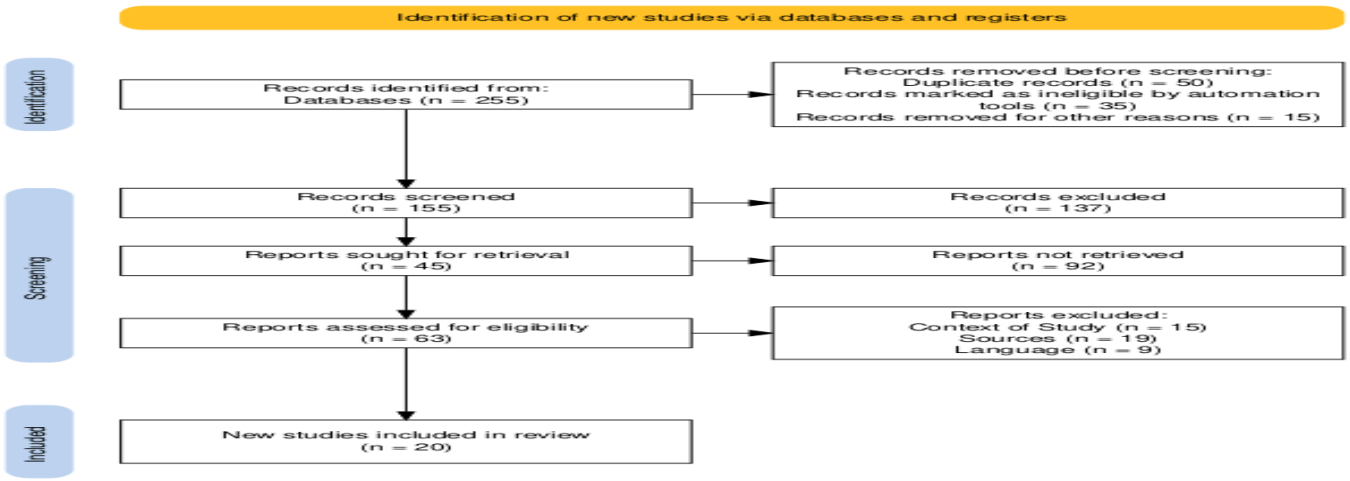

Figure 1 PRISMA systematic review adapted from the PRISMA 2020 statement: and updated guideline for reporting systematic reviews.

Identification Phase

The PRISMA guidelines has highlighted the identification phase as initial step in the systematic review. Accordingly, the researcher refers to the three databases which are Google Scholar, ERIC and Scopus to adhere to the goal of study. Table 1 shows the search string used in this investigation for each database.

Table 1 Search String for Systematic Literature Review

Databases Used	Search Terms
Google Scholar	"teachers' perceptions" AND ("artificial intelligence" OR AI) AND ("ESL" OR "English as a Second Language") AND ("systematic review" OR "literature review")
ERIC	("teachers' perceptions") AND ("artificial intelligence" OR AI) AND ("ESL" OR "English as a Second Language") AND ("systematic review" OR "literature review")
Scopus	TITLE-ABS-KEY("teachers' perceptions" AND ("artificial intelligence" OR AI) AND ("ESL" OR "English as a Second Language") AND ("systematic review" OR "literature review"))

During the identification phase, a total of 255 articles were initially identified through different searching databases as mentioned in the Table 1. 50 duplicate records were then removed, along with 35 articles marked as ineligible by automation tools such as non-academic sources and incomplete metadata. The following process shown the removal of another 15 records for other reasons such as being conference abstract or non-peer reviewed sources.

Screening Phase

In this phase, the total of 100 records that were removed during the identification phase left 155 articles to be screened. Of these, 137 were excluded based on title and abstract review for not aligning with the topic of ESL teacher's perceptions on AI integration. The remaining 45 were sought for full-text retrieval, made it 92 records were not retrieved due to inaccessible full-texts and paywall restrictions. A total of 63 articles were assessed for eligibility. The inclusion and exclusion criteria in Table 2 were used to screen the articles.

Table 2 Inclusion and Exclusion Criteria

Criterion	Inclusion Criteria	Exclusion Criteria
Publication Date	Published 2019–2025	Articles before 2020
Context of Study	Focus on ESL/ ELT settings	Articles on general AI in education
Focus	Discusses teachers' perspectives	Student-only perceptions
Language	English language articles only	Articles in other languages
Sources	Peer-reviewed journal articles	Non-peer reviewed reports or editorials

From this pool, 43 articles were excluded based on specific criteria: 15 due to irrelevant context of study which are not focused on ESL or not centred on teacher's perceptions, 19 were not published in peer-reviewed journals and 9 were written in languages other than English. Ultimately, 20 studies met the inclusion criteria and were included in the final synthesis.

Included Phase

The following phase is included phase in which 20 articles were selected for systematic review. These articles have met all the inclusion criteria that align with the goal of this study. The studies included are presented in the Table 3. Based on the table, 5 articles were extracted from Google Scholar, 10 from ERIC and another 5 from Scopus. These articles are important to explore the teachers' perceptions on AI integration in ESL context. Besides that, the table also presented the data of selected articled from their respective countries.

Table 3 Included articles and their respective countries

No	First Author (Year)	Database	Country
1	Zainuddin, M. Z. (2024)	Google Scholar	Malaysia
2	Kee, C. H., & Kabilan, M. K. (2025)	Scopus	Malaysia
3	Kalra, R. (2024)	Scopus	Thailand
4	Sharifuddin, N. S., & Hashim, H. (2024)	Scopus / Google Scholar	Malaysia
5	Mabuan, R. A. (2023)	ERIC	Philippines
6	Pratama, R. A. et al. (2024)	ERIC	Indonesia
7	Chounta, I.-A. et al. (2022)	ERIC	Estonia
8	Eichler, C. (2024)	Google Scholar	Netherlands
9	Vargas, N. (2023)	ERIC	USA
10	Alhalangy, A. (2023)	ERIC	Saudi Arabia
11	Fernández-Sánchez, M. R. et al. (2022)	ERIC	Spain
12	Benali, M. (2021)	Scopus	Morocco
13	Sumakul, R. (2019)	ERIC	Indonesia
14	Wang, Y. (2019)	ERIC	China
15	Handini, R., & Henry, J. (2022)	Google Scholar	Indonesia
16	Otsuki, T. (2020)	ERIC	Japan
17	Ma, J. (2021)	Scopus	China
18	Carvalho, A., & Vinall, K. (2022)	ERIC	USA
19	Stringer, L. R. et al. (2022)	ERIC	New Zealand
20	Zulkarnain, N., & Yunus, M. M. (2023)	Google Scholar	Malaysia

This study focused on empirical, peer-reviewed journal articles published between 2019 and 2025, written in English, and directly exploring ESL teachers' perceptions of AI integration in education. For example, Zainuddin et al. (2024) conducted semi-structured interviews with tertiary ESL teachers to explore their perspectives on implementing AI as a pedagogical tool in the classroom. Similarly, Massali (2025) used a quantitative approach to describe ESL teachers' views on AI integration and its impact on language learning. Studies were excluded if they were review articles, opinion pieces, conference proceedings, or did not focus on the ESL or AI context. For example, articles examining AI integration in general education without specific reference to the ESL setting were not considered.

Meanwhile, to ensure the strength of the included studies, a quality assessment was conducted using the Critical Appraisal Skills Program (CASP) checklist. Humayoun et al., (2024) defined CASP as a tool, checklist, or set of criteria that provides guidance on how to assess the methodological and reporting strengths

and limitations of a qualitative review. The tool assesses methodological quality across multiple domains, including clarity of research objectives, methodological appropriateness, data collection, and analytical rigor.

Each article was assessed using the CASP Qualitative Review Checklist, which consists of a series of questions designed to systematically assess the reliability, relevance, and results of published papers. Studies that met minimum quality standards, as determined by this checklist, were included in the list. The examples of questions in the CASP are as follows in Table 4.

Table 4 Questions in CASP Checklist

No.	Questions	Descriptions
1	Is there a clear aim of the research?	Clear statement of the research purpose; Teachers' perceptions on AI integration in ESL context
2	Is a qualitative methodology appropriate?	The appropriateness of research instruments such as interviews or questionnaire to collect the data of teachers' perceptions
3	Is the research design appropriate to address the aims of the research?	The suitability of research design such as case study or ethnography to match the research questions.
4	Is the research population/ participants appropriate to the aims of research?	The method and strategy in selecting the research participants: ESL teachers
5	Is the data analysis sufficiently rigorous?	The transparency of coding process and the analysis of themes grounded in the data
6	Is there a clear statement of findings?	The clarity of the researcher's presentation of ESL teachers' views and experiences. (Is it supported by quotes or examples?)
7	How valuable is the research?	The insights and implications of the study for ESL education, AI use and future practice.

After considering inclusion and exclusion criteria and conducting a quality assessment, a total of 20 studies were included in the final synthesis. These studies provide diverse insights into ESL teachers' perceptions of the use of AI, encompassing a variety of educational contexts and methodological approaches. By incorporating these detailed criteria and quality assessment procedures, the review ensures a comprehensive and methodologically sound synthesis of existing literature on ESL teachers' perceptions of AI integration between 2019 and 2025.

FINDINGS (THEMATIC REVIEW)

In this systematic literature review, 20 articles were selected based on the inclusion criteria: publication year between 2019-2025, based on ESL context and referring to the teachers' perceptions on AI integration, peer-reviewed journals and published in English language rather than other languages. This review analysed all the articles interpretively, categorizing the themes for the research questions. Table 5 below presented the summary of themes and its frequency of occurrence in all included articles. Based on the table, the themes were classified based on the platform mentioned in the literature review to answer the research questions. Thematic review was carried out to identify the main themes to answer the following research question:

RQ1: What are ESL teachers' perceptions regarding the integration of AI tools in language classrooms?

RQ2: What benefits and challenges do ESL teachers identify regarding the integration of AI tools?

Table 5 Summary of Thematical Findings and Frequency of Occurrences

Theme	Description	Frequency (No. of Articles)
Theme 1: Positive Perceptions of AI Integration	Teachers viewed AI as a beneficial tool for enhancing engagement, personalization, and interactivity.	16
Theme 2: Challenges and Concerns in Using AI	Issues such as lack of training, ethical concerns, and access inequality were raised.	15
Theme 3: Need for Professional Development and Support	Highlighted the importance of training, guidelines, and institutional support.	13
Theme 4: Impact on Students' Learning Outcomes	Reported improved skills (writing, speaking) and increased critical thinking, with caution about overreliance.	12
Theme 5: Ethical and Pedagogical Implications	Concerns about data ethics, human interaction, and maintaining pedagogical integrity.	11

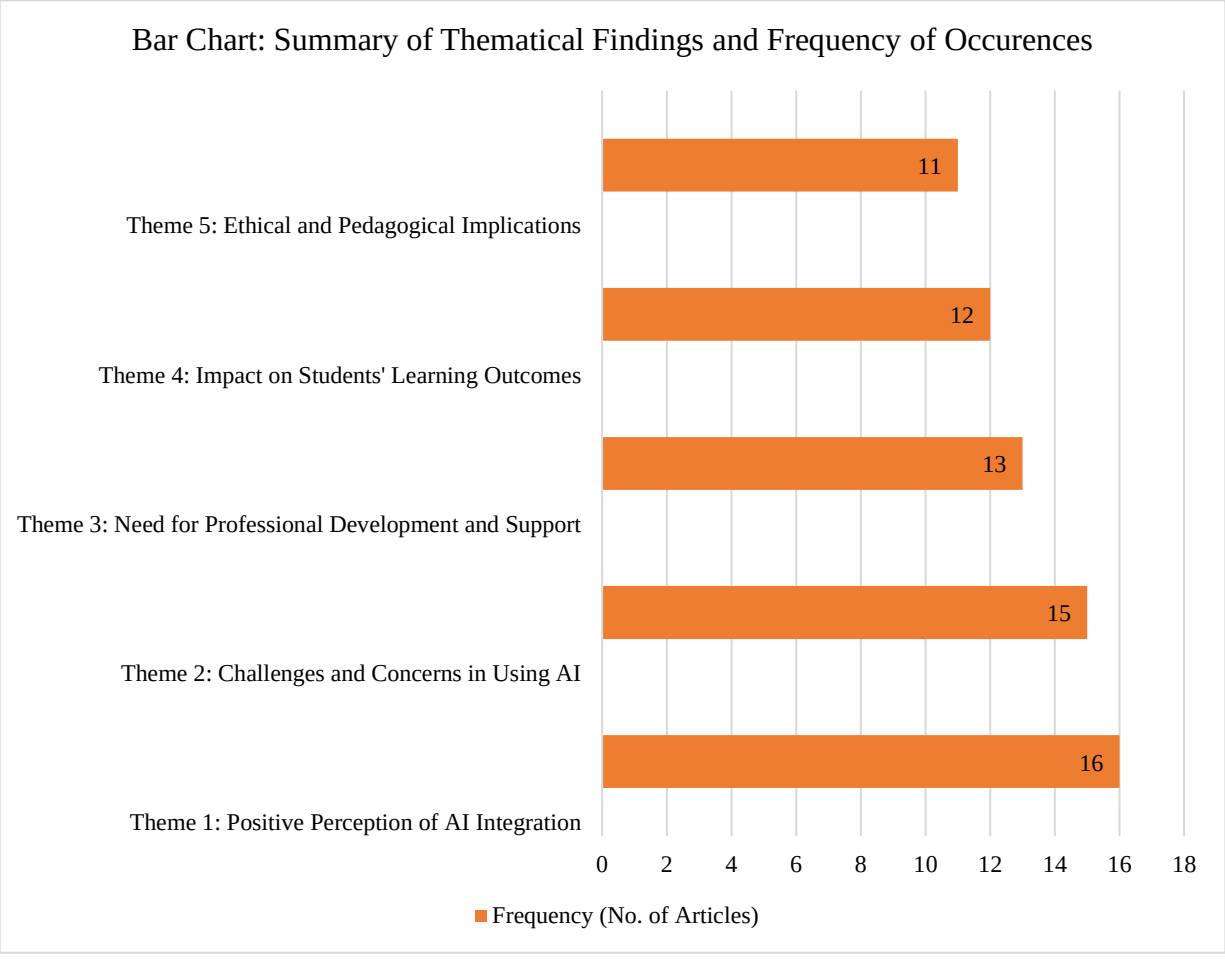

Figure 2: Bar Chart Illustrating the Frequency of Thematic Findings Across Reviewed Articles

RQ1: What are ESL teachers' perceptions regarding the integration of AI tools in language classrooms?

Theme 1: Positive Perceptions of AI Integration

The findings across reviewed studies consistently show that teachers have positive perceptions of the integration of AI applications in ESL classrooms. Teachers generally perceive AI as a useful supporting tool that can increase student engagement and motivation during lessons (Zainuddin, 2024; Kee & Kabilan, 2025). There are many studies stated that AI facilitates personalized learning when teachers tailor instruction to individual student needs (Mabuan, 2023; Benali, 2021). Furthermore, AI is seen to play a significant role in creating more interactive lessons that involve active participation, especially among students who are typically more passive (Chounta et al., 2022; Wang, 2019). Several teachers acknowledge that AI tools such as chatbots, automated writing, and virtual tutors contribute to increasing the classroom dynamics, making learning more engaging and more widely accessible to students.

Theme 2: Challenges and Concerns in Using AI

Despite of many positive perceptions, there are also various studies that have identified significant challenges and concerns related to AI integration. One of the most frequently cited issues is the lack of training and technological competence among teachers, which hinders the effective implementation of AI (Kalra, 2024; Fernández-Sánchez et al., 2022). Teachers have expressed concerns about potential risks to data privacy and ethical issues, particularly regarding student information processed by AI platforms (Vargas, 2023; Carvalho & Vinall, 2022). In addition, there are reports of limited access to advanced AI technologies in less affluent or rural educational settings (Sharifuddin & Hashim, 2024), leading to a digital divide. Another common concern is the fear of over-reliance on technology, with some teachers concerned that over-reliance on AI may reduce meaningful teacher-student interactions and critical thinking opportunities for students (Sumakul, 2019; Ma, 2021).

Theme 3: Need for Professional Development and Support

A key theme emerging from the review is the need for comprehensive professional development and ongoing support to enable effective AI integration. Many teachers, while acknowledging the potential benefits of AI, admitted a lack of the knowledge and skills needed to use AI tools confidently (Chounta et al., 2022; Pratama et al., 2024). Studies highlight that adequate training and clear guidelines are essential to train teachers to effectively integrate AI into their pedagogical practices (Ma, 2021). In addition to training, institutional support is often cited as a key factor in ensuring effective AI implementation, by providing structured programs for teachers, workshops, and collaborative learning opportunities among peers (Otsuki, 2020; Stringer et al., 2022). Without proper preparation and support, many teachers feel challenged by the rapid pace of technological advancements, which in turn affects their willingness to adopt AI tools consistently.

RQ2: What benefits and challenges do ESL teachers identify regarding the integration of AI tools?

Theme 4: Impact on Students' Learning Outcomes

The reviewed studies have shown that AI integration has a positive impact on student learning outcomes. Teachers observed significant improvements in skill mastery, especially when AI tools offer immediate feedback and suggestions for revision (Mabuan, 2023; Otsuki, 2020). AI-driven platforms have also supported improvements in speaking fluency, allowing students to practice English conversations in a low-pressure environment (Chounta et al., 2022). Beyond language skills, several teachers have noted that AI tools stimulate critical thinking and creativity by exposing students to a variety of problem-solving activities and movements (Alhalangy, 2023). However, some studies have also warned about the potential for students to become overly reliant on AI-generated content, which can hinder the development of independent language skills and critical analysis (Wang, 2019).

Theme 5: Ethical and Pedagogical Implication

Finally, ethical and pedagogical implications have emerged as critical areas of concern for teachers. Teachers have expressed awareness of data ethics issues, including the potential for biases embedded in AI algorithms and the risks associated with handling student data (Carvalho & Vinall, 2022; Handini & Henry, 2022). In addition, findings suggest that teachers are particularly concerned about preserving the human aspect of language education and are concerned that excessive use of AI may reduce authentic interpersonal interactions that are crucial for effective ESL learning (Kalra, 2024; Eichler, 2024). Balancing technological efficiency with the need to form meaningful communication, empathy, and critical thinking remains a key pedagogical challenge, prompting calls for more ethical use of AI in educational settings.

DISCUSSION

The findings of this systematic literature review provide critical insights into teachers' perceptions of the integration of AI tools in ESL classrooms. Overall, the analysis of the themes suggests that while teachers recognize the transformative potential of AI in language education, they also articulated a range of challenges and ethical considerations that require careful attention.

The largely positive perceptions of AI integration reflect previous research that emphasizes the technology's ability to enhance student engagement, facilitate personalized learning, and influence interactive classroom environments (Zawacki-Richter et al., 2019; Yunus et al., 2021). Across studies, teachers argue that AI tools such as chatbots, writing assistants, and adaptive learning platforms can make language learning more accessible and motivating for students, especially those who struggle with traditional teaching approaches. This has reflected a broader pedagogical shift in ESL education, where student-centered practices and increased use of technology are progressively emphasized to accommodate the needs of diverse learners.

In contrast, the review also highlights ongoing challenges, particularly a lack of adequate training, limited technology infrastructure, and concerns regarding ethical and privacy issues. These findings are consistent with past research that argues teachers' technology self-efficacy and institutional support, which are prominent to determine the successful of AI integration (Ertmer & Ottenbreit-Leftwich, 2010; Tondeur et al., 2017). Without adequate professional development opportunities, many teachers risk becoming passive users rather than implementing critical AI technologies. Furthermore, concerns about data ethics, algorithmic bias, and the potential for overreliance on technology align with emerging debates in the AI and education literature, which warn against uncritical use of AI without a comprehensive ethical framework (Williamson & Eynon, 2020).

The impact of AI on students' learning outcomes, particularly progress in writing, speaking, critical thinking, and creativity, provides compelling evidence for the pedagogical value of AI tools. Significant differences emerge when AI integration can lead to student reliance on the tools. This highlights the importance of integrating AI in an effective way rather than replacing independent learning and cognitive engagement. This argument emphasizes the need for a balanced teaching strategy in which AI complements rather than dominates the learning process.

In addition, ethical and pedagogical considerations are also one of the perceived contradictions to AI integration. This factor emerges strongly in this review, suggesting that AI integration in ESL classrooms should not be seen as a purely technical innovation but must be contextualized within a broader discussion of humanistic education, students' agency, and social responsibility. Teachers' concerns about ensuring that interpersonal communication is maintained and authentic language use can continue to be fostered highlight the underlying issues between technological competence and the core values of ESL teaching.

While much research has been conducted extensively, some gaps remain. Many studies have focused primarily on teachers' self-reported perceptions without examining the longitudinal outcomes of AI integration on actual students' performance. Furthermore, there is limited research on the specific cultural challenges in various ESL contexts, particularly in underrepresented regions such as Southeast Asia, Africa, and Latin America. Future research should explore not only how teachers perceive AI tools but also how they enact these

perceptions in practice, including classroom interventions, curriculum redesign, and students outcomes over time.

In conclusion, while most teachers consider AI to be a powerful tool to support ESL education, their experiences also highlight the complexity of integrating such technologies effectively. Policymakers, educators, and AI developers must work together to address the challenges that are certain, ensuring that AI integration is pedagogically sound, ethically responsible, and inclusive of all educational contexts. This review emphasizes that the future of AI in ESL education lies not solely in technological advancement but in reflective, critical, and human-centred applications of these tools.

CONCLUSION

This systematic literature review explored teachers' perceptions towards the integration of AI tools in ESL classrooms based on 20 empirical studies published between 2019 and 2025. The thematic analysis revealed five major themes: positive perceptions of AI integration, challenges and concerns, the need for professional development and support, the impact of AI on students' learning outcomes, ethical and pedagogical implications.

Overall, findings indicate that teachers generally viewed AI tools as valuable assets in enhancing students' engagement, personalizing learning, and building interactive classroom environments. However, significant challenges have been identified, including inadequate teacher training, technology access gaps, ethical concerns about data privacy, and the risk of over-reliance on AI systems. While AI is credited with improving students' writing, speaking, and critical thinking skills, the need to maintain the human element of ESL education remains a strong concern among educators. The study emphasizes that successful integration of AI in ESL contexts requires a balance between leveraging technological innovations and building the interpersonal, communicative foundations of language learning.

Importantly, the review also highlights gaps in existing research, particularly the lack of longitudinal and practice-based studies that address the real-world impacts of AI integration on teaching practices and student outcomes. Furthermore, there is a need for more multicultural research that captures the unique challenges and opportunities of AI implementation across different global educational contexts.

RECOMMENDATIONS

Based on the insights gained from this review, several key recommendations have been highlighted to guide future practice and research. First, there is a strong demand for comprehensive professional development and training programs specifically tailored to the integration of AI tools in ESL education. Teachers should not only be trained on the technical aspects of using AI platforms but also on the pedagogical strategies needed to meaningfully embed AI in language learning activities. Effective professional development should be ongoing, practical, and context-specific, allowing teachers to build confidence and competence over time rather than through one-off workshops. In addition, mentoring and peer collaboration initiatives can continue to support teachers in sharing best practices and collectively addressing challenges.

Secondly, institutional and policy support is essential to facilitate successful adoption of AI in ESL classrooms. Educational policymakers should prioritize the establishment of a clear frameworks that outlines the ethical, practical, and operational guidelines for the use of AI in schools. Funding should be allocated to ensure equitable access to AI tools across different educational settings, particularly in underprivileged and rural areas where technological resources are often limited. Institutions should also invest in developing infrastructure and technical support systems that enable the smooth and sustainable integration of AI technologies in everyday classroom practices.

Thirdly, there is an urgent need to establish and promote ethical frameworks governing the integration of AI in educational settings. Teachers' concerns about data privacy, algorithmic bias, and transparency must be addressed through clear policies and ethical standards. Institutions should ensure that AI tools used in classrooms comply with data protection laws and uphold students' rights to privacy and fair treatment.

Moreover, there should be an emphasis on developing ethical literacy among teachers and students alike, equipping them to critically engage with AI technologies in an informed and responsible manner.

Next, the findings suggest the importance of adopting balanced pedagogical approaches when integrating AI tools. AI should be positioned as a complement to the traditional methods rather than a replacement for the method. While AI can assist in automating feedback, personalizing learning, and supporting language practice, the irreplaceable value of human interaction in fostering communication skills, empathy, and socio-emotional development must be preserved. Teachers should design lessons that blend AI-assisted activities with rich human-mediated interactions to ensure holistic language learning experiences.

Finally, future research should address existing gaps by conducting longitudinal studies and research methods that explore the persistent impact of AI on ESL teaching and learning practices. More empirical work is required to investigate how AI influences students' language development over time, as well as how teachers' perceptions and practices evolve with the expanded use of AI. Research should also be expanded to include culturally diverse and underrepresented educational contexts, ensuring that findings and recommendations are globally relevant and sensitive to the local realities of ESL teaching across diverse regions. Through these recommendations, it is advocated that educators, policymakers, and researchers can work together towards creating a future where the integration of AI in ESL education is equitable, ethical, and pedagogically sound.

REFERENCES

1. Alhalangy, A. (2023). Teachers and students' perceptions of using AI-supported tools on English language learning. ERIC. ERIC+1lcjournal.nida.ac.th+1
2. Benali, M. (2021). Bridging the gap: ESL teachers' views on AI integration and its implications for language learning. World Journal of English Language, 15(4), 120–135. SciEdUPress
3. Carvalho, A., & Vinall, K. (2022). Teachers' perceptions of AI in the classroom. Imagine Learning. ERIC+1Imagine Learning+1
4. Chounta, I.-A., Bardone, E., Raudsep, A., & Pedaste, M. (2022). Exploring teachers' perceptions of artificial intelligence as a tool to support their practice in Estonian K-12 education. International Journal of Artificial Intelligence in Education, 32(3), 725–755. ERIC
5. Eichler, C. (2024). Teachers' perceptions on the integration of natural language AI in language learning classrooms. University of Twente. essay.utwente.nl
6. Fernández-Sánchez, M. R., Garrido-Arroyo, M. D. C., & Porras-Masero, I. (2022). Curricular integration of digital technologies in teaching processes. Frontiers in Education, 7, Article 1005499. ERIC
7. Handini, R., & Henry, J. (2022). Teachers' perceptions on the integration of AI tools in ESL classrooms. Journal of Educational Technology & Society, 25(2), 45–60. essay.utwente.nl
8. Kalra, R. (2024). Exploring teachers' perceptions toward the integration of AI tools in the language classroom. NIDA Journal of Language and Communication, 29(45), 21–35. lcjournal.nida.ac.th
9. Kee, C. H., & Kabilan, M. K. (2025). Teachers' perceptions in using artificial intelligence (AI) in ESL classrooms. International Journal of Academic Research in Progressive Education and Development, 14(1), 2411–2425. HRMARS
10. Ma, J. (2021). Investigating the integration of artificial intelligence in English as a foreign language classroom: A systematic review. PMC. PMC
11. Mabuan, R. A. (2023). ChatGPT and ELT: Exploring teachers' voices. International Journal of Language Education, 7(3), 137–150. ERIC
12. Otsuki, T. (2020). Comparing peer, ChatGPT, and teacher corrective feedback in ESL writing. ERIC. ERIC
13. Pratama, R. A., Lestari, L. A., Kirkgöz, Y., & Imaniar, F. (2024). Teachers' perceived perspective and self-efficacy in teaching EFL using ICALL. The JALT CALL Journal, 20(3), 12–30. ERIC
14. Sharifuddin, N. S., & Hashim, H. (2024). Benefits and challenges in implementing artificial intelligence in education (AIED) in ESL classroom: A systematic review (2019–2022). International Journal of Academic Research in Business and Social Sciences, 14(1), 146–164. jite.org

15. Stringer, L. R., Lee, K. M., Sturm, S., & Giacaman, N. (2022). A systematic review of primary school teachers' perceptions of AI integration in ESL classrooms. Journal of Information Technology Education: Research, 24, 111–130. jite.org
16. Sumakul, R. (2019). Artificial intelligence in EFL classrooms: Friend or foe? Journal of Language Teaching and Research, 10(5), 1001–1008. ERIC
17. Vargas, N. (2023). Secondary ELA teacher perceptions of the use of artificial intelligence as an instructional tool. ProQuest LLC. ERIC
18. Wang, Y. (2019). The future of language education: Teachers' perceptions about the surge of large language models like ChatGPT. ERIC. ERIC
19. Zainuddin, M. Z. (2024). Teachers' perceptions of AI tools in enhancing student engagement for English language learning. Research Studies in English Language Teaching and Learning, 2(6), 367–380. ResearchGate
20. Zulkarnain, N., & Yunus, M. M. (2023). Teachers' perceptions in using artificial intelligence (AI) in ESL classrooms. ResearchGate. ResearchGate+1HRMARS+1