



A Literature Review of Artificial Intelligence in Enhancing English Language Skills

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Abstract

This study reviews recent literature on the role of Artificial Intelligence (AI) in education, with a particular focus on its application in enhancing English language skills. Four articles published in 2025 were analyzed to examine AI's contribution across systemic, institutional, and learner levels. The findings show that AI supports adaptive learning, inclusivity, and sustainability, although much research remains descriptive and does not sufficiently address ethical and pedagogical issues. Broader frameworks such as Education 5.0 stress the importance of human-AI collaboration and lifelong learning, while also noting risks such as inequality and skill loss. At the institutional level, teacher educators acknowledge AI's potential for innovation but highlight the need for professional development and ethical guidelines. From the learner perspective, trust and enjoyment are stronger predictors of AI adoption than ease of use, suggesting that engagement is critical for success. In English language learning, these insights indicate that AI tools such as chatbots and generative applications can effectively support skill development when integrated within ethical and learner-centered practices.

Abstrak

Penelitian ini mengkaji literatur terbaru mengenai peran Kecerdasan Buatan (Artificial Intelligence/AI) dalam pendidikan, dengan fokus khusus pada penerapannya dalam meningkatkan keterampilan bahasa Inggris. Empat artikel yang diterbitkan pada tahun 2025 dianalisis untuk meninjau kontribusi AI pada level sistemik, institusional, dan pembelajar. Hasil kajian menunjukkan bahwa AI mendukung pembelajaran adaptif, inklusivitas, dan keberlanjutan, meskipun sebagian besar penelitian masih bersifat deskriptif dan belum banyak membahas isu etika serta pedagogi. Kerangka yang lebih luas, seperti Education 5.0, menekankan pentingnya kolaborasi manusia-AI dan pembelajaran sepanjang hayat, sekaligus mengingatkan adanya risiko seperti ketidaksetaraan dan hilangnya keterampilan. Pada level institusional, pendidik guru mengakui potensi AI dalam mendukung inovasi, tetapi menyoroti perlunya pengembangan profesional dan pedoman etika. Dari perspektif pembelajar, kepercayaan dan rasa senang lebih berpengaruh terhadap adopsi AI dibandingkan dengan kemudahan penggunaan, sehingga keterlibatan menjadi faktor penting untuk keberhasilan. Dalam pembelajaran bahasa Inggris, temuan ini menunjukkan bahwa alat AI seperti chatbot dan aplikasi generatif dapat mendukung pengembangan keterampilan secara efektif apabila diintegrasikan dalam praktik yang etis dan berpusat pada peserta didik.

INTRODUCTION

Artificial Intelligence refers to the science and engineering used to make smart system, in computer science domain which helping in technological advancement (Rituraj Mahato, 2022). The use of Artificial Intelligence (AI) in learning has been an interesting and rapidly growing topic in recent years, the history of using AI in learning as a long history and continues to evolve over time. During the 1950 and 1960, in the early stages of artificial intelligence development, researchers began creating computer programs designed to stimulate human learning processes. One of the earliest examples was the *Logic Theorist*, developed by Allen Newell and Herbert A. Simon in 1955, which was capable of solving mathematical problems through symbolic problem-solving techniques (Anyoha, 2017). Decades later, particularly from the 2010 onward, rapid advancements in computing power, digital technologies, and data collection significantly accelerated the application of AI in



education. Deep neural networks and deep learning methods became central areas of focus, enabling AI systems to analyze large-scale data, recognize complex patterns, develop deeper insights, and generate more accurate predictions.

The application of artificial intelligence (AI) in education provides many advantages. However, its implementation has also generated polemics that remain the subject of debate in various settings. Some of the major issues include:

1. **Dependence on Technology:** A primary concern is that excessive reliance on AI may replace the role of teachers and reduce meaningful human interaction in the classroom. Many argue that such interaction is a vital component of learning that technology cannot fully substitute.
2. **Inequality of Access:** The integration of AI in education can lead to disparities in access, particularly in regions with varying levels of technological development and infrastructure. Unequal access to AI resources among schools and students has the potential to widen existing educational inequalities.
3. **Loss of Humanity:** Critics often emphasize that the growing use of AI in education may reduce opportunities for teachers to directly impart human values, empathy, and social awareness. Learning processes dominated by technology may fail to provide a fully holistic and humanized educational experience.
4. **Data Privacy and Security:** Concerns over data protection and security represent another significant challenge. Strong policies and safeguards are required to ensure that students' personal information is protected and not misused during the collection and processing of data by AI systems.
5. **Bias and Discrimination:** AI systems can be vulnerable to bias and discrimination if they are not carefully designed and implemented. When algorithms fail to incorporate principles of diversity and inclusion, their use in education may unintentionally reinforce existing inequalities and social divides.

Nye (2015) examines the application of intelligent tutoring systems in developing countries. The article outlines various difficulties integrating intelligent learning technologies within educational settings that lack sufficient resources. One of the key issues discussed is the limited availability and reliance on web-based access when adopting Intelligent Tutoring Systems (ITS) in classrooms. Nye concludes that web-dependent ITS may not be entirely suitable for schools in such contexts. However, the author also points out that their effectiveness can still be maintained outside school settings if data usage is properly managed. The paper further introduces alternative strategies like the "well" model, Learning Vans, and other approaches designed to reduce these challenges.

Rasmitadila et al. (2020) report that Indonesian primary school teachers hold varying views about online learning during the pandemic. Some teachers see online learning as beneficial for ensuring educational continuity, while others struggle with its application. Factors shaping these perceptions include limited technological access, teachers' preparedness and skills in operating online platforms, and the difficulty of sustaining social interaction and student engagement in remote learning contexts.

Dwivedi et al. (2020) investigate how the pandemic has reshaped education, work, and personal life. The study emphasizes how COVID-19 accelerated the

integration of digital technologies and remote work, compelling both organizations and individuals to adapt to new information management practices. The authors highlight the challenges and opportunities that emerged in fields such as online education, digital healthcare, virtual collaboration, and the use of artificial intelligence and data analytics in pandemic management.

Atmojo & Nugroho (2020) explore the issues and teaching methods connected with English as a Foreign Language (EFL) instruction in Indonesia during the COVID-19 pandemic. Their paper describes how the health crisis forced a shift toward online learning in English education. The authors present examples of online teaching activities, such as the use of digital platforms, interactive tools, and mobile apps to support English learning. In addition, they stress the difficulties encountered by both educators and learners, including poor internet connectivity, insufficient access to devices, and the struggle to maintain direct teacher–student interaction in online learning environments.

Although AI offers many benefits, it also poses risks that can hinder its effectiveness. One challenge is the rise of unstructured data from sources like social media and mobile devices, which complicates data management (Samandari et al., 2019). Technical problems may prevent critical information from being revealed, while security threats such as fraud, hacking, and data loss endanger cloud systems (Singh & Singh, 2019). In addition, misbehaving models can produce biased or unstable results, reducing efficiency. Human–machine interaction issues also increase the risk of accidents when users are unfamiliar with AI-driven systems (Samandari et al., 2019; Amodei et al., 2016). These risks highlight the need for policymakers to address safety and reliability in AI applications.

Based on the background presented above, the formulation of the problem that can be identified is: What effect does the utilization of AI have on learning process?

METHODS

The method that used for this research is literature review. A literature review is a crucial initial step in developing the research plan. It involves a systematic exploration of existing scholarship through books, journals, and other relevant publications related to the research topic, with the aim of producing a comprehensive account of a particular issue or topic (Marzali, 2016).

Hart (2018) explains that a literature review is a structured process that includes gathering, assessing, and synthesizing information related to a specific research topic. It's main objective is to gain an understanding of prior studies, highlight existing knowledge gaps, and establish a strong theoretical basis for the research being carried out.

A literature review enables the researcher to understand prior studies, build credibility, and demonstrate mastery of the research topic. It connects the current study with the broader academic discourse, showing how the research aligns with or extends existing work. A good review also synthesizes what is known, debated, and unexplored, highlighting possible directions for future inquiry. Finally, by learning from previous studies, the researcher can identify gaps, generate new insights, and propose hypotheses for further research (Neuman, 2011; Creswell, 2003).

Literature review is conducted with the awareness that knowledge is continuously expanding developing, and that the research topic and variables to be examined have already been explored by other scholars. In this regard, researchers

can learn from previous studies, as they are not the first to investigate the topic or problem in question. A literature reviews serves two main purposes. First, it may be undertaken with the aim of writing an article that introduces new studies within a specific field, which should be recognized by those engaged in that discipline, such reviews may also be published for the benefit of the wider public. Second, a literature review is conducted as part of preparing a research plan, enabling researchers to identify gaps, refine their focus, and position their work within the broader body of existing knowledge.

For the article the researcher want to review there are 4 articles which follows:

1. Prilop, C., et al. (2025). Generative AI in teacher education: Educators' perceptions of transformative potentials and the triadic nature of AI literacy.
2. Guo, Y., & Erdenebold, L. (2025). Factors influencing intention to adopt an AI chatbot for learning in higher education.
3. Lachheb, A., et al. (2025). AI in higher education: A bibliometric analysis, synthesis, and a critique of research.
4. Chigbu, B. I., & Makapela, S. L. (2025). AI in education, sustainability, and the future of work: An integrative review of Industry 5.0, Education 5.0, and Work 5.0.

RESULT AND DISCUSSION

RESULT

For the result of literature review, there are focus, method and findings about AI in education as follows:

Prilop, C., et al. (2025). *Generative AI in teacher education: Educators' perceptions of transformative potentials and the triadic nature of AI literacy.*

- **Focus:** Investigates teacher educators' perceptions of generative AI (e.g., ChatGPT) in teacher education.
- **Method:** Mixed methods (survey of 91 educators + AI-assisted analysis).
- **Findings:**
 - AI offers opportunities such as innovative teaching methods and workload reduction.
 - Risks include ethical concerns, student over-reliance, and difficulties in assessment.
 - Three key themes: **AI literacy, AI didactics, and AI assessment.**
 - Calls for teacher professional development and ethical frameworks for AI use.

Guo, Y., & Erdenebold, L. (2025). *Factors influencing intention to adopt an AI chatbot for learning in higher education.*

- **Focus:** Examines what drives students to adopt AI chatbots in higher education.
- **Method:** Survey of 635 students; analysis using PLS-SEM, IPMA, and ANN.
- **Findings:**
 - **Perceived enjoyment** and **trust** are the strongest predictors of adoption.
 - **Performance expectancy** and **personal innovativeness** moderately influence adoption.

- **Effort expectancy** and **social influence** have little or no significant effect.
- Suggests that enjoyment and trust matter more than ease of use in AI chatbot adoption.

Lachheb, A., et al. (2025). *AI in higher education: A bibliometric analysis, synthesis, and a critique of research.*

- **Focus:** Provides a bibliometric and critical review of AI research in higher education.
- **Method:** Bibliometric analysis combined with topic modeling and qualitative critique.
- **Findings:**
 - Main themes include adaptive learning, intelligent tutoring systems, ethics, inclusivity, and AI literacy.
 - Notes that much AI in education research is **descriptive** rather than **critical or evaluative**.
 - Ethical and pedagogical considerations are often underexplored.
 - Highlights the need for more rigorous and inclusive studies that integrate AI literacy as a central concept.

Chigbu, B. I., & Makapela, S. L. (2025). *AI in education, sustainability, and the future of work: An integrative review of Industry 5.0, Education 5.0, and Work 5.0.*

- **Focus:** Explores how AI links Industry 5.0, Education 5.0, and Work 5.0 through sustainability and human-centric principles.
- **Method:** Integrative literature review of 200 sources (62 included), covering empirical studies and policy reports (UNESCO, EC, WEF, ILO).
- **Findings:**
 - AI should **augment** rather than replace human work (human-AI collaboration).
 - Education 5.0 must develop skills and lifelong learning to support Industry 5.0 and Work 5.0.
 - Sustainability and social well-being are shared goals across all domains.
 - Benefits include ergonomics, curriculum alignment, and green jobs; risks include inequality, deskilling, and sustainability-washing.

DISCUSSION

The discussion in this article aims to: What effect does the utilization of AI have on learning process?

Research on Artificial Intelligence (AI) in education has grown rapidly, presenting both opportunities and challenges. A bibliometric analysis by Lachheb et al. (2025) shows that AI in higher education has centered on adaptive learning, intelligent tutoring, inclusivity, and ethics. While these studies emphasize AI's potential for personalization and accessibility, much of the literature remains descriptive, with limited attention to issues of equity, pedagogy, and ethics. This highlights the need for more critical and reflective approaches.

Building on this, Chigbu and Makapela (2025) examined AI across education, work, and industry through Education 5.0 and Industry 5.0. They argue that AI should enhance rather than replace human contributions, aligning with sustainability, well-being, and lifelong learning. Although AI can reframe curricula and prepare learners for future work, risks such as inequality, deskilling, and superficial sustainability remain if implementation lacks careful planning.

At the institutional level, Prilop et al. (2025) explored teacher educators' views of generative AI, identifying three domains for integration: AI literacy, didactics, and

assessment. While educators valued AI's potential to innovate and reduce workload, concerns about ethics, student dependency, and assessment challenges were also noted, underlining the need for professional development and ethical guidance.

From a learner perspective, Guo and Erdenebold (2025) studied AI chatbot use in higher education, finding that enjoyment and trust outweigh ease of use and social influence in adoption. Students view AI not only as efficient but also as engaging and trustworthy, which is particularly significant for language learning where motivation and authentic interaction are essential.

Overall, AI in education operates on systemic, institutional, and individual levels. Systemic research should move beyond descriptive accounts toward critical, inclusive, and sustainability-driven perspectives. Institutions need AI literacy and ethical frameworks, while learners' trust and engagement are key to adoption. For English language learning, this suggests that AI tools such as generative systems and chatbots are most effective when implemented ethically, sustainably, and with a learner-centered focus.

CONCLUSION

This literature review analyzed four recent studies on the use of Artificial Intelligence (AI) in education. The findings indicate that AI provides valuable opportunities to support adaptive learning, inclusivity, and sustainability, yet many studies remain descriptive and lack deeper critical attention to ethics and pedagogy. Broader frameworks, such as Education 5.0, highlight the role of AI in complementing human work, fostering lifelong learning, and preparing learners for future workforce demands, while also warning of challenges such as inequality and deskilling.

At the institutional level, teacher educators acknowledge AI's potential for innovation but raise concerns regarding ethical issues, student dependency, and assessment. This underscores the need for professional development and clear ethical guidelines. From the learner's perspective, trust and enjoyment are more decisive than ease of use in influencing the adoption of AI tools. In the context of English language learning, these insights suggest that AI applications, including chatbots and generative tools, can enhance skills effectively when embedded within ethical, inclusive, and learner-centered practices. Future research should therefore focus on equity, teacher readiness, and critical reflection to ensure AI serves as a supportive partner in language education.

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