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THE IMPACT OF ARTIFICIAL INTELLIGENCE TOOLS ON ENGLISH LANGUAGE LEARNING: A SYSTEMATIC LITERATURE REVIEW

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Abstract

This study presents a Systematic Literature Review (SLR) that critically examines the impact of Artificial Intelligence (AI) devices on English language learning, aiming to synthesize existing empirical evidence on their effectiveness, challenges, and pedagogical implications. In an era increasingly shaped by technological advancements, AI has introduced transformative devices—from intelligent tutoring systems and chatbots to adaptive learning platforms and Natural Language Processing (NLP) applications—that are reshaping traditional language education paradigms. The review was conducted following PRISMA guidelines and involved a rigorous selection process from an initial pool of 3,810,000 articles sourced from Google Scholar, ultimately narrowing the selection to five empirical studies that met specific inclusion criteria, such as the focus on English language learning, empirical data collection, and peer-reviewed publications in English. The review findings suggest that AI-powered devices not only improve core language competencies such as grammar, vocabulary, reading comprehension, and writing skills, but also significantly enhance learner motivation and reduce language anxiety through personalized, interactive, and non-judgmental feedback mechanisms. However, the application of AI in educational contexts is not without its challenges, including concerns over data privacy, and differing perceptions between educators and learners regarding the role and reliability of AI. Most students expressed positive attitudes towards AI's capacity to facilitate self-directed and engaging learning experiences.

Keywords: Artificial Intelligence, English Language Learning, Systematic Literature Review, AI in Education

Abstrak

Studi ini menyajikan Tinjauan Literatur Sistematis (SLR) yang secara kritis meneliti dampak perangkat Kecerdasan Buatan (AI) pada pembelajaran bahasa Inggris, yang bertujuan untuk mensintesiskan bukti empiris yang ada tentang efektivitas, tantangan, dan implikasi pedagogisnya. Di era yang semakin dibentuk oleh kemajuan teknologi, AI telah memperkenalkan perangkat transformatif—dari sistem bimbingan belajar cerdas dan chatbot hingga platform pembelajaran adaptif dan aplikasi Pemrosesan Bahasa Alami (NLP)—yang membentuk kembali paradigma pendidikan bahasa tradisional. Tinjauan ini dilakukan dengan mengikuti pedoman PRISMA dan melibatkan proses seleksi yang ketat dari kumpulan awal sebanyak 3.810.000 artikel yang bersumber dari Google Scholar, yang pada akhirnya mempersempit seleksi menjadi lima studi empiris yang memenuhi kriteria inklusi tertentu, seperti fokus pada pembelajaran bahasa Inggris, pengumpulan data empiris, dan publikasi yang ditinjau sejawat dalam bahasa Inggris. Temuan tinjauan menunjukkan bahwa perangkat bertenaga AI tidak hanya meningkatkan kompetensi bahasa inti seperti tata bahasa, kosakata, pemahaman membaca, dan keterampilan menulis, tetapi juga secara signifikan meningkatkan motivasi pelajar dan mengurangi kecemasan bahasa melalui mekanisme umpan balik yang dipersonalisasi, interaktif, dan tanpa menghakimi. Namun, penerapan AI dalam konteks pendidikan bukannya tanpa tantangan, termasuk kekhawatiran tentang privasi data, dan perbedaan persepsi antara pendidik dan peserta didik mengenai peran dan keandalan AI. Sebagian besar siswa menyatakan sikap positif terhadap kapasitas AI untuk memfasilitasi pengalaman belajar yang diarahkan sendiri dan menarik.

Kata kunci: Kecerdasan Buatan, Pembelajaran Bahasa Inggris, Tinjauan Literatur Sistematis, AI dalam Pendidikan

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INTRODUCTION

The integration of Artificial Intelligence (AI) into language education is not merely a technological shift but represents a broader transformation in pedagogical philosophies and learner autonomy. In the 21st-century educational landscape, AI-driven tools are increasingly viewed as catalysts for student-centered and adaptive learning (Bahari & Ismail, 2022). AI not only personalizes learning paths but also collects extensive data that can inform evidence-based instructional decisions. For instance, predictive analytics used by adaptive platforms can identify learner weaknesses and recommend targeted exercises in real-time (Huang et al., 2020).

Another major driving force behind AI integration in language education is the rise of mobile learning and ubiquitous access to smart devices. AI-powered chatbots and speech recognition software have become widely accessible, making it possible for students to receive immediate and context-aware feedback outside the classroom (Chen, Zou, & Xie, 2021). These features are particularly helpful in regions with limited access to trained language teachers or traditional classroom infrastructure. Furthermore, the use of AI in English language learning aligns closely with global frameworks such as the UNESCO Artificial Intelligence in Education recommendations, which emphasize equity, inclusivity, and lifelong learning. AI technologies are designed not only for young learners in formal settings but also for adult learners and professionals seeking to improve their language proficiency on the go (UNESCO, 2021). These broader trends underscore the need for educators to not only adopt but critically engage with AI tools in their instructional design.

The advent of Artificial Intelligence (AI) has profoundly impacted various sectors, with education being one of the most significantly impacted domains. The incorporation of AI technology into educational environments has opened up new avenues for teaching and learning, offering personalized, efficient, and adaptive learning environments. In the context of English language learning, AI has introduced innovative tools such as intelligent tutoring systems, virtual chatbots, automated assessment software, and Natural Language Processing (NLP) applications that help learners develop skills in grammar, vocabulary, reading comprehension, writing, and pronunciation (Chiu, Lin, & Lonka, 2021).

The potential benefits of AI in language education are numerous. AI tools offer features such as real-time feedback, individualized learning paths, gamification elements, and self-paced learning opportunities that align with the increasing emphasis on learner-centered pedagogy. These tools can simulate natural communication environments, thereby encouraging engagement and reducing anxiety among learners, especially in practicing speaking skills (Kukulska-Hulme, 2020). In addition, AI has been shown to enhance learner motivation by offering interactive and responsive learning experiences (Zawacki-Richter et al., 2019).

In addition to transforming classroom practices, the development of AI also aligns with the global push towards digital transformation in education. UNESCO and other international organizations have highlighted the potential of AI to support inclusive, equitable, and quality education, especially in under-resourced contexts. With the rapid development of AI tools such as ChatGPT, Google Bard, and other language processing platforms, learners today are facing a new era of language education that goes beyond traditional textbooks and teacher-led instruction. These tools offer instant translation, pronunciation guidance, speech recognition, and personalized learning recommendations, significantly changing the way English is acquired and practiced.

The COVID-19 pandemic has accelerated the integration of technology into education, creating a surge in demand for distance and digital learning solutions. In this context, AI is emerging not only as a technological advancement but also as a practical necessity for continuity in learning. As distance and hybrid learning environments continue to evolve, the role of AI becomes increasingly important in maintaining learner engagement and tracking learning progress.

Despite these promising developments, the integration of AI in English language education is not without its challenges. Issues such as data privacy, algorithmic bias, lack of teacher training, ethical concerns, and over-reliance on technology have raised questions about the readiness and appropriateness of widespread AI adoption in educational contexts (Luckin et al., 2016). Furthermore, although many AI applications have been developed, their effectiveness and practical implementation in various educational settings remain under-explored and unevenly studied. The effectiveness of AI tools often varies depending on factors such as learner proficiency level, technological infrastructure, instructional design, and teacher facilitation (Li et al., 2021).

While several individual studies have explored the role of AI in enhancing language learning, there is a lack of comprehensive syntheses that systematically review and consolidate empirical findings in this area. Much of the existing literature focuses on specific devices or isolated outcomes without connecting to the broader pedagogical and psychological implications of AI use in language education. Furthermore, previous reviews often emphasize the potential of AI rather than critically evaluating its real-world applications, learner perceptions, and contextual barriers (Zawacki-Richter et al., 2019; Chiu et al., 2021). As a result, educators and policymakers lack a consolidated framework to guide the ethical and effective integration of AI technologies into English language teaching.

To address this gap, the current study conducted a Systematic Literature Review (SLR) to evaluate empirical evidence on the effectiveness, challenges, and learner-teacher perceptions of AI tools in English language learning. This review aims to bridge the existing knowledge gap by synthesizing the results of various empirical studies, providing a holistic understanding of the impact of AI in language education, and offering recommendations for its practical and ethical implementation.

Furthermore, the application of AI in English language education must also take into account the digital divide and varying levels of technological literacy among students and teachers. In many regions, limited access to infrastructure, devices, or stable internet connectivity may hinder the effective use of AI tools. In such cases, the use of AI may inadvertently widen the

educational gap rather than reduce it (VanLehn, 2011). Furthermore, some educators may lack the necessary training to fully integrate AI technologies into their teaching practices, highlighting the importance of institutional support and professional development.

It is also worth noting that the cultural context in which language learning occurs may influence how AI tools are received and used. Cultural attitudes toward technology, teacher authority, and learner autonomy may shape learners' openness to AI-mediated instruction. For example, in some cultures, learners may reject AI feedback in favor of a traditional teacher-centered approach, while in others, students may welcome the opportunities for self-directed learning that AI enables.

The increasing presence of AI in educational contexts also raises philosophical and pedagogical questions about the role of human interaction in learning. While AI can replicate many instructional functions, it cannot replicate nuanced human elements such as empathy, encouragement, and moral guidance. So, while AI should be embraced for its power in personalization and efficiency, it must also be carefully balanced with the irreplaceable contributions of human educators.

METHODS

This study used the Systematic Literature Review (SLR) methodology based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. This approach was chosen to ensure a comprehensive and structured examination of empirical studies investigating the impact of Artificial Intelligence (AI) on English language learning. By following PRISMA, the review process adhered to the principles of transparency, rigor, and replicability. The purpose of this review was to answer several main research questions, namely: (1) How do AI applications affect learners' motivation and psychological engagement in English language learning? (2) What challenges and limitations are associated with the application of AI in English language teaching? and (3) How are AI tools perceived by learners and educators in terms of effectiveness and usability?

The data collection process began with a search conducted on Google Scholar, using a combination of keywords such as "Artificial Intelligence" and "English Language Learning,". The search was limited to studies published between 2019 and 2024 in English and yielded approximately 3,810,000 records. After duplicate records and irrelevant results were removed, 25 articles were screened based on their titles and abstracts.

The following inclusion criteria were applied: (1) studies had to be peer-reviewed; (2) research had to involve empirical data (quantitative, qualitative, or mixed methods); (3) studies had to explicitly focus on AI tools used in English language learning contexts; and (4) outcomes or perceptions regarding learning impacts had to be reported. Articles were excluded if they were theoretical papers, not written in English, or did not address the use of AI in English language teaching. The full texts of the 23 articles were assessed for eligibility, and 10 empirical studies were ultimately selected that met all inclusion criteria. These five studies varied in design, including experimental studies, qualitative analyses, and mixed methods approaches. The PRISMA flowchart was used to illustrate the process of study identification, screening, eligibility, and inclusion.

Data were then extracted from each study, including information on authorship, year of publication, type of AI tool used, participant demographics, methodological approach, and key findings related to learning outcomes and motivation. Data were analyzed using a thematic synthesis approach, identifying patterns and themes across the selected studies. These themes were organized around the guiding research questions to enable a narrative synthesis that draws general conclusions about the impact and implications of AI in English language education.

Despite the strengths of this review, several limitations are acknowledged. The use of a single search database may have limited the scope of the literature retrieved. Furthermore, language bias may have existed due to only including English-language publications. Finally, publication bias may have influenced the findings, as studies with positive outcomes are more likely to be published. Nonetheless, the structured and critical approach adopted in this review offers valuable insights into current trends and challenges in the integration of AI tools in English language learning.

RESULTS AND DISCUSSION

Results

A systematic review of ten empirical studies revealed the multifaceted impact of Artificial Intelligence (AI) devices on English language learning, particularly in enhancing language competence, learner engagement, and instructional personalization. The findings were categorized under three main themes: (1) language skill enhancement, (2) learner motivation and affective outcomes, and (3) differences in usability and perceptions between learners and teachers.

1. Language Skill Enhancement

A dominant finding across the studies was that AI devices contributed significantly to the enhancement of core English language competencies—specifically grammar, vocabulary, reading comprehension, writing, and speaking. In an experimental study by Ling Wei (2023), students in the AI-assisted group (using Duolingo) outperformed the control group in vocabulary retention and reading comprehension. Similarly, Zhang Yifan (2024) noted that learners exposed to AI-assisted learning demonstrated greater academic achievement and reported increased enjoyment, attributing these successes to adaptive learning features and real-time feedback. Writing skills were significantly improved through AI-based writing assistants such as Grammarly and ChatGPT. Fayza et al. (2023) reported that university-level EFL students used AI to create, revise, and refine their academic writing, thereby improving sentence structure, coherence, and grammar usage. This is in line with Wang & Vasquez (2022) who found that AI-generated feedback helped learners identify grammatical inconsistencies and syntactic errors more effectively than traditional peer review methods.

In the area of speaking and pronunciation, chatbots and speech recognition AI systems provide a low-anxiety environment for learners to practice oral communication. Aljohani (2021) observed that AI chatbots allow teachers and students to simulate real-time conversations, supporting fluency and listening comprehension while eliminating the fear of being judged often associated with speaking tasks in the classroom.

2. Psychological Engagement and Learner Motivation

AI tools have also been found to significantly increase psychological engagement and learner motivation. Zhang (2024) and Suh (2025) showed that gamification elements in AI platforms (e.g., progress bars, badges, reward systems) increased students' enthusiasm and self-efficacy. These findings are supported by Bahari & Ismail (2022), who emphasize the role of gamification and personalization in sustaining learner interest over time.

In addition, learners appreciate the autonomy and control that AI tools provide over their own learning pace. Rosmayanti (2024) reported that over 80% of students felt empowered by the ability to write and revise independently using tools such as Grammarly and ChatGPT, which increased their intrinsic motivation to learn English. The non-judgmental nature of AI-generated feedback reduces anxiety and encourages experimentation, especially in speaking tasks (Chen et al., 2021; Jawza Alshammari, 2024).

Several studies have also highlighted that AI-enabled platforms support self-regulation and metacognitive skills. Learners are better able to set goals, monitor progress, and adjust learning strategies in real time (Yin & Satar, 2022). This orientation to self-directed learning is critical for both formal academic success and lifelong learning.

3. Learner and Teacher Perceptions of Effectiveness and Usefulness

The findings show a general difference in perceptions between learners and teachers regarding the role of AI in English language education. Learners expressed strong approval of AI tools due to their accessibility, immediate feedback, and support for self-directed learning (Om Kumar, 2023). In contrast, teachers raised concerns about the ethical implications of relying too heavily on the technology, such as the potential for AI to limit critical thinking and reduce meaningful interpersonal interactions (González-Lloret, 2021; Rahimi & Zhang, 2022).

Aljohani (2021) emphasized that while students viewed AI tools as motivating and convenient, teachers remained cautious, noting the lack of emotional intelligence and the difficulty of tailoring AI feedback to specific cultural or learner needs. However, some educators reported more positive attitudes when they had received adequate training, recognizing that AI could reduce the workload in repetitive tasks and enhance personalized instruction (Wang & Vasquez, 2022).

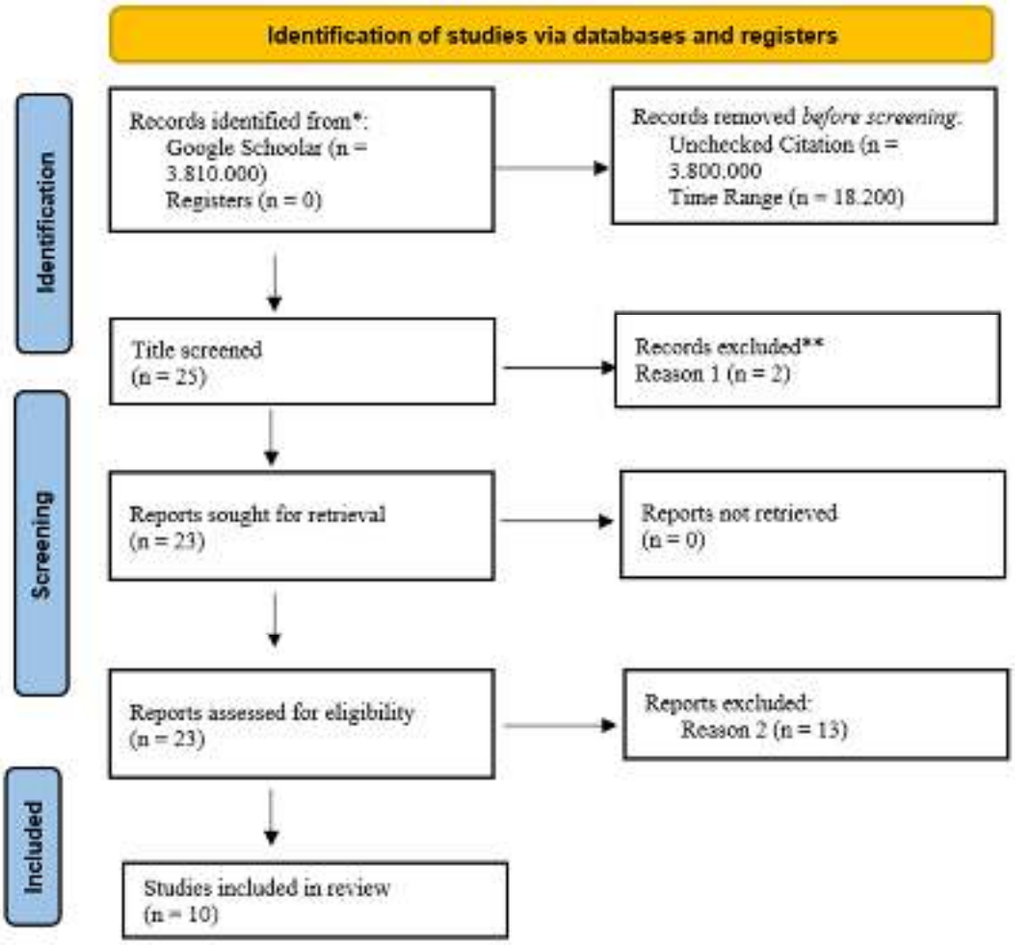

Figure 1. PRISMA Flowchart

Reason 1: the article is not in sync with the title and content
Reason 2: Not focused on the Impact of AI

The process of selecting articles for this Systematic Literature Review was conducted according to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flowchart, which outlines the steps taken from initial identification to final inclusion of studies. Initially, a total of 3,810,000 records were identified through a comprehensive search conducted through Google Scholar using a combination of relevant keywords related to Artificial Intelligence and English language learning. At this stage, duplicate entries and articles published outside the specified timeframe were excluded, thereby narrowing the selection significantly. 25 article titles were screened for relevance based on their alignment with the research topic. 2 articles were excluded due to a mismatch between their title and content. Next, 23 full-text articles were assessed for eligibility. Of these, 13 were excluded because they did not directly focus on the impact of AI on English language learning, either because they discussed general educational technology, or theoretical models without empirical data, or did not have sufficient information on outcomes. As a result of this rigorous screening process, a total of 10 empirical studies were found to meet all inclusion criteria and were included in the final review. These studies provide data on the use of specific AI tools—such as Duolingo, chatbots, and intelligent tutoring systems—in English language education and

offer insights into learning outcomes and learner perceptions. The PRISMA flowchart illustrates this multiphase process of identification, screening, eligibility, and inclusion, ensuring a transparent and reproducible methodology for synthesizing the existing literature.

Table 1. Summary of Empirical Studies

No.	Authors	Type of AI	Methods	Number of Samples	Result
1.	Ling Wei (2023)	Duolingo	The experimental group (AI vs Control Group)	60 University Students	the experimental group achieved significantly higher English learning outcomes in all areas assessed compared to the control group.
2.	Muslim Fikri (2023)	AI in various applications	Analyzing Qualitative Articles	8 articles from scientific journals	positively impacts students' speaking and writing abilities through grammar.
3.	Dina Amaliyah Mushthoza, Nur Syariatin, Olivia Tahalele, Sandra Ivonnie Telussa, Rasmita, Sabil Mokodenseho (2023)	Chatbot and ITS (Intelligent Tutoring Systems)	Analyzing the impact of artificial intelligence (AI) on English teaching and learning	Not mentioned	AI improves learning effectiveness with intelligent tutoring systems, chatbots, and automated assessments.
4.	Reema Ali Aljohani (2021)	Chatbots	quantitative method.	5 teachers and 16 students	The majority of participants agreed that AI improves the English learning experience, supports the personalization of learning, and helps with language assessment and practice.
5.	Zhang Yifan (2024)	Duolingo	an experimental group	90 EFL students	AI-based teaching methods not only improve academic achievement but also create a more supportive and interactive learning environment

No.	Authors	Type of AI	Methods	Number of Samples	Result
6.	Fayza et al. (2023)	ChatGPT, Grammarly, Google Translate, QuillBot	Qualitative (semi-structured interviews)	10 undergraduate EFL students	AI helps academic writing: idea generation, structure, proofreading.
7	Vivit Rosmayanti (2024)	Grammarly, ChatGPT, etc.	Mixed (quantitative survey + qualitative interviews)	100 students	89% report efficiency; 82% improve writing; concern over over-reliance.
8.	Simon Suh (2025)	ITS like Santa, Duolingo	Quasi-experiment (pre-post test)	34 students	Increased engagement, scores, and satisfaction post-AI intervention.
9.	Jawza Alshammari (2024)	ChatGPT	Qualitative (interviews + focus group)	6 individuals + 4 groups	Improved reading, writing, grammar; supports self-directed learning; risk of dependency.
10.	Om Kumar (2023)	Chatbots, mobile AI	Quantitative (online questionnaire)	Students at Quest University, Pakistan	Higher motivation, enjoyment, skill improvement; varying AI acceptance.

Discussion

1. The Effect of AI Applications on Learners' Motivation and Psychological Engagement

The results of a systematic review show that the use of Artificial Intelligence (AI) applications has a positive effect on students' motivation and psychological engagement in learning English. Several studies have stated that AI-based learning environments—through platforms such as Duolingo, chatbots, and Intelligent Tutoring Systems (ITS)—provide interactive, personalized, and responsive learning experiences to individual needs. These environments have been shown to increase enthusiasm for learning, encourage independent learning, and strengthen students' self-confidence.

Features such as gamification, adaptive learning paths, and real-time, non-judgmental feedback provide a safe space for learners to explore their language skills without fear of making mistakes. This directly reduces anxiety in learning, especially in speaking skills. Zhang's study (2024), for example, showed that students in the experimental group who used Duolingo not only showed higher academic achievement but also showed greater motivation and more active engagement than the control group. In addition to gamification and personalized learning experiences, AI-driven environments can also facilitate goal-setting and progress tracking, which are known to enhance intrinsic motivation. Recent studies indicate that learners who receive AI-generated feedback and milestone updates are more likely to remain engaged and self-regulated in their language learning journey (Yin & Satar, 2022). AI's ability to simulate real-life conversation contexts through chatbots has also been found to improve learners'

willingness to communicate, a key predictor of success in second language acquisition (Chen et al., 2021).

Moreover, motivational benefits are not only seen among younger students. Adult learners, especially those engaged in professional or continuing education, report increased satisfaction and reduced stress when using AI tools that allow flexible, self-paced study (Bahari & Ismail, 2022). These findings suggest that AI systems, when properly designed, can accommodate a diverse range of learners with varying motivational profiles and cognitive needs.

2. Challenges and Limitations in the Application of AI in English Language Teaching

Although AI offers various pedagogical benefits, its application in English language learning also faces a number of challenges that need to be taken seriously. The main challenges include:

- Data privacy, especially in cloud-based AI systems that store large amounts of user information and often without direct control from the user.
- Algorithmic bias, which can lead to inequities in learning outcomes due to the tendency of AI to respond non-neutrally to linguistic variations or user backgrounds.
- Lack of technological literacy, both on the part of teachers and students, which can hinder the maximum use of AI.
- Over-reliance on technology, which can weaken students' critical thinking skills when they receive answers from AI without a process of reflection or discussion.
- Lack of training for teachers, resulting in a lack of readiness to integrate AI effectively into the learning process.

In addition, studies also show a gap in access to technology, which can exacerbate educational disparities, especially in areas that lack adequate digital infrastructure. Therefore, AI integration needs to be accompanied by data protection policies, inclusive design, and adequate training and institutional support for educators. Despite their promise, AI tools bring forth numerous pedagogical and ethical dilemmas. For instance, a growing body of research has raised concerns over the “black box” nature of many AI algorithms, which can make it difficult for teachers and learners to understand how decisions—such as feedback or grading—are generated (Rahimi & Zhang, 2022). This lack of transparency can erode trust in the technology and hinder its integration into formal curricula.

Additionally, while AI can provide consistent corrective feedback, it often lacks the nuance needed to address pragmatic language use, idiomatic expressions, or culturally embedded communication styles. This is particularly concerning in EFL contexts, where learners need not only grammatical accuracy but also sociolinguistic competence (González-Lloret, 2021). Infrastructure challenges also persist, particularly in developing regions where internet connectivity and access to modern devices remain limited. Without targeted investments and policy interventions, the use of AI risks deepening the digital divide, rather than closing educational gaps (UNESCO, 2021). As such, AI integration must be accompanied by equitable access policies, ongoing teacher training, and context-sensitive curriculum adaptation.

3. Perceptions of AI Tools by Learners and Educators in Terms of Effectiveness and Usability

Perceptions of AI in English language learning tend to be positive from the perspective of learners. They consider that AI supports the learning process in a more flexible and personal way, and is able to provide assistance in mastering language skills, especially in terms of

grammar, writing, and speaking. Most students appreciate the automatic feedback, access to self-study, and increased motivation to learn thanks to an engaging and non-intimidating approach.

From the perspective of educators, the use of AI is still viewed with caution. Teachers acknowledge the potential of AI to enrich the learning experience, but emphasize that AI should function as a supporting tool, not a substitute for humans in the educational process. Teachers also highlight the importance of human involvement in providing emotional guidance, cultural context, and the development of critical and reflective thinking. Reema Ali Aljohani's study (2021) shows that although most students and teachers agree that AI provides benefits in language learning, teachers still demand clear guidelines to ensure that the use of AI remains within the right ethical and pedagogical corridors.

The review reveals an evolving but still divergent perception of AI between students and educators. While learners often view AI tools as engaging and convenient, many educators' express concerns over their pedagogical role. Teachers worry that reliance on AI could deskill their profession or reduce opportunities for human interaction, which remains essential for holistic learning development (Tegos, Demetriadis, & Tsiatsos, 2021)

However, some educators who have received targeted training on AI integration report more positive attitudes. They find that AI can assist with time-consuming tasks—such as grading or generating practice materials—thus allowing them to focus on higher-level instructional design and student mentoring (Wang & Vasquez, 2022). This shift in perception underscores the importance of professional development programs that not only introduce teachers to AI tools but also build their confidence and critical digital literacy. Ultimately, learner and teacher perspectives should be seen as complementary rather than conflicting. By fostering collaborative dialogue between developers, educators, and students, AI tools can be refined to better align with pedagogical values and classroom realities.

CONCLUSION

A systematic review found that the integration of AI tools in English language learning offers substantial pedagogical benefits while also presenting important challenges. The effectiveness of AI in improving language acquisition is well supported by empirical data, with tools such as Duolingo and chatbots providing interactive and personalized instruction that outperforms traditional methods in many cases. Learners benefit from features such as real-time feedback, adaptive difficulty levels, and autonomous access to learning materials, all of which contribute to improved outcomes in grammar, vocabulary, reading comprehension, and writing.

Studies report that AI tools can foster intrinsic motivation by making the learning process more engaging, game-like, and responsive to individual needs. This is particularly useful in foreign language learning, where learners often face anxiety or fear of making mistakes. AI tools, through consistent and non-judgmental feedback, provide a safe space to experiment and improve. These features can lead to greater learner autonomy and more positive attitudes towards language learning.

However, the challenges highlighted in the review should not be underestimated. Data privacy issues emerge as a major concern, particularly with cloud-based AI tools that collect and

process large amounts of user data. Without strict regulation and transparent practices, students' personal information may be at risk. Similarly, algorithmic bias—when AI systems favor certain linguistic patterns or user demographics—can lead to inequitable learning outcomes. This highlights the need for inclusive AI design that takes into account diverse learners' backgrounds.

Another important issue is the potential for AI to diminish students' critical thinking skills. Over-reliance on AI-generated answers or corrections can lead students to passively receive information, rather than engage in analytical thinking. Educators expressed concerns that while AI can supplement instruction, it should not be a substitute for the critical discourse and human interaction that are essential in language education.

The review also uncovered a perception gap between students and teachers. While students largely viewed AI positively—appreciating its support for learning and anxiety reduction—teachers were more cautious. They acknowledged AI's potential but emphasized that AI must be implemented in conjunction with teacher guidance. Teachers play a critical role in contextualizing content, offering emotional support, and fostering higher-order thinking—tasks that current AI systems cannot perform.

To achieve effective and ethical integration of AI in English language education, several steps must be taken. First, professional development programs should be introduced to train educators in using AI tools effectively and critically. Second, institutional policies should address data protection, algorithmic transparency, and equitable access. Third, AI developers should collaborate with educators to ensure that tools align with pedagogical goals and uphold values such as inclusivity and learner-centeredness.

Ultimately, the successful adoption of AI in language learning depends on a balanced approach. AI should be seen not as a replacement for teachers, but as a complementary tool that enhances the learning experience. By combining the efficiency and adaptability of AI with the empathy and expertise of human educators, a more dynamic and inclusive language learning environment can be created.

While AI systems show considerable promise, their full potential in language education can only be realized when integrated thoughtfully and ethically. Educators should not view AI as a replacement for traditional teaching but rather as a tool to enhance the learning process. This requires deliberate planning, alignment with curriculum goals, and critical assessment of AI-generated feedback. Without this, AI tools may become novelty rather than necessity.

Moreover, as AI continues to evolve, longitudinal studies are necessary to determine its long-term impact on learners' cognitive and emotional development. For example, researchers have begun to investigate how frequent interaction with AI systems might alter students' learning strategies, metacognitive awareness, and even language ideologies (González-Lloret, 2021).
Ultimately, the implementation of AI in English language education must be humanized. Technological efficiency must be balanced with the values of empathy, inclusivity, and cultural responsiveness (UNESCO, 2021; Bahari & Ismail, 2022).

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