

Exploring the Integration of Artificial Intelligence in English Language Teaching: Trends, Challenges, and Pedagogical Implications

Zaenul Wafa^{1*}, Eka Fanti Sulistyaningsih¹

¹Universitas An Nuur, Purwodadi, Indonesia

zaenulwafa@unan.ac.id*

| Received: 23/01/2025 | Revised: 30/01/2025 | Accepted: 31/01/2025 |

Copyright©2025 by authors, all rights reserved. Authors agree that this article remains permanently open access under the terms of the Creative Commons Attribution License 4.0 International License

Abstract

The integration of Artificial Intelligence (AI) in English Language Teaching (ELT) has significantly transformed teaching methodologies and enhanced learning experiences. This study explores AI's role in ELT, focusing on current trends, challenges, and pedagogical implications through a systematic literature review. The data sources used was academic journal, book references and international journals. While the data collection method comprised document analysis and the data analysis technique employed Miles & Huberman Model 1994. The key findings reveal that AI promotes adaptive and interactive learning environments, motivating students and reducing language learning anxiety. However, challenges remain, including ethical concerns such as data privacy, potential over-reliance on AI, and its inability to replicate human emotional understanding and creativity. Furthermore, the study highlights the need for teacher professional development to ensure the effective and ethical use of AI in classrooms. AI's pedagogical implications include fostering personalized learning experiences, enhancing learning outcomes, and enabling efficient assessments. Although AI offers numerous benefits, its integration in ELT should be balanced, considering the ethical and emotional aspects of education.

Keywords: Artificial Intelligence, English Language Teaching, Personalized Learning, Pedagogy, Educational Challenges

1. Introduction

In recent years, Artificial Intelligence (AI) has attracted massive attention particularly in education. The emerge of Artificial Intelligence not only transform the teaching methodology but enhance learning experience. In English Language Teaching (ELT), AI is used to create interactive activities, enhance learning experience and increase motivation. AI offers several potential to enhance EFL education paradigm. The use of these technologies influences how students acquire language skills and how educators present material and make the process of teaching and learning process more effective. Beside of that, these technologies have impact to enhance EFL learners' motivations, engagement, and attitude, and reduce the students' anxiety (AlTwijri & Alghizzi, 2024). The use of AI in language instruction has the potential to advance autonomous learning, the students can access these technologies independently anytime and

anywhere. These technologies facilitate the students to individualized learning in providing the students' progress, preferences, and learning styles.

AI driven ELT tools can support students in developing the language skill necessary for academic writing, research, presentation and participation in classroom discussion. AI is the simulation of human intelligence in machines that enable to perform tasks that resemble human intelligence such as problem solving, understanding natural language and recognizing patterns (Umar, 2024). The use of AI provides a promising chance to explore innovation in language teaching and learning such as adaptive learning system, natural language processing (NLP) and machine learning (Wihastyanang, 2024). One of advantages of using AI is to assist human activity and productivity by using prompt, then AI run the task based on the prompt. The teacher can utilize AI to compose teaching material, test questions and giving feedback. Therefore, the role of AI contributes in teaching and learning process not only teachers but the students as well. In addition, (Akbarani, 2024) conveyed that Artificial Intelligence can accommodate and facilitate in teaching and learning. The tools that can used by teachers and students based on language skills for instance AI writing tools are ChatGPT and Gemini, AI translation tool are Google translate and Google Docs, AI Grammar tool are Quillbot and Grammarly, AI Listening tool are Duolingo and ELSA Speak. Those tools are useful for providing a more effective and efficient learning experience.

To support a strong theoretical foundation of this study, it is essential to review existing literature of AI integration on English language teaching. A comprehensive literature review provides insights into how AI maximalized in language instruction, its effectiveness, and the challenges. A comprehensive literature review can be used as a basic underlying theory that allows researchers and educators to comprehend the landscape of AI in education. In addition, the study of AI in ELT also demonstrates the pedagogical changes that happened when technology is integrated into conventional teaching method. By analyzing the study that has been carried out, this study aims to find existing gaps and contribution to the development of knowledge regarding the application of AI in English language teaching. Therefore, this literature review not only serves as a theoretical framework, but also emphasizes the important roles of AI in transforming the language learning experience.

There are a several studies conducted by researchers related to Artificial Intelligence, (Chen et al., 2022) highlight how AI transform education through personalized learning, automated grading and enhanced classroom management and by utilizing AI learning, teaching and learning will engage students' participation, (Betaubun et al., 2023) claim that AI technology should be applied in the contextualized teaching, assisting students better understand and apply foreign language knowledge through simulated scenario, (Fitria, 2023) investigated that Artificial intelligence provided significant impacts in creating a conducive learning environment for learner. (Soyombo-erdene & Uuganber, 2024) confirms that it is a need for educators to understand how leverage AI's potential effectively and to emphasize the importance of empirical studies to guide integration into teaching practice. (Rahman, 2024) analyzed exploration of AI as Foreign Language. He insisted that the use of AI must stimulate cognitive involvement and genuine learning needs to accommodate in learning process.

Education is necessary to understand the huge potential that AI can improve the quality of learning and assessment. By utilizing artificial intelligence wisely, teachers can create a

learning environment that is more inclusive, adaptive, and efficient in digital era. The purpose of this literature review is to explore the integration of English language teaching related to trends, challenges and pedagogical implication. The study analyzed existing research, studies and scholarly literature. By analyzing the data will acquire the overview of the current state of knowledge and identify key findings.

2. Method

This study is classified in qualitative research uses systematic approach. There are several stages in this approach; identification of research objectives, literature search, selection criteria, data extraction and analysis, data synthesis, limitations and gaps, and report writing (Fitria, 2023). This research is focused on literature review approach, it means that this research involves the analysis and synthesis of existing research and literature.

The Data sources of this study include academic journal, book reference, international proceedings and trusted articles. While the data collection method used was document analysis. The document analysis comprised some steps namely: *Literature Identification* by finding related literature in the academic based such as Google Scholar, Springer, and IEEE Xplore. *Literature Selection*: determining inclusive criteria to make sure the data validity and *Classification Literature*: categorizing literature based on theme or research study related to explore the integration of Artificial Intelligence (Nilamsari, 2014)

The Data Analysis technique employs (Miles & Huberman, 1994) Model, which includes three main stages: *Data reduction* is the stage of simplifying data according to needs so that it is easy to get information. The data that has been collected will be categorized or grouped into very important, less important, and unimportant data. Furthermore, researchers can store which data is necessary and discard unnecessary data for research. That way the data will be simpler and clearer so that it is easy to move on to the next stage. *Data presentation* is carried out to display data that has been reduced into the form of graphs, charts, and others. The goal is to make it easier to convey and understand by other parties. This will also make it easier for readers to absorb the information contained in the data. *Drawing conclusions* or conclusion drawing is information obtained from data that has been compiled and grouped which is then presented using certain techniques. The conclusion can be placed at the end or as a conclusion so that the reader can find the conclusion of the entire study.

3. Results and Discussion

3.1 Result

3.1.1 Trends

There are several tools for improving the students' knowledge or skill that included in Artificial Intelligence. They are ChatGPT, Grammarly and Duolingo. ChatGPT is an application that will answer all of the learners' questions and instructions. The learners can ask anything to improve their skill for example "Give me the example of statement based on my level (A1) and the meaning in Indonesia". After that, ChatGPT will give the best answer for the learners. So, the learners can ask anything in detail to improve their knowledge. Grammarly helps the learners about the structure or grammar. This application will repair the learners' mistakes in their

structure. Beside of that, this application will explain and give detail information related about your mistakes. While Duolingo is one of application in Artificial Intelligence, it is interesting application because the learners can learn through games. It consists of daily challenges, level achievement and appreciation for the winner. This application can motivate the learners to study when they bored learn with common method teaching and learning process. These tools also support teachers by automating administrative tasks and providing insights into student progress. Key findings reveal that AI promotes adaptive and interactive learning environments, motivating students and reducing language learning anxiety.

3.1.2 Challenges

The use of AI is able to accommodate teaching and learning effective and efficient. On the other hand, the use of AI appears challenges, they are;

a. Ethical Concern

There are several ethical issues associated with the use of AI in education, such as potential discrimination and privacy. Everyone can access these technologies without any constraints from the others. People are freely to copy any information from these technologies without any screening information. To use AI effectively, we needed appropriate policies and practices to protect privacy and student data security.

b. Quality

Maintaining the quality of AI is important based on educational goals. However, when the learners are excessive and dependent on using AI, it will make a negative impact on the learners. It is because they cannot be innovative and only depend on these technologies. Beside of that, the quality of educational will decrease, because it will bias the data. The answers of the learners' question or instruction are only based on of these technologies.

c. Lack of Emotional Understanding

AI encompasses various subfield, including machine learning, natural language processing, computer vision and robotics (Umar, 2024). So, in other words AI is a machine which has no emotions. AI cannot replace human creativity. Educators and learners can have unique perspectives and creative thinking that AI cannot replicate. Instead, AI serves as a valuable tool to augment human capabilities. AI only carries out instructions given by the learners without knowing the context of the instructions so that AI cannot respond to students' emotions effectively.

3.1.3 Pedagogical Implication

Based on the literature reviews of journals, articles dan manuscript, the pedagogical implication can be categorized into some areas as follows:

a. Personalized learning experiences

AI technologies such as intelligent tutoring systems and adaptive learning systems used to allow personal understanding by students (Wei, 2023). AI has the ability to analyze data for find out how students learn, their preferences and knowledge gaps student. With this information, AI can provide a learning experience personalized by providing customized content, resources and assessments for each student. Personalized learning allows students to progress at the

student's own pace, focusing on areas that need improvement, and explore advanced concepts when students are ready. For example, AI could automatically run through the strengths and weaknesses in one student's study content, suggesting tailored exercises to tackle his real difficult areas.

b. Enhanced Learning Outcomes

AI can assist learner to acquire good understanding of the material. Enhanced learning outcomes are learning results that have been improved or maximized through various means, such as the use of more effective teaching methods, technology, learning strategies, or innovative approaches. Such methods help learners practice their language skills comfortably and without pressure a result of which is success. The implementation of IA in language teaching can utilize a variety of digital platforms such as LMS (Moodle, Google classroom and Canvas), Adaptive learning System (Khan Academy, Duolingo), and Virtual Meeting (Zoom, Teams, and Google Meet). In order to begin meaningful conversations, AI-driven simulations enable learners to act as if they were participating in exchanges with native speakers of the target language, thereby improving both speaking and listening proficiency (Wei, 2023).

c. Immediate Feedback and Assessment

AI has the ability to deliver prompt and constructive feedback to the students. Automatic scoring system supported by AI algorithms can grade assignments, quizzes and exams immediately. AI systems provide real-time feedback not only on language use in general and grammar specifically but also pronunciation and writing style. This immediate reinforcement helps learners get the right answers promptly, that being an uncomfortable concept for some. Furthermore, AI could help to make formative assessments by continuously monitoring student results. It identifies weak areas with no let up of its intensity imposing corrective measures in accordance with these new findings on the best ways to how best to navigate routes through whatever particular part is troubling them (Yakkala, 2024)

d. Teacher Professional Development

In the digital era, teachers require to upgrade their competence to use AI. The integration of AI in the classroom enables teaching and learning work effective and efficiency (Brandão et al., 2024). Therefore, teachers need to be trained in the correct use of the tools. Through technology, teachers' tasks can be done faster than depending on conventional ways. However, the success of AI Integration depends on the proper training for teachers. It is a fundamental to understand the ways to operate technology properly. The lack of technology literacy makes the teacher cannot maximalize technology. Teacher professional development needs to be planned to ensure that the direction of teaching and the quality of service become more focused.

3.2 Discussion

3.2.1 Trends

Some tools used by educators to offer feedback, assist in understanding and create content such as Grammarly, google translate, ChatGPT, and Claude AI. These tools were considered to be beneficial for enhancing students' writing abilities and enthusiasm (Rahman, 2024). For addition, there are many tools have been utilized in learning foreign language such as machine translation tool, intelligent learning management system, chatbot, and virtual learning

environment. Nevertheless, only few of those tools can create interactive activities to enhance learners' motivation, and reduce anxiety toward language learning (AlTwijri & Alghizzi, 2024). It is similar with Novita's research, Novita's research showed that the learners used ChatGPT, Gemini or Co Pilot. They used these tools to look for the inspiration and motivate the learners (Novita et al., 2024). It is also similar with Yeni's research, her research showed that the used of Duolingo and Grammarly as the tools of AI can motivate learners to study English more intensely (Yeni Daniarti et al., 2024). On the other hand, the researcher found that the learners used some tools to improve their knowledge such as Takpal AI, Elsa Speak AI, Gliglish, ChatGPT, Gemini Google, Duolingo, Hallo, Cake, and Grammarly. Those tools not only focus on the one skill, but also concern in some skills, such as speaking, listening, reading and writing skill. In addition, Learners used tools of AI to asking and solving questions, checking for grammatical errors, checking plagiarism, paraphrasing, and reviewing literature used Turnitin, Quetext, Smallsetools, plagiarism detector and plagiarism checker (Henny Sutrisman et al., 2024). In conclusion, the trend to use AI tools in learning is already widely used and several studies showed that the use of AI can help, motivate and increase the learners' knowledge.

3.2.2 Challenges

Even though AI has many benefits in its use, AI has several challenges that must be faced, such as the limitations of AI in language education. While AI can provide valuable resources and support, it cannot mimic the emotional and social aspects of learning provided by human. Therefore, the learners must be careful when using AI, especially when the learners are in the junior high school level which is a time for finding their identity and significant emotional and social changes (Henny Sutrisman et al., 2024). It is similar with Rusmiyanto's research which also argues that the long-term effects of using AI are that privacy issues arise regarding (Huriati et al., 2023).

The use of AI in English language teaching brought new perspective. The technology impacted powerful changes in which English Language Teaching taught traditional, now the teaching and learning material served better by integrating technology, hence the learners can acquire holistic understanding. Personalized learning offers interesting experience for learners. The learning is designed to match the student's competency, meaningful learning and time flexibility to achieve learning goals. (Moslemi & Arani, 2024) noted that by using AI, the learners can acquire variety of content, difficulty level, vocabulary or grammatical structure considering on the learners' proficiency. The focus of personalized learning is the students are treated based on the ability of the learners to understand the material (Kupchyk & Litvinchuk, 2021). (Oktavianus et al., 2023) conducted a study related to the use of Artificial Intelligence in learning and assessment in digital era found that the use of AI can elevate efficacy, accuracy and personalized learning properly.

One of the goals to integrate technology and teaching and learning is to boost the process and the teaching and learning quality. (Jannah & Nuriana, 2024) in the study of the efficacy of Technology-Enhanced learning noted that the use of technology in teaching can increase students' attention and motivation. Additionally, the use of technology brings supportive situation in which the students can comprehend the material as result of colorful and interactive media in classroom. The finding is consistent with (Bilgiler et al., 2024) found that the integration of AI in learning can not only promote teaching strategy but also students' engagement and learning outcomes.

The development of technology particularly AI become helpful in teaching and learning activity. By integrating AI in language teaching, a teacher can do assessment and giving feedback become easier and faster. Additionally, AI can be used to doing feedback based on the students' level competency and learning styles. doing assessment and giving feedback process become easier and faster. AI can be used to doing feedback based on the students' level competency and learning styles. The use of artificial intelligence in assessment is very relevant for use in education. Similarly, (Oktavianus et al., 2023) note that AI can accelerate the processes of assessment, provide more accurate feedback, and increase the students' learning experience. (Nguyen, 2023) in the study of exploring of AI in education remarks that AI provide significant role to support teachers by useful tools such as automated scoring system, displaying the students' progress and identifying the students' weaknesses.

Teacher Professional Development (TPD) is activities designed to enhance teachers' skills, knowledge and teaching practices to support effective and meaningful learning for students. (Pratiwi et al., 2022) insist that TPD is an essential part of teacher capacity development to face curriculum changes, technology, students' needs, and modern educational demands. In digital era, the use of AI in teaching and learning is a need. A teacher must be able to use dan adopt technology to support teaching and learning. A good literacy of technology will influence the rate of teachers' self-confident in the classroom. The integration of technology in language teaching is a challenging. (Al-Zahrani, 2024) conveyed that the teachers not only need to train how to use the tools but also understand the concept of the tool with AI ethically and responsibly.

4. Conclusion

AI has brought remarkable changes to English language teaching. AI can be able to create interactive learning, increase learning experience and students' motivation through personalized learning based on the student need. Additionally, the integration of AI reduces the administrative burdens and make the teachers identify the students' learning style as well as the comprehension. The teachers have lots of platforms to support the teachers to choose proper material, learning activity and the assessment in the classroom. The platform used to assist the students' skills is varied. Applications such as ChatGPT, Grammarly, Elsa Speak, and Duolingo provide tools for learning speaking, listening, reading, and writing. These programs make lessons more interactive and engaging. Teachers also benefit because AI helps with tasks like grading and giving feedback, which saves time and allows them to focus on students' needs. Despite these advantages, there are challenges to consider. Data privacy and security remain significant concerns, and relying too much on AI might limit students' creativity and critical thinking. Additionally, AI cannot replace the emotional support and understanding that only teachers can provide. To make the best use of AI, it is important to balance technology with human interaction. When used wisely, AI can enhance learning without losing the personal touch that makes education more meaningful.

Reference

- Akbarani, R. (2024). the Use of Artificial Intelligence in English Language Teaching. *International Journal of English Learning and Applied Linguistics (IJELAL)*, 4(1), 14–23. <https://doi.org/10.21111/ijelal.v4i1.10756>

- AlTwijri, L., & Alghizzi, T. M. (2024). Investigating the integration of artificial intelligence in English as foreign language classes for enhancing learners' affective factors: A systematic review. In *Heliyon* (Vol. 10, Issue 10). Elsevier Ltd. <https://doi.org/10.1016/j.heliyon.2024.e31053>
- Al-Zahrani, A. M. (2024). The impact of generative AI tools on researchers and research: Implications for academia in higher education. *Innovations in Education and Teaching International*, 61(5), 1029–1043. <https://doi.org/10.1080/14703297.2023.2271445>
- Betaubun, M., Eva, D., Rokhmah, L., & Budiasto, J. (2023). Personalized Pathways to Proficiency: Exploring the Synergy of Adaptive Learning and Artificial Intelligence in English Language Learning. In *Technium: Romanian Journal of Applied Sciences and Technology* (Vol. 17). www.techniumscience.com
- Bilgiler, S., Dergisi, E. A., Al-Shammari, A., & Al-Enezi, S. (2024). *Journal of Social Studies Education Research Role of Artificial Intelligence in Enhancing Learning Outcomes of Pre-Service Social Studies Teachers* (Vol. 2024, Issue 4). www.jsser.org
- Brandão, A., Pedro, L., & Zagalo, N. (2024). Teacher professional development for a future with generative artificial intelligence – An integrative literature review. In *Digital Education Review* (Issue 45, pp. 151–157). Universitat de Barcelona. <https://doi.org/10.1344/der.2024.45.151-157>
- Chen, X., Ryan, T., & Wang, H. (2022). Exploring AI in Education: Personalized Learning, Automated Grading, and Classroom Management. In *Issue 1 MZ Computing Journal* (Vol. 3). <https://mzjournal.com/index.php/MZCJ/index>
- Fitria, T. N. (2023). ELT FORUM 12(1) (2023) Journal of English Language Teaching Artificial intelligence (AI) technology in OpenAI ChatGPT application: A review of ChatGPT in writing English essay. *Journal of English Language Teaching*, 6(1). <http://journal.unnes.ac.id/sju/index.php/elt>
- Henny Sutrisman, Rosmerriy Simanjuntak, Adrianus Prihartanto, & Bayu Kusumo. (2024). The Impact of Using AI in Learning on Understanding of Material by Young Students. *International Journal of Educational Research*, 1(3), 24–32. <https://doi.org/10.62951/ijer.v1i3.43>
- Huriati, N., Fitriani, N., Kusumaning Tyas, N., Rofi, A., Nurmalia Sari, M., Rowo, J., Mijen, K., Semarang, K., Tengah, J., Muhammadiyah Sungai Penuh, S., Martadinata No, J. R., Sungai Penuh, P., Sungai Penuh, K., Sungai Penuh, K., Sains dan Teknologi Komputer, U., Majapahit No, J., & Kidul Semarang, P. (2023). The Role Of Artificial Intelligence (AI) In Developing English Language Learner's Communication Skills. *Journal on Education*, 06(01), 750–757.
- Jannah, L., & Nuriana, E. (2024). Efektivitas Technology-Enhanced Learning dalam Pembelajaran Interaktif Berbasis Kurikulum Merdeka di Kelas 5 SDN 01 Sukorejo Kab. Nganjuk. *Jurnal Pembelajaran Dan Ilmu Pendidikan*, 4(1), 315–318. <https://doi.org/10.28926/jpip.v4i1.1384>

- Kupchyk, L., & Litvinchuk, A. (2021). Constructing personal learning environments through ICT-mediated foreign language instruction. *Journal of Physics: Conference Series*, 1840(1). <https://doi.org/10.1088/1742-6596/1840/1/012045>
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis*.
- Moslemi, S., & Arani, N. (2024). Navigating the Future of Language Learning: A Conceptual Review of AI's Role in Personalized Learning. In *Computer Assisted Language Learning Electronic Journal (CALL-EJ)* (Vol. 25, Issue 3).
- Nguyen, N. D. (2023). Exploring the role of AI in education. *London Journal of Social Sciences*, 6, 84–95. <https://doi.org/10.31039/ljss.2023.6.108>
- Nilamsari, N. (2014). *Memahami Studi Dokumen Dalam Penelitian Kualitatif* (Issue 2). <http://fisip.untirta.ac.id/teguh/?p=16/>
- Novita, P., Kusumawardani, S., Irawan, B., Ahmad Dahlan, K., Ciputat Timur, K., Tangerang Selatan, K., Guru Sekolah Dasar, P., Ilmu Pendidikan, F., Muhammadiyah Jakarta, U., & Ahmad Dahlan, J. K. (2024). *Prosiding Seminar Nasional LPPM UMJ Website: http://jurnal.umj.ac.id/index.php/semnaskat Integrasi AI dalam Digital Storytelling untuk Pembelajaran Bahasa Inggris*. <http://jurnal.umj.ac.id/index.php/semnaskat>
- Oktavianus, A. J. E., Naibaho, L., & Rantung, D. A. (2023). Pemanfaatan Artificial Intelligence pada Pembelajaran dan Asesmen di Era Digitalisasi. In *Artificial Intelligence pada Pembelajaran dan Asesmen di Era Digitalisasi* (Vol. 05, Issue 2).
- Pratiwi, N., Ayu, S., & Halim, A. (2022). *Pengembangan Profesionalisme Guru dalam Pembelajaran Digital*.
- Rahman, M. A. (2024). Exploring the Integration of Artificial Intelligence in English as a Foreign Language Education in Indonesia. *Pedagogy: Journal of English Language Teaching*, 2(12), 196–212. <https://doi.org/10.32332/joelt.v12i2.9549>
- Soyombo-erdene, & Uuganber. (2024). Research on the Application of Artificial Intelligence in Second Language Teaching. *International Journal of New Developments in Education*, 6(4). <https://doi.org/10.25236/ijnde.2024.060406>
- Umar. (2024). Advancements in English Language Teaching: Harnessing the Power of Artificial Intelligence. *FLIP*, 3(1). <https://jurnal.stit-buntetpesantren.ac.id/index.php/flip>
- Wei, L. (2023). Artificial intelligence in language instruction: impact on English learning achievement, L2 motivation, and self-regulated learning. *Frontiers in Psychology*, 14. <https://doi.org/10.3389/fpsyg.2023.1261955>
- Wihastyanang, W. D. (2024). *Exploring the Integration of Artificial Intelligence In English Language Teaching: Review Study*.
- Yakkala, K. K. (2024). AI-powered assessment tools for E-learning: Enhancing feedback and grading systems. *World Journal of Advanced Engineering Technology and Sciences*, 13(1), 792–802. <https://doi.org/10.30574/wjaets.2024.13.1.0497>

Yeni Daniarti, Sri Mulyati, Syepri Maulana Husain, & Ilham Pratama. (2024). Learn English with Artificial Intelligence (Sosialisasi Pemanfaatan Teknologi Kecerdasan Buatan (AI) dalam Belajar Bahasa Inggris). *JPMNT: Jurnal Pengabdian Masyarakat Nian Tana*, 2(3), 88–96. <https://doi.org/10.59603/jpmnt.v2i3.462>