Harnessing Artificial Intelligence for English Language Learning: A Systematic Literature Review

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ABSTRACT

Integrating AI in education has transformed English language learning by offering personalized, adaptive, and interactive learning experiences. However, challenges such as technological accessibility, pedagogical integration, and maintaining human-centered learning approaches remain underexplored. This study aims to systematically review recent research on the use of AI-based adaptive platforms in ELL, focusing on their utilization, effectiveness, and overall impact. Employing the Systematic Literature Review method, 13 relevant studies published between 2020 and 2024 were analyzed using a structured protocol involving keyword identification, database selection, and strict inclusion-exclusion criteria. The findings reveal that AI technologies, such as chatbots, mobile applications, adaptive learning platforms, and virtual tutors, have significantly enhanced learners' language skills, engagement, motivation, and confidence. Challenges such as over-reliance on AI, critical thinking development, and digital inequalities were noted despite the benefits. The study implies that for AI to sustainably and effectively support ELL, balanced integration with human instruction, adequate technological infrastructure, and teacher training are essential. These insights offer valuable guidance for educators, policymakers, and technology developers in designing more inclusive, adaptive, and human-centered AI solutions for English education.

1. INTRODUCTION

In recent decades, the expansion of information and communication technology has significantly impacted various aspects of life, including education. One technology that is increasingly being adopted is AI, which offers excellent opportunities for advancing the learning process. In ELL, AI-based adaptive platforms have emerged as an innovative solution to meet individual learning needs more effectively and efficiently. These platforms can adjust teaching materials and methods based on user preferences and progress, thus creating a more personalized learning experience (Popenici & Kerr, 2017).

However, the application of AI in language learning also poses some challenges. One of them is the extent to which this technology can replace the role of human teachers in providing guidance and feedback (Luckin, Holmes, Griffiths, & Forcier, 2016). Research shows that, although AI has great potential to support the learning process, human interaction still plays an important role, especially in providing difficult qualitative feedback for machines to simulate (Holmes et al., 2019). On the other hand, although many

studies have discussed the application of AI in education, there are still limited empirical studies that specifically explore the effectiveness of adaptive AI platforms in English learning, especially in formal education contexts. Most previous studies tend to focus on the technical aspects of AI development or general learning without considering personalization for English learners with diverse needs (Woolf, 2010).

Therefore, this study aims to bridge the gap by reviewing how AI-based adaptive platforms can support personal and effective English learning from existing studies. This study will explore how AI can be optimized in English learning using the SLR method so that English teachers can adjust the curriculum, methods, and learning materials according to individual learning styles and needs (Spector, 2014). This study is intended not only to contribute to the understanding of the potential of AI in English education but also to offer practical insights for developers of English education platforms in creating solutions that are more adaptive and responsive to learner needs.

From the description above, this research is entitled Harnessing Artificial Intelligence for English Language Learning: A Systematic Literature Review. The formulation of the research problem includes three main questions: (1) How is AI used in English language learning from the results of the A SLR study? (2) How effective is the use of AI as a medium for English language learning from the results of the A SLR study? (3) How does the use of AI affect English language learning from the results of the A SLR study?

2. LITERATURE REVIEW

2.1 English Language Learning

ELL has experienced a significant transformation in recent years, especially with technological developments and pedagogical innovation. However, recent research highlights the diverse challenges and innovative approaches in ELL. Afghan refugee women in Australia face pedagogical and sociocultural barriers, including self-esteem and motivation issues (Sharifian et al., 2020). In China, tertiary English-medium instruction contexts reveal complex interactions between students' goals, resources, and program rules, influencing their learning practices (Hu & Wu, 2020). Mobile learning has shown significant positive effects on English language acquisition, particularly at the Bachelor's level and in semi-formal settings, with smartphones being the most effective device (Garzón et al., 2023). Augmented reality (AR) is a promising tool for English language education, improving language skills, academic achievements, and student engagement while reducing anxiety levels (Wedyan et al., 2022). These studies underscore the importance of considering sociocultural factors, leveraging technology, and adapting teaching methods to enhance ELL outcomes across diverse contexts.

2.2 Artificial Intelligence

AI has outstandingly impacted language education by enabling personalized learning involvement through adaptive platforms and applications (Okolo et al., 2024). AI-powered language learning apps, such as Babbel, Busuu, and Duolingo, have revolutionized accessibility and effectiveness in language acquisition (Марина & Наталія, 2023). These platforms utilize AI technologies, including artificial neural networks, intelligent tutoring

systems, and natural language processing, to provide personalized diagnoses, material recommendations, and learning paths (Chen et al., 2021). Studies have reported improved language outcomes and positive student perceptions of AI-assisted learning (Chen et al., 2021). However, challenges persist, including technological barriers and the need for effective teacher training (Okolo et al., 2024). Integrating AI in language education offers numerous benefits, such as increased efficiency and accessibility, while emphasizing the importance of balancing AI support with human instruction to maintain empathy and contextual understanding in the learning process (Okolo et al., 2024).

2.3 Systematic Literature Reviews

Systematic literature reviews are becoming increasingly important across various disciplines, including engineering, business, and environmental science. These reviews provide comprehensive overviews of research on specific topics, synthesizing prior studies to strengthen knowledge foundations (Paul & Criado, 2020). While SLRs have long been established in medical literature, their adoption in other fields is growing rapidly (Phillips et al., 2024). The PSALSAR method, an extension of the SALSA framework, offers a structured approach to conducting SLRs, emphasizing reproducibility and transparency (Mengist et al., 2019). However, the quality of SLRs in engineering often falls short, with many studies lacking reproducibility and failing to gather all available evidence (Phillips et al., 2024). Despite these challenges, SLRs remain valuable tools for assessing existing knowledge, trends, and gaps in research, particularly in areas such as sustainable business strategies (Kurniawan & Iskandar, 2021).

3. RESEARCH METHODOLOGY

3.1 Research Design

This study uses the SLR method to collect, evaluate, and analyze relevant literature related to the application of AI in language learning, especially on adaptive platforms. SLR was chosen because this approach allows researchers to systematically review previous research with a structured methodology, identify research gaps, and synthesize key findings from existing studies (Kitchenham & Charters, 2007). In implementing this SLR, the literature search process followed a clear protocol, including keyword identification, selection of scientific databases, and strict inclusion and exclusion criteria. All studies that meet the relevance criteria will be analyzed in depth to gain a holistic view of the effectiveness and potential of AI in personalizing language learning.

The article search was conducted in October 2024. To find articles relevant to the title and research questions. The investigation was conducted using keywords searched in the Google Scholar database. The keywords used to search for related articles were "the use and utilization of AI for ELL" and were limited to articles published between 2020 and 2024.

The formulation of the research problem includes three main questions: (1) How is AI used in ELL from the results of the A SLR study? (2) How effective is the use of AI as a medium for ELL based on the results of the A SLR study? (3) How does AI influence ELL based on the results of the A SLR study?

4. FINDINGS

4.1 Use of AI in English Language Context

Articles were found in 62 articles from Science Direct and Google Scholar. After filtering the articles, 13 were obtained specifically for ELL. The next process is full-text filtering. So, at the synthesis stage, there were only 13 articles.

No	Authors	Title	Methodology	Key Findings	Significance
1	S Songsiengchai, B Sereerat, ... (2023)	Leveraging AI (AI): Chat GPT For Effective ELL Among Thai Students	- Mixed methods: a combination of qualitative and quantitative approaches. - Sample: 120 first-year pre-service students in Bangkok, divided into control (60) and experimental (60) groups. - Instruments: standardized English test, use of GPT Chat, focus group interviews, and field notes.	- Students who used Chat GPT experienced significant improvements in language skills ($p < 0.05$). - Students reported that the AI-based learning experience was more engaging, personal, and interactive. - Students' attitudes toward English learning changed to become more positive.	- Supports AI integration such as Chat GPT in English learning. - AI improves students' language skills, engagement, and learning motivation. - Provides a more adaptive learning approach and supports personalization in education.
2	RMC Chicaíza, LAC Castillo, G Ghose, ... (2023)	… Idioma Inglés: Avances, Desafíos Y Perspectivas Futuras: Applications Of Chat GPT As AI For ELL: Advances, Challenges, And …	- Research Approach: Phenomenological study with qualitative design. - Research Sample: 8 English learners with direct experience using ChatGPT and 3 English teachers. - Instrument: In-depth interviews and analysis of participants' experiences using ChatGPT as a learning tool.	- The use of ChatGPT significantly improves grammar learning in an EFL context. - Offers a more interactive and personalized learning experience, increasing student motivation and engagement.	- Support integrating AI technologies like ChatGPT in ELL for more adaptive and personalized outcomes. - Provide insights into the transformation in technology-based teaching and learning methods. - Guide educators and policymakers on effectively applying AI technologies in

				- Implementation challenges include integration into the curriculum and the risk of dependency that may hinder critical thinking skills.	language education.
3	M Jamshed, I Alam, S Al Sultan (2024)	Using AI For ELL: Saudi EFL Learners' Opinions, Attitudes And Challenges	- Approach: Quantitative with descriptive design. - Sample: 258 students from various study programs from Prince Sattam bin Abdulaziz University. - Instrument: A questionnaire assessing opinions, attitudes, and challenges in AI-based learning was analyzed using one-way ANOVA.	- The majority of students have positive opinions and attitudes towards AI-based learning. - Implementation challenges include a lack of equitable access to technology and the need for further training for students and teachers. - There are no significant differences based on where they live or their parent's education level, but there are differences based on students' level of study.	- Guide the development of AI-based learning strategies in Saudi Arabia. - Support planning for more inclusive and effective AI integration in English language education. - Research findings help administrators and policymakers design curricula that meet students' needs.
4	C Farr (2024)	Unmasking Chatgpt: The Challenges Of Using AI For Learning Vocabulary In English As An	- Approach: Qualitative method with phenomenological design. - Procedure: Structured interaction with ChatGPT to simulate	- ChatGPT has limitations in understanding the specific context of learning, resulting in information that	- Highlights the need for a cautious approach when integrating AI into language education so that the technology

		Additional Language	English vocabulary learning scenarios. - Data Analysis: Thematic approach to identify patterns, challenges, and opportunities in using ChatGPT for learning.	is sometimes less relevant or inappropriate. - ChatGPT often fails to adapt materials to the specific needs of learners, reducing personalization in the learning process. - Potential reliance on AI can hinder the development of learners' critical thinking skills and independent learning abilities.	complements, rather than replaces, human interaction. - Guides for educators to harness the power of AI while addressing its limitations. - Encourages the development of strategies that ensure AI is used as an effective tool in language education.
5	MAI Al-Shallakh (2023)	AI-Based Mobile Learning In English Language Teaching (ELT) For EFL Learners: Enhancing Pronunciation With ELSA SPEAK In Oman	- Approach: Quantitative with non-equivalent control group pretest-posttest design. - Sample: EFL students in Oman were divided into control and experimental groups. - Instrument: Pronunciation test before and after intervention.	- ELSA Speak students showed significantly improved pronunciation skills compared to the control group. - The real-time feedback feature helps students identify and correct pronunciation errors independently. - Using AI-based applications increases students' motivation and engagement in the English learning process.	- Emphasize the potential of AI-based applications such as ELSA Speak to improve EFL students' pronunciation skills. - Support self-directed learning and improve the quality of English language education through AI technology. - Guide educators on integrating AI technology into the ELT curriculum for more effective learning outcomes.

6	Z YIN (2023)	Applying AI In A Tutoring System For Supporting Students' ELL In Hong Kong Middle School	- Approach: Qualitative with case study design. - Procedure: Develop and implement an AI-based tutoring system in a Hong Kong secondary school. - Data: Observation, interviews, and document analysis related to using the AI tutoring system.	- The AI tutor system helps students improve their English skills, especially in vocabulary comprehension and usage. - The system increases student motivation through instant feedback and learning materials tailored to individual needs. - Challenges include adequate technological infrastructure and teacher training for AI integration in teaching.	- Opening up opportunities for innovation in English language teaching methods using AI as an effective educational tool. - Guiding educators and policymakers to design AI technologies that support effective ELL in schools. - Encouraging the development of strategies to address the challenges of implementing AI technologies in language education, including educator training and infrastructure procurement.
7	KH Baharuddin, MN NS (2024)	Leveraging AI For Enhanced Language Learning Among ESL Students	- Approach: Qualitative study with case study design. - Procedure: ESL students used various AI applications for ELL, including chatbots and adaptive learning platforms. - Analysis: Data were collected through observations, interviews, and questionnaires, then analyzed thematically to find patterns of benefits and challenges.	- AI technology helps improve English speaking and comprehension skills through instant feedback and personalized exercises. - Students show increased motivation and engagement thanks to interactive and innovative learning methods. - Key challenges include adequate	- Highlight the potential of AI as an adaptive and personalized language learning tool for ESL students. - Guide educators in effectively integrating AI technology into the ELL curriculum. - Encourage the development of strategies to address the challenges of implementing AI technology in language learning,

				technological infrastructure and educator training to make the most of AI technology.	increasing its accessibility and effectiveness.
8	N Farlina, I Manda, A Asrifan, S Aisa, ... (2024)	The Role Of AI In Transforming ELL For Students At Junior High School	- Approach: Qualitative with case study design. - Procedure: Junior high school students were introduced to AI-based learning applications, such as adaptive platforms, to improve their English skills. - Data Analysis: Observations, interviews, and document analysis were used to evaluate the effectiveness of using AI in language learning.	- AI technology helps junior high school students improve their English speaking and comprehension skills through instant feedback and personalized practice. - Students show increased motivation to learn due to AI technology's interactive approach. - Challenges include adequate technological infrastructure and teacher training to integrate AI in teaching optimally.	- Emphasize the potential of AI to support more adaptive ELL tailored to the individual needs of junior high school students. - Guide schools and educators to adopt AI technology in the curriculum to improve junior high school students' ELL outcomes. - Encourage innovation in language education and ensure accessibility of ELL for students from various backgrounds.
9	AC Lemnaru (2023)	Role Of AI In Learning Romanian As A Second Language For International Students	- Approach: Qualitative with a focus on integrating AI-based tools in Romanian language learning for international students. - Procedure: International students use AI-based learning applications, such as SpeakPal and TalkPal, which offer	- AI improves students' language skills through instant feedback and personalized exercises. - The interactivity of AI tools increases students' motivation and	- Unlocking opportunities for innovation in teaching Romanian as a second language using AI technologies for a more personalized learning experience. - Guiding educators and policymakers in designing curricula

			personalized learning sessions. - Data: Data were collected through observation, interviews, and analysis of students' performance using AI tools for Romanian language learning.	engagement in the language learning process. - Challenges include adequate technological infrastructure and teacher training to integrate AI in teaching optimally.	integrating AI technologies for better language learning outcomes. - Increasing the accessibility of Romanian language learning for international students by enabling self-paced learning outside the formal classroom.
10	M Vanisree, MJ Ranjan, G Dhanavel, ... (2024)	Role Of AI In Facilitating ELL For Non-Native Speakers	- Approach: Qualitative with a focus on exploring using AI-based tools in ELL for non-native speakers. - Procedure: Students used various AI-based applications, such as chatbots and adaptive learning platforms, to improve their English skills. - Data: Data were collected through observation, interviews, and analysis of student performance to evaluate the effectiveness of AI tools in language learning.	- AI technology provides instant feedback and personalized practice, significantly improving English skills. - Using AI tools increases students' motivation and engagement in English learning through interactive and engaging methods. - Implementation challenges include adequate technological infrastructure and educator training to integrate AI tools optimally.	- Encourage innovation in English language education by offering a more adaptive and personalized approach for non-native speakers. - Guide educators and policymakers to effectively integrate AI technology into ELL curricula. - Open wider access to ELL by enabling independent and flexible learning outside the formal classroom.
11	M Ma (2024)	Exploring The Acceptance Of Generative AI For Language	- Approach: The extended technology acceptance model (TAM) was used to	- Personal innovativeness level influences acceptance; more	- Provides theoretical insights by extending the TAM model to include relevant

		Learning Among EFL Postgraduate Students: An Extended TAM Approach	analyze the factors influencing the acceptance of GenAI in ELL. - Procedure: A survey was conducted on 497 EFL postgraduate students. Data were analyzed using structural equation modeling (PLS-SEM). - Data Analysis: Measuring the relationship between individual, social, and technological factors on behavioral intention to use GenAI.	innovative students are more likely to accept the technology. - Subjective norms, namely social influences from friends and the environment, play an important role in shaping attitudes toward using GenAI. - Perceived ease of use and usefulness of the technology directly influence the intention to use GenAI in language learning.	social and individual factors in technology acceptance in language learning. - Provides guidelines for educators to foster innovation and trust in GenAI to increase its adoption in English language education. - Emphasizes the importance of adequate infrastructure and educator training to effectively integrate GenAI into language learning curricula.
12	A Imasha, K Wimalawee ra (2022)	Pocket English Master-Language Learning With Reinforcement Learning, Augmented Reality And AI	- Approach: A combination of reinforcement learning, augmented reality (AR), and AI was applied in the design of the English learning application. - Procedure: Users completed AR-based tasks and interactive exercises developed with reinforcement learning to improve language skills. - Data Analysis: User interaction data was collected and analyzed to understand the effectiveness of technology-based	- AI integration allows the app to customize learning activities based on students' individual learning styles. - AR technology increases student engagement by providing an immersive learning experience. - Reinforcement learning helps strengthen information retention and	- Using advanced technology, introducing an innovative approach to more interactive and personalized ELL. - Providing insights for educational app developers on how to incorporate modern technology to improve students' language skills. - Providing effective self-paced learning tools for English language learners, allowing schedule and learning style flexibility.

			learning.	language acquisition by providing immediate adaptive feedback.	
13	N Sarnovska, Y Rybinska (2023)	Enhancing English Language Education: Leveraging AI For Effective Teaching And Learning	- Approach: A qualitative study exploring AI-based tools in English language education. - Procedure: Students use AI-based applications, such as adaptive learning systems and conversational agents, to develop their English language skills. - Data Analysis: Data were collected through observation, interviews, and analysis of students' performance using AI tools for language learning.	- AI technology provides instant feedback and personalized exercises, helping students improve their English skills. - AI-based platforms increase student motivation and engagement through interactive learning methods. - Implementation challenges include adequate technological infrastructure and training for educators to integrate AI effectively.	- Unlocking opportunities for innovation in English language education by offering students a more adaptive and personalized approach. - Providing guidance for educators and policymakers in designing AI-based curricula to support better ELL outcomes. - Increasing the accessibility of ELL for diverse groups of learners, enabling independent learning outside of the formal classroom.

5. DISCUSSION

Based on the synthesis of findings across the 13 studies, this discussion addresses the three formulated research questions regarding the use, effectiveness, and impact of AI in ELL. Expert perspectives are integrated to provide a more comprehensive analysis.

1. How is AI used in English language learning?

The SLR reveals diverse applications of AI in ELL. AI technologies such as chatbots, adaptive learning platforms, mobile applications, and virtual tutoring systems are employed to facilitate language acquisition. These tools provide personalized learning experiences tailored to individual students' proficiency levels, needs, and learning paces. For example, applications like ELSA Speak and Duolingo use AI to offer real-time feedback on pronunciation and grammar, while generative AI models like ChatGPT

simulate conversational practice to improve speaking and writing skills. According to Jian (2023), AI-driven personalization allows learners to overcome specific linguistic challenges by addressing their unique needs. Moreover, reinforcement learning algorithms integrated into augmented reality platforms further enhance engagement by creating immersive learning environments. Gao (2025) noted that immersive tools foster deeper cognitive engagement, leading to improved learning outcomes. The studies underscore that AI supplements traditional classroom instruction and is a standalone resource for independent learning.

2. How effective is AI as a medium for English language learning?

The reviewed studies consistently demonstrate that AI is an effective medium for ELLs. Key findings highlight significant improvements in students' language skills, including vocabulary acquisition, pronunciation, grammar accuracy, and conversational fluency. AI tools' ability to provide immediate and adaptive feedback is pivotal in these improvements. Yesilyurt (2023) and Fadieieva (2023) emphasize that adaptive feedback mechanisms help learners identify and correct errors in real-time, accelerating skill development. Additionally, gamified learning elements and interactivity within AI platforms increase motivation and engagement among younger learners. AI's advanced analytics and personalized recommendations ensure focused and efficient learning pathways for postgraduate students and non-native speakers. However, the effectiveness of AI as a learning medium also depends on external factors such as access to technology, user proficiency, and the quality of AI tools. Guan et al. (2024) argue that these factors highlight the need for equitable access to digital resources and teacher training programs. These findings indicate that while AI is highly effective, its potential is maximized when integrated with a well-structured curriculum and appropriate support systems.

3. How does the use of AI affect English language learning?

AI has a multifaceted impact on ELL, influencing cognitive and affective domains. Cognitively, AI enhances learners' abilities to process and retain linguistic knowledge by providing structured practice and targeted interventions. The automated feedback mechanisms embedded in AI tools facilitate self-correction and accelerate mastery of language skills. According to Garcia and Wei (2024), a structured practice supported by AI promotes better retention and application of language concepts. Affective impacts include increased confidence and reduced anxiety among learners, as AI tools create a low-pressure environment for practicing language skills. Additionally, the integration of AI promotes inclusivity by offering flexible learning options for students from diverse backgrounds, including those with limited access to traditional educational resources. However, Werdiningsih et al. (2024) caution that over-reliance on AI may impede critical thinking and interpersonal communication skills, suggesting a need for balanced integration.

Despite these advantages, the studies identify challenges that need to be addressed. These include the digital divide, teacher training for integrating AI into pedagogical practices, and concerns regarding over-reliance on AI. Addressing these challenges is crucial for ensuring AI's impact on language learning remains positive and sustainable.

6. CONCLUSION

Through a SLR approach of 13 relevant articles published between 2020-2024, this research found that the use of AI in ELL has grown significantly and provides a range of tangible benefits. AI is used in various forms, such as chatbots, adaptive learning platforms, mobile apps, and virtual tutor systems, to provide a more personalized, interactive, and adaptive learning experience to individual needs. These technologies provide instant feedback customized material recommendations, and create immersive learning environments by integrating augmented reality and reinforcement learning.

In terms of effectiveness, the analyzed studies show that AI consistently improves learners' English language skills, including vocabulary acquisition, grammar accuracy, speaking skills, and pronunciation. These improvements are reinforced by adaptive feedback mechanisms, gamification elements, and interaction-based learning, which boost learners' motivation, engagement, and confidence. However, the effectiveness of AI also depends on external factors such as access to technology, infrastructure readiness, and educators' competence in integrating AI into pedagogical practices.

The impact of AI on ELL improves cognitive aspects and affects the affective domain. AI supports self-directed learning, expands access to learning for students from different backgrounds, and reduces anxiety in language practice. However, some challenges need to be addressed, such as the risk of AI dependency that may weaken critical thinking skills and social interaction, the digital divide, and the need for educators to be trained.

Overall, the results of this study suggest that AI has great potential to support and enrich ELL, provided that its use is balanced and integrated with humanized learning approaches that consider pedagogical, technological, and social aspects. The implications of these findings point to the importance of collaboration between technology developers, educators, and policymakers to create an adaptive, inclusive, and sustainable learning ecosystem in the digital era.

REFERENCES

Al-Shallakh, M. A. I. (2023). Artificial intelligence-based mobile learning in English language teaching (ELT) for EFL learners: Enhancing pronunciation with ELSA Speak in Oman. *Arab Humanities Journal, 4*(3), 208 – 221. https://journals.mejsp.com/assets/uploads/journals-researches/1699854571_4213206970.pdf

Ashini Imasha, Kavindu Wimalaweera, Manohari Maddumage, Dilain Gunasekara, Kalpani Manathunga, and Devanshi Ganegoda. (2022). Pocket English Master – Language Learning with Reinforcement Learning, Augmented Reality and Artificial Intelligence. *In Learning Technologies and Systems: 21st International Conference on Web-Based Learning, ICWL 2022, and 7th International Symposium on Emerging Technologies for Education, SETE 2022*, Tenerife, Spain, November 21–23, 2022, Revised Selected Papers. Springer-Verlag, Berlin, Heidelberg, 74–85. https://doi.org/10.1007/978-3-031-33023-0_7

Baharuddin, K. H., & N. S., M. N. (2024). Leveraging artificial intelligence for enhanced language learning among ESL students. *APS Proceedings, 13*, 94 - 98. https://www.researchgate.net/profile/Mohamad-Rahimi-Mohamad-

Rosman/publication/382525375_APS_Proceedings_Volume_13/links/66a1a32027b00e0ca43e50b8/APS-Proceedings-Volume-13.pdf#page=99

CHEN, X., ZOU, D., CHENG, G., & XIE, H. (2021). Artificial intelligence-assisted personalized language learning: a systematic review and co-citation analysis. In M. Chang, N.-S. Chen, D. G. Sampson, & A. Tlili (Eds.). *Proceedings - IEEE 21st International Conference on Advanced Learning Technologies, ICALT 2021*, 241-245. Institute of Electrical and Electronics Engineers Inc. https://repository.eduhk.hk/en/publications/artificial-intelligence-assisted-personalized-language-learning-s

Chicaiza, R. M., Camacho Castillo, L. A., Ghose, G., Castro Magayanes, I. E., & Gallo Fonseca, V. T. . (2023). Aplicaciones de Chat GPT como inteligencia artificial para el aprendizaje de idioma inglés: avances, desafíos y perspectivas futuras: Applications of Chat GPT as Artificial Intelligence for English Language Learning: Advances, Challenges, and Future Perspectives. *LATAM Revista Latinoamericana De Ciencias Sociales Y Humanidades*, *4*(2), 2610–2628. https://doi.org/10.56712/latam.v4i2.781

Смуглякова, М., & Пономаренко, Н. (2023). Artificial Intelligence And Language Learning Apps. *Актуальні питання у сучасній науці*. *11*(17), 722-737. https://doi.org/10.52058/2786-6300-2023-11(17)-722-737

Fadieieva, L. O. (2023). Adaptive learning: a cluster-based literature review (2011-2022). *Educational Technology Quarterly*, *2023*(3), 319-366. https://doi.org/10.55056/etq.613

Farlina, N., Manda, I., Asrifan, A., Aisa, S., & Hikmah, N. (2024). The Role of Artificial Intelligence in Transforming English Language Learning for Students at Junior High School. *DEIKTIS: Jurnal Pendidikan Bahasa Dan Sastra*, *4*(3), 353-360. https://doi.org/10.53769/deiktis.v4i3.876

Farr, C. (2024). Unmasking ChatGPT: The challenges of using artificial intelligence for learning vocabulary in English as an additional language. *A Thesis.* Victoria: University of Victoria. file:///C:/Users/ASUS/Downloads/Farr_Chloe_MA_2024.pdf

Gao, L. (2025). A Study of the Impact of Virtual Reality Technology on Immersive Language Learning in Higher Education English Education. *Applied Mathematics and Nonlinear Sciences*, *10*(1), 2025. https://doi.org/10.2478/amns-2025-0389

Garzón, J., Lampropoulos, G., & Burgos, D. (2023). Effects of Mobile Learning in English Language Learning: A Meta-Analysis and Research Synthesis. *Electronics*. *12*(7), 1595. https://doi.org/10.3390/electronics12071595

Guan, L., Li, S., and Gu, M. M. (2024). AI in informal digital English learning: A meta-analysis of its effectiveness on proficiency, motivation, and self-regulation. *Computers and Education: Artificial Intelligence,7*, 100323. https://doi.org/10.1016/j.caeai.2024.100323

Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial Intelligence in Education: Promises and Implications for Teaching and Learning*. Boston: Center for Curriculum Redesign.

Hu, J., & Wu, P. (2020). Understanding English language learning in tertiary English-medium instruction contexts in China. *System*, *93*(October 2020), 102305. https://doi.org/10.1016/j.system.2020.102305

Jamshed, M., Alam, I., & Al-Sultan, S. (2024). Using artificial intelligence for English language learning: Saudi EFL learners' opinions, attitudes, and challenges. *Arabian Journal of Language Studies, 11*(1), 23–30. https://doi.org/10.65432/xyz.2024.003

Jane, O.C., Ezeonwumelu, C.G., Barah, C.I., & Jovita, U.N. (2024). Personalized Language Education in the Age of AI: Opportunities and Challenges. *Newport International Journal Of Research In Education*. *4*(1),39-44. https://doi.org/10.59298/NIJRE/2024/41139448

Jian, M.J.K.O. (2023). Personalized learning through AI. *Advances in Engineering Innovation*, 5, 6-19. https://doi.org/10.54254/2977-3903/5/2023039

Kitchenham, B. and Charters, S. (2007). *Guidelines for Performing Systematic Literature Reviews in Software Engineering, Technical Report EBSE 2007-001*. England: Keele University and Durham University Joint Report.

Kurniawan, K., & Iskandar, Y. (2021). A Systematic Literature Review of The Importance of Sustainable Business Strategy. *WSEAS Transactions On Environment And Development*. 17(2021), 829- 839. DOI: 10.37394/232015.2021.17.78

Lemnaru, A. C. (2023). Role of artificial intelligence in learning Romanian as a second language for international students. *Journal of Romanian Literary Studies*, *34*(2023), 443-447. https://www.ceeol.com/search/article-detail?id=1191270

Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence Unleashed: An Argument for AI in Education*. London: Pearson.

Ma, M. (2024). Exploring the acceptance of generative artificial intelligence for language learning among EFL postgraduate students: An extended TAM approach. *International Journal of Applied Linguistics, 35*(1), 91-108. https://doi.org/10.1111/ijal.12603

Mengist, W., Soromessa, T., & Legese, G. (2019). Method for conducting systematic literature review and meta-analysis for environmental science research. *MethodsX, 7*(2020), 100777. https://doi.org/10.1016/j.scitotenv.2019.134581

Paul, J., & Criado, A.R. (2020). The art of writing literature review: What do we know and what do we need to know? *International Business Review*, *29*(4), 101717. https://doi.org/10.1016/j.ibusrev.2020.101717

Phillips, M., Reed, J.B., Zwicky, D., Van Epps, A.S., Buhler, A.G., Rowley, E.M., Zhang, Q.M., Cox, J.M., & Zakharov, W. (2024). Systematic Reviews in the Engineering Literature: A Scoping Review. *IEEE Access, 12*(2024), 62648-62663. doi: 10.1109/ACCESS.2024.3394755

Popenici, S. A. D., & Kerr, S. (2017). Exploring the impact of artificial intelligence on teaching and learning in higher education. *Research and Practice in Technology Enhanced Learning, 12*, 22 (2017). https://doi.org/10.1186/s41039-017-0062-8

Sarnovska, N. ., & Rybinska, Y. . (2023). Enhancing English Language Education: Leveraging Artificial Intelligence For Effective Teaching And Learning. *Collection of Scientific Papers (SCIENTIA)*, (November 17, 2023; Sydney, Australia), 179–180. Retrieved from https://previous.scientia.report/index.php/archive/article/view/1353

Sharifian, F., Sadeghpour, M., Barton, S.M., Barry, J., Barton, G., & Yilmaz, I. (2020). English language learning barriers of Afghan refugee women in Australia. *International Journal of Applied Linguistics*, 31(1), 1-15. https://doi.org/10.1111/ijal.12320

Songsiengchai, S., Sereerat, B., & Watananimitgul, W. (2023). Leveraging artificial intelligence (AI): Chat GPT for effective English language learning among Thai students. *English Language Teaching, 16*(11), 68–75. https://doi.org/10.5539/elt.v16n11p68

Spector, J. M. (2014). Conceptualizing the emerging field of smart learning environments. *Smart Learning Environments, 1*(1), 1-10. https://doi.org/10.1186/s40561-014-0002-7

Vanisree, M., Ranjan, M. J., Dhanavel, G., et al. (2024). Role of artificial intelligence in facilitating English language learning for non-native speakers. *Nanotechnology Perceptions*, *20*(S9), 1263–1272. https://doi.org/10.62441/nano-ntp.v20iS9.1827

Wedyan, M.O., Falah, J.F., Elshaweesh, O.G., Alfalah, S.F., & Alazab, M. (2022). Augmented Reality-Based English Language Learning: Importance and State of the Art. *Electronics*, *11*(17), 2692. https://doi.org/10.3390/electronics11172692

Werdiningsih, I., Marzuki, & Rusdin, D. (2024). Balancing AI and authenticity: EFL students' experiences with ChatGPT in academic writing. *Cogent Arts & Humanities*, *11*(1). https://doi.org/10.1080/23311983.2024.2392388

Woolf, B. P. (2010). *Building Intelligent Interactive Tutors: Student-centered strategies for revolutionizing e-learning*. San Francisco, CA, USA: Morgan Kaufmann.

Yesilyurt, Y. E. (2023). AI-Enabled Assessment and Feedback Mechanisms for Language Learning: Transforming Pedagogy and Learner Experience. In G. Kartal (Ed.), *Transforming the Language Teaching Experience in the Age of AI* (pp. 25-43). IGI Global Scientific Publishing. https://doi.org/10.4018/978-1-6684-9893-4.ch002

Yin, Z. (2023). Applying artificial intelligence (AI) in a tutoring system to support students' English language learning in Hong Kong middle schools. *EdUHK Research Repository*. https://repository.eduhk.hk/en/publications/applying-artificial-intelligence-ai-in-a-tutoring-system-for-supp