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Integration of Artificial Intelligence (AI) Tools in Empowering the Teaching of English-Speaking Skills: Benefits and Challenges

Sangeetha Loganathan*, Khairul Azhar Bin Jamaludin

Faculty of Education, Universiti Kebangsaan Malaysia, 43600 Bangi, Malaysia

Email: p144454@siswa.ukm.edu.my, khairuljamaludin@ukm.edu.my

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Abstract

The integration of Artificial Intelligence (AI) in English language education presents new opportunities for enhancing the teaching of speaking skills. This paper aims to explore the benefits and challenges of using AI in this context and to suggest practical strategies for effective integration. Three key benefits are discussed. AI provides immediate and automated feedback, supports differentiated instruction, and improves lesson quality, as well as students' engagement. However, several challenges remain. These include limited teacher training, low familiarity with AI tools, usability and accessibility issues, lack of pedagogical frameworks, teacher resistance, weak infrastructure and ethical concerns. To overcome these issues, several strategies are proposed. Teachers require training that encompasses both technical and teaching skills. Policies should support the usage of AI while maintaining the teacher's role. Better digital infrastructure is required. AI tools must follow strict data protection standards. Collaboration between developers, educators and policymakers is also necessary. This paper offers insights to educators and decision-makers in helping them to use AI more effectively in speaking instructions.

Keywords: Artificial Intelligence (AI) Tools, Speaking skills, Benefits, Challenges

Introduction

In today's globalised world, the need for a common medium of communication or lingua franca is crucial to enable individuals from various backgrounds to interact more effectively. English has emerged as the dominant global language, playing a vital role in international communication, especially in fields such as business, science and education. In Malaysia, although Bahasa Melayu remains the official national language, English is acknowledged as an essential second language that supports the nation's ambitions in the era of Industrial Revolution 4.0. According to Nadesan and Md. Shah (2020), the national agenda emphasises the development of a skilled workforce with English proficiency, particularly in technology-driven sectors. The ability to communicate in English is thus fundamental for pupils to thrive in a competitive global landscape.

Among the four language skills, speaking is often emphasised as it is the most direct form of communication used in everyday life. It allows learners to express their thoughts, interact socially, and participate in academic discussions with confidence. Paneerselvam and Mohamad (2019) highlighted that speaking skills play a crucial role in enabling learners to engage in both formal and informal situations. Malaysia's English language curriculum at the primary level also emphasises basic speaking functions such as greetings, polite requests, expressing gratitude and offering apologies (KPM, 2012). These functions are designed to help students communicate effectively in real-life scenarios according to their developmental stages. The mastery of speaking skills is therefore essential in helping students achieve communicative competence and prepare for broader social and academic demands.

However, the effectiveness of teaching speaking skills remains a challenge for many English teachers, especially in traditional classrooms without the support of technology. Young learners often exhibit low motivation, passive engagement and lack of confidence in oral communication. According to Ainunnisa, Zaitun, and Hadi (2021), pupils at the primary level tend to prioritise themselves and struggle to consider the needs of others during interaction, which negatively affects group-based speaking tasks. Other studies have pointed out additional barriers such as, peer pressure, fear of making mistakes and limited vocabulary, all of which discourage pupils from speaking English (Pratolo, Habibie and Setiawan 2019). These challenges place greater pressure on teachers to design engaging, student-friendly activities. Unfortunately, many classroom strategies still rely on rote learning and textbook-based instruction, which do not support the development of spontaneous, real-time speaking skills.

The rapid advancement of Artificial Intelligence (AI) presents new possibilities for transforming the way speaking skills are taught in the English as a Foreign Language (EFL) classroom. AI has been applied in education since the 1970s, initially for grammar correction (Weischedel, Voge and James, 1978), and has evolved into powerful systems that provide real-time speech feedback and personalised learning support (Yuan and Briscoe, 2016). Tools such as Automatic Speech Recognition (ASR) can analyse learners' pronunciation patterns and simulate natural human interaction (Southwell et al., 2022). Applications like Smalltalk2me have demonstrated their effectiveness in helping pupils improve their fluency through guided and low-pressure speaking practice (Maulidianti, Berliana, and Yuliana, 2024). These innovations offer more flexible, individualised, and interactive experiences for pupils, which potentially increase their motivation and confidence to speak.

This study is motivated by the need to address the persistent challenges faced by teachers and learners in developing effective speaking skills. By focusing on the integration of AI tools, it aims to highlight how technology can bridge gaps in traditional classroom instruction and create more inclusive, engaging and supportive learning environments. At the same time, it contributes to the growing discourse on digital pedagogy by offering insights into the practical benefits and challenges of adopting AI in language education. Therefore, the purpose of this paper is to explore the benefits and challenges of integrating AI in the teaching of English speaking skills and how AI can support teachers to enhance pupils' learning experiences in both meaningful and sustainable ways.

Objective and Research Questions

The objectives and research questions are formulated to guide the direction of this study on the use of Artificial Intelligence (AI) in English language instruction, particularly in the development of speaking skills.

Objectives

I. To identify the potential benefits of integrating Artificial Intelligence tools in empowering the teaching of English speaking skills.
II. To identify the challenges of integrating Artificial Intelligence (AI) tools in empowering the teaching of English speaking skills.
III. To identify the potential solution to improve the integration of Artificial Intelligence in empowering the teaching of English speaking skills.

Research Questions

I. What are the potential benefits of integrating Artificial Intelligence tools in empowering the teaching of English speaking skills?
II. What challenges arise from the integration of AI tools in the teaching of English speaking skills?
III. What are the potential solutions to improve the integration of Artificial Intelligence in empowering the teaching of English speaking skills?

Artificial Intelligence Tools in Teaching Speaking Skills

Speaking is a core skill in English language acquisition and is essential for effective communication in real-life situations. However, many learners perceive speaking as one of the most challenging components, especially in English as a Foreign Language (EFL) contexts (Yang et al., 2024). Traditional methods often fall short in addressing the diverse linguistic, psychological and social factors that affect speaking performance. Pupils frequently experience anxiety, lack of confidence and hesitation to speak in English. In response to these challenges, AI has emerged as an innovative solution that offers real-time feedback, conversation simulations, and pronunciation analysis to support the development of speaking skills (Sukumaran and Khair, 2024). These features foster a supportive environment and empower pupils to practise at their own comfort and pace.

AI-driven applications such as Chatbots are now widely used to simulate human conversations. These tools equipped learners with practical opportunities to engage in everyday dialogues and receive immediate corrective feedback (Garcia, Lopez and Martínez, 2023). In addition, mobile apps such as ELSA Speak utilise AI-powered speech recognition to assess pronunciation and offer tailored recommendations. ELSA Speak also includes level-based activities, an interactive dictionary and a personalised learning path that helps pupils develop fluency and accuracy (Pinontoan et al., 2022). These tools address each learner's needs, making speaking practice more effective and accessible regardless of their proficiency level.

Gamification further enhances AI's appeal in language education. Platforms such as Duolingo incorporate AI to adjust tasks based on user progress, providing scaffolded speaking practice in an engaging format. Meanwhile, tools such as Talkpal allow learners to converse with AI-simulated native speakers in various contexts, encouraging natural language use

(Hidayatullah, 2024). For younger learners, AI-based tools such as Google Read Along and Socratic by Google provide interactive learning experiences that promote correct pronunciation and oral responses. These tools align with child-friendly pedagogy by offering a playful and immersive environment, which is particularly beneficial in primary education settings.

Moreover, AI platforms such as Speechling integrate human coaching with machine learning. Pupils record speech samples and receive personalised evaluations focusing on aspects such as pronunciation, intonation and fluency (Saputra and Widiastuty, 2024). This hybrid approach, which combines automated assistance with expert feedback, allows for more nuanced and targeted learning experiences. Speechling is effective for independent learners and can also be used as a supplementary tool for classroom instruction. As a result, teachers are better equipped to provide differentiated support based on each learner's oral proficiency needs.

In conclusion, AI offers an extensive range of tools that empower the teaching and learning of English speaking skills. These include speech recognition software, chatbots, gamified applications and hybrid coaching systems, all of which contribute to improving learners' fluency, confidence and engagement. With its ability to provide personalised feedback and interactive practice, AI supports teachers in creating more dynamic and inclusive speaking activities (Sukumaran and Khair, 2024; Wang and Vasquez, 2021). As these technologies continue to evolve, their role in supporting speaking instruction will become even more significant. Ultimately, AI has the potential to bridge instructional gaps and enhance oral communication outcomes for diverse learners.

TPACK Model and AI Tools Integration in Teaching Speaking

The Technological Pedagogical Content Knowledge (TPACK) framework serves as a comprehensive model for understanding how teachers integrate technology effectively into instructional practices. Developed by Mishra and Koehler (2006), the TPACK model builds upon Shulman's (1986) concept of Pedagogical Content Knowledge by adding Technological Knowledge (TK) as a crucial domain. In the context of English language instruction, particularly in the teaching of speaking skills, this framework offers valuable insights into how Artificial Intelligence (AI) tools can be executed meaningfully in the classroom.

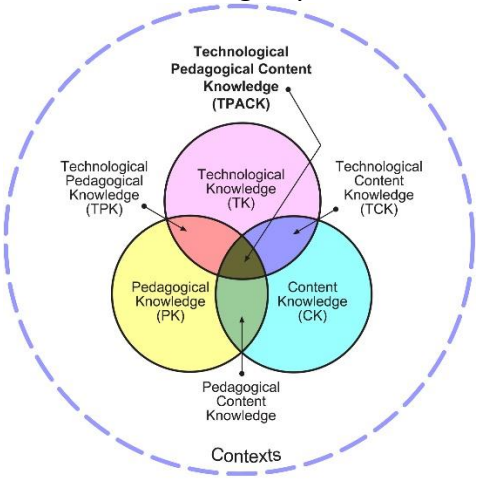

Figure 1: The TPACK Framework illustrating the intersection of technological, pedagogical, and content knowledge domains (Mishra & Koehler, 2006)

Technological Knowledge (TK) refers to teachers' proficiency in using digital tools, including AI-powered applications. In the teaching of speaking skills, TK involves the understanding of how to operate speech recognition software, automated pronunciation feedback systems or AI-based conversational agents. For instance, tools such as ELSA Speak and Google Read Along employ AI to assist learners in improving pronunciation and fluency (Rahimi and Zhang, 2022). However, possessing TK alone is insufficient for effective integration.

Teachers must be well-prepared with Technological Content Knowledge (TCK), which involves aligning technological tools with specific language content. In the case of speaking instruction, this requires selecting AI applications that support targeted learning goals such as sentence stress, turn-taking or interactive dialogues. When teachers are able to align AI tools with curriculum content, the technology transitions from being a mere novelty to serving as a powerful vehicle for enhancing pupils' skill development (Chai et al., 2013).

On the other hand, Technological Pedagogical Knowledge (TPK) is equally important as it addresses the ability to integrate technology with appropriate instructional strategies. Teachers with strong TPK can design speaking tasks that utilise AI to foster active engagement and real-world communication practice. For example, the use of AI Chatbots in both pair and group activities can create authentic conversational opportunities and offer immediate corrective feedback (Zou et al., 2022). Such integration ensures that AI supports pedagogical goals rather than distracting from them.

In summary, the integration of AI into the teaching of English speaking skills requires a balanced application of TK, TCK, and TPK. Educators who are competent in these domains are better positioned to design technology-enhanced learning experiences that are pedagogically sound, content-specific and technologically appropriate. The TPACK framework thus provides a practical guide for effective and thoughtful AI integration in language education.

Benefits of Integrating AI Tools in Teaching Speaking Skills

Provides Immediate and Automated Feedback

One of the main benefits of AI for teachers is the ability to provide immediate and automated feedback on pupils' speaking performance. Traditionally, giving individual feedback is time-consuming, particularly in large classes. The implementation of AI tools such as speech recognition systems and pronunciation analysers enables teachers to assign speaking tasks while relying on the system to evaluate pupils' pronunciation, fluency and intonation in real time. This automation allows teachers to focus more on planning meaningful classroom engagements and less on repetitive assessment tasks. For instance, ELSA Speak uses AI to deliver instant feedback on pronunciation and rhythm, allowing teachers to monitor pupils' progress through performance dashboards (Pinontoan et al., 2022). Nguyen (2023) highlights that such tools reduce teachers' workload while maintaining the quality of individualised feedback. Hence, more instructional time can be dedicated to designing speaking tasks that aligned with communicative learning goals.

Differentiated Instructions

AI supports teachers in implementing differentiated instruction, especially in mixed-ability classrooms. AI-driven platforms adapt to pupils' proficiency levels, offering personalised speaking tasks and challenges tailored to each learner's needs (Jeon et al., 2023). This helps

teachers manage classroom diversity without compromising the quality of instruction. For example, applications such as SmallTalk2Me and Talkpal assess pupils' fluency levels and provide tasks that suit their learning pace. Qiao and Zhao (2023) observed that such adaptive technologies enable teachers to support both low and high achievers more effectively, particularly in speaking lessons where pupils' comfort and confidence levels can vary greatly. By integrating AI tools into speaking instruction, teachers are able to provide a more inclusive and equitable learning environment, ensuring that each student receives appropriate support based on their proficiency level.

Enhances Quality of the Lesson and Pupils' Engagement

AI promotes quality and creative lessons, which help to improve students' engagement. AI tools offer various interactive features, like voice-based chatbots, role-play simulations, and gamified speaking activities. These features enable teachers to design engaging speaking tasks that reflect real-world communication contexts. Platforms such as Andy English Chatbot allow pupils to participate in simulated conversations, making speaking practice more dynamic and less intimidating (Fathi, Rahimi and Derakhshan, 2024). This variety supports the Communicative Language Teaching (CLT) approach by encouraging meaningful interaction and reducing speaking anxiety. Santos and Miguel (2020) stated that game-based learning and role-play strategies significantly increase learners' willingness to speak, and AI tools can effectively facilitate the implementation of these strategies. Consequently, teachers are empowered to create more communicative and enjoyable lessons that promote active student participation.

Challenges of Integrating AI Tools in Teaching Speaking Skills

Although Artificial Intelligence (AI) plays an increasingly important role in enhancing the teaching of speaking skills, its integration into classroom practice poses several significant challenges. These barriers hinder the full potential of AI and contribute to uneven adoption among educators. Teachers encounter difficulties ranging from limited professional training and a lack of familiarity with AI tools to broader concerns related to infrastructure, pedagogy, and ethical considerations. In the absence of adequate support, AI is often underutilised or misapplied, thereby diminishing its intended educational impact. Furthermore, the pressure to adapt to rapidly evolving technologies also increases teachers' workload and contributes to professional stress. Addressing these challenges is crucial in ensuring AI can be implemented effectively and sustainably in language education. The following sections examine the key obstacles educators face in integrating AI into speaking instruction.

Limited Teacher Training and Familiarity

One major challenge is the inadequate training and limited familiarity that many teachers have with AI tools. Without sufficient knowledge, educators often struggle to use AI effectively, leading to its underutilization or misuse in the classroom (Lingjing, 2024). Teachers may also lack the confidence to choose appropriate tools for specific language tasks, reducing the effectiveness of AI-driven activities. For instance, AI chatbots and speech recognition platforms may be ignored since educators are unsure of how to integrate them effectively into lessons. This lack of understanding directly affects pupils' engagement and speaking skill development. As a result, pupils may miss out on opportunities to practice language in interactive and personalised ways. Comprehensive training programs, including hands-on

workshops and ongoing professional development, are necessary to equip teachers with both technical and pedagogical skills (Nazaretsky et al., 2022).

Usability and Accessibility of AI Tools

Another barrier to integrating AI in teaching speaking skills is the complexity and limited accessibility of many AI tools. Educators, especially those less tech-savvy, often find AI platforms difficult to navigate due to their complicated interfaces or technical jargon (Zou et al., 2024). These tools may not offer enough customisation, making it hard for teachers to adapt them to meet classroom needs. In addition, tools that require specific hardware or software can exclude schools with limited technological resources. These inequality creates a digital divide, disadvantaging pupils in under-resourced areas (Roxana and Fabian, 2023). Teachers burdened with heavy workloads may resist adopting tools that seem time-consuming to learn. Thus, developers should focus on user-friendly designs and provide clear guidance to support broader access and usability in diverse educational settings.

Lack of Pedagogical Frameworks for AI Integration

Despite advancements in AI tools, many lack alignment with clear pedagogical frameworks. Teachers often struggle to integrate AI into lesson plans in a way that supports meaningful learning, especially in speaking, which requires interaction and context (Florea and Radu, 2019). Without structured guidance, AI tools may be used merely for practice without contributing to deeper oral language development. For example, pronunciation apps may offer corrective feedback but fail to promote conversational skills or communicative competence. The absence of pedagogical direction reduces the educational value of AI and can lead to superficial implementation. Therefore, educators need support in understanding how AI can complement communicative language teaching methods. Moreover, professional development should include strategies for pedagogical alignment to ensure AI serves both instructional goals and student needs.

Teacher Resistance and Low Motivation

Resistance and low motivation among teachers are significant barriers to AI integration in speaking instruction. Some educators are hesitant due to unfamiliarity with AI, doubts about its effectiveness, or fears that it might diminish their professional roles (Mohamed Ali and Imam, 2024). There is a concern that AI cannot replicate the subtle, human aspects of communication, such as intonation and cultural sensitivity. Additionally, scepticism about the accuracy of AI assessments can lower trust in these tools. Teachers may also worry that reliance on AI undermines their authority or threatens job security. Hence, institutions must foster positive attitudes through peer support, success stories and evidence-based practice. Encouraging a balanced view of AI as a supplement rather than a replacement can help build teacher confidence and openness to innovation (Wang et al., 2021).

Technical Infrastructure Limitations

The lack of adequate technical infrastructure remains a serious challenge in many schools, particularly in rural or underserved regions. AI tools often require stable internet connections and up-to-date devices, which may not be available in all classrooms (Zhang and Wang, 2022). Without these prerequisites, AI applications may function poorly, disrupt lessons, or become inaccessible altogether. For example, an AI tool that provides real-time pronunciation feedback may lag or crash on outdated hardware, frustrating both teachers and pupils. These

disruptions reduce the effectiveness of AI and discourage its use in daily instruction. To address this, policymakers and school leaders must invest in upgrading infrastructure and ensuring equitable access to digital tools (Agus and Eva, 2024). Adopting cloud-based platforms and low-bandwidth solutions can also help bridge technological gaps and promote consistent AI use.

Ethical and Privacy Concerns

Ethical and privacy issues further complicate the adoption of AI in teaching speaking skills. Many AI tools collect personal data such as voice recordings and interaction patterns, raising concerns about data security and misuse (Holmes and Tuomi, 2022). Parents and pupils may be uneasy with the idea of being monitored or recorded during lessons. Moreover, biases embedded in AI algorithms can lead to unfair treatment of certain student groups based on gender, ethnicity or language background (Binu, 2024). These risks highlight the importance of transparency, data protection and responsible AI design. Schools should adopt tools only from vendors that adhere to ethical standards and offer clear policies on data usage. Creating a culture of digital responsibility among pupils and teachers will build trust and encourage more ethical use of AI in education.

Discussion and Recommendation

One of the core challenges in integrating AI in speaking instruction is teachers' lack of training and confidence in using technology. Without structured support, educators struggle to utilise AI effectively in classroom settings. As highlighted by Nazaretsky et al. (2022), professional development plays a crucial role in overcoming this barrier. Training should include not only technical skills but also how to apply AI in pedagogically meaningful ways. Besides, hands-on workshops and guided use of AI tools in real teaching scenarios can improve teacher readiness. By enhancing digital literacy, teachers will be better equipped to integrate AI into language instruction. This approach promotes both confidence and competence among educators.

Another concern is the over-reliance on AI, which may lead to a diminished role for teachers in the classroom. While AI can provide personalised feedback and additional practice, it lacks emotional intelligence and cannot replace human interaction (Arofat, 2024; Popenici & Kerr, 2017). Language learning, particularly speaking, requires empathy, encouragement and contextual understanding that AI cannot fully provide. Therefore, AI should be viewed as a support tool rather than a replacement for the teacher. Policies should encourage teachers to use AI for reinforcement and assessment while maintaining their leadership in instruction. A balanced approach ensures that the human aspect of language learning remains central. This balance fosters student engagement and preserves the teacher-student relationship.

Technical infrastructure limitations also pose a major obstacle to effective AI use. Many schools, especially in rural areas, lack the hardware or connectivity needed to support advanced AI tools (Zhang and Wang, 2022). This results in inconsistent access and poor performance, reducing student engagement and learning outcomes. Governments and school administrators must prioritise investments in digital infrastructure to bridge the technology gap. Providing up-to-date devices, internet access, and IT support will ensure all pupils benefit equally from AI innovations. Additionally, using lightweight, cloud-based AI

tools can reduce hardware demands and improve accessibility. These measures are essential for promoting equity in AI-enhanced education.

Ethical and privacy issues are another area that requires careful attention in AI adoption. Many educators and parents are concerned about how student data is collected, stored, and used (Holmes and Tuomi, 2022). These concerns can lead to distrust and resistance to AI integration. To address this, schools should adopt AI systems that comply with strict ethical standards and data protection laws. Teachers and pupils must also be educated on digital citizenship and responsible data practices. Transparent communication about how data is used can foster trust and encourage acceptance of AI in the classroom. Ethical awareness must be embedded in school policies and daily practices to safeguard student rights.

A further challenge is the lack of culturally and contextually appropriate AI content. Many AI tools are developed in global contexts and may not align with local curricula, teaching methods, or cultural norms. This misalignment can reduce the relevance and effectiveness of AI in language instruction. Collaboration between developers, educators, and policymakers is needed to localise AI tools for specific educational settings. Customising content to reflect local language use and communication styles will make AI more engaging and useful for learners. Ensuring that AI tools are aligned with national standards and syllabus enhances their integration into the curriculum. This relevance supports more effective teaching and learning outcomes.

Finally, more research is needed to understand the long-term impact of AI on speaking skills. Although AI offers immediate benefits such as personalised feedback, its effects on fluency, confidence, and critical thinking over time remain unclear. Studies should explore how AI tools influence learner performance across diverse sociolinguistic contexts. Researchers should also investigate on how to balance automated feedback with teacher input in language assessment. By building a strong evidence base, educators and policymakers can make informed decisions about AI use in speaking instruction. Ongoing research should ensure that AI tools evolve in ways that support both language proficiency and learner well-being. This knowledge will guide responsible and effective integration of AI into language classrooms.

Conclusion

The integration of Artificial Intelligence in teaching English speaking skills presents a transformative opportunity for both educators and learners. AI offers numerous benefits, including automated feedback, personalised instruction, enhanced lesson quality, and improved student engagement. For teachers, AI reduces workload, supports differentiated teaching, and enables the design of communicative and engaging lessons. On the other hand, it fosters pronunciation and fluency development, reduces anxiety through judgment-free practice, and promotes autonomous learning among pupils. However, these benefits are accompanied by significant challenges. Teachers often face barriers such as lack of training, limited digital literacy, inadequate infrastructure and concerns over ethical data use. These issues, if left unaddressed, can hinder the effective implementation of AI in language instruction. Therefore, professional development, infrastructure investment, clear ethical

guidelines and the reinforcement of the teacher's central role are essential to ensure that AI serves as a supportive tool rather than a substitutive one in language classrooms.

The key contribution of this study lies in providing a balanced perspective that examines both the potential benefits and practical challenges of integrating AI into the teaching of English speaking skills. It offers useful implications for educators, policymakers and curriculum designers by highlighting how AI can complement existing pedagogy, while also outlining the conditions required for successful implementation. Furthermore, this study enriches the body of knowledge on digital pedagogy, paving the way for future research on AI-driven innovations in language education. Hence, with thoughtful integration and sustained support, AI can be harnessed to empower English language teaching and enrich pupils' speaking proficiency in meaningful, inclusive, and equitable ways.

References

Ainunnisa, D. P., Zaitun, Z., & Hadi, M. S. (2021). Effective strategies applied in English speaking class. *English Community Journal, 5*(2), 79–89. https://doi.org/10.32502/ecj.v5i2.3667

Arofat, A. (2024). The role of artificial intelligence technology in improving speaking skills. *Yangi O'zbekiston Ustozlari, 2*(27), 10–17.

Binu, P. M. (2024). Affordances and challenges of integrating artificial intelligence into English language education: A critical analysis. *English Scholarship Beyond Borders, 10*(1), 45–58.

Chai, C. S., Koh, J. H. L., & Tsai, C. C. (2013). A review of technological pedagogical content knowledge. *Educational Technology & Society, 16*(2), 31–51.

Fathi, J., Rahimi, M., & Derakhshan, A. (2024). Improving EFL learners' speaking skills and willingness to communicate via artificial intelligence-mediated interactions. *System, 121*, 103254. https://doi.org/10.1016/j.system.2024.103254

Florea, S., & Radu, I. (2019). AI in education: The need for pedagogical frameworks. *Journal of Educational Technology & Society, 22*(4), 42–55.

García, A., López, M., & Martínez, J. (2023). Improving speaking skills through conversational practice with chatbots. *Journal of Language Education and Technology, 10*(2), 45–58.

Hidayatullah, E. (2024). The impact of Talkpal.AI on English speaking proficiency: An academic inquiry. *Jurnal Cakrawala Pendas, 10*(3), 155–165. https://doi.org/10.31949/jcp.v10i3.12345

Holmes, W., & Tuomi, I. (2022). Data privacy and ethical challenges in the use of AI in education. *AI & Society, 37*(1), 39–56. https://doi.org/10.1007/s00146-021-01173-6

Lingjing, Z. (2024). Benefits and challenges in implementing artificial intelligence: Chinese EFL primary school teachers' attitude and perception. *Global and Local Distance Education, 10*(2), 55–67.

Maulidianti, I., Berliana, N., & Yuliana, Y. G. S. (2024). The effectiveness of using Smalltalk2me AI in teaching speaking skills. *ELTALL: English Language Teaching, Applied Linguistics and Literature, 5*(2), 148–156.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017–1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x

Mohamed Ali, M. K., & Imam, H. E. (2024). Teacher resistance to AI integration in language education: An exploration. *Education and Information Technologies, 29*(3), 805–824. https://doi.org/10.1007/s10639-023-12345

Nadesan, N. K., & Shah, P. Md. (2020). Non-linguistic challenges faced by Malaysian students in enhancing speaking skills. *Creative Education, 11*(10), 1988–2001. https://doi.org/10.4236/ce.2020.1110147

Nazaretsky, T., Ariely, M., Cukurova, M., & Alexandron, G. (2022). Teachers' trust in AI-powered educational technology and a professional development program to improve it. *British Journal of Educational Technology, 53*(6), 1412–1429. https://doi.org/10.1111/bjet.13228

Nguyen, A., Ngo, H. N., Hong, Y., Dang, B., & Nguyen, B. P. T. (2023). Ethical principles for artificial intelligence in education. *Education and Information Technologies, 28*(4), 4221–4241. https://doi.org/10.1007/s10639-022-11234

Paneerselvam, A., & Mohamad, M. (2019). Learners' challenges and English educators' approaches in teaching speaking skills in an ESL classroom: A literature review. *Creative Education, 10*(12), 3299–3305. https://doi.org/10.4236/ce.2019.1012252

Pinontoan, K. A., Pelenkahu, N., & Muntuuntu, M. C. (2022). Using English Language Speech Assistant (ELSA) Speak application to improve pronunciation ability. *JoTELL Journal of Teaching English, Linguistics, and Literature, 1*(11), 1227–1237.

Pratolo, B., Habibie, A., & Setiawan, A. (2019). Speaking skill challenges encountered by Indonesian EFL learners. *Ahmad Dahlan International Conference Series on Education & Learning, Social Science & Humanities, 1*(1), 160–164.

Rahimi, M., & Zhang, L. J. (2022). Exploring the impact of an AI-based mobile application on EFL learners' pronunciation development. *Computer Assisted Language Learning, 35*(7), 1362–1381. https://doi.org/10.1080/09588221.2020.1839504

Roxana, R. F. D. L. V., & Fabian, G. A. (2023). Exploring the benefits and challenges of AI-language learning tools. *The International Journal of Social Sciences and Humanities Invention, 10*(1), 7569–7576. https://doi.org/10.18535/ijsshi/v10i1.03

Santos, D., & Miguel, L. (2020). The discussion of communicative language teaching approach in language classrooms. *Journal of Education and E-Learning Research, 7*(2), 104–109. https://doi.org/10.20448/journal.509.2020.72.104.109

Saputra, A. E., & Widiastuty, H. (2024). The role of artificial intelligence in overcoming challenges in learning English speaking skills. *International Proceedings Universitas Tulungagung, 2*(1), 55–62.

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher, 15*(2), 4–14. https://doi.org/10.3102/0013189X015002004

Southwell, R., Pugh, S., Perkoff, E. M., Clevenger, C., Bush, J. B., Lieber, R., Ward, W., Foltz, P., & D'Mello, S. (2022). Challenges and feasibility of automatic speech recognition for modeling student collaborative discourse in classrooms. *Proceedings of the 15th International Conference on Educational Data Mining, 302–315.*

Sukumaran, S., & Khair, N. S. (2024). Exploring the role of AI platforms in improving English-speaking skills in Malaysian higher education institutions. In *Innovative pedagogical practices for higher education 4.0* (pp. 244–254). CRC Press.

Wang, Y., & Vásquez, C. (2021). A systematic review of teacher beliefs and practices on integrating technology in language teaching. *System, 98*, 102450. https://doi.org/10.1016/j.system.2020.102450

Weischedel, R. M., Voge, W. M., & James, M. (1978). An artificial intelligence approach to language instruction. *Artificial Intelligence, 10*(3), 225–240. https://doi.org/10.1016/0004-3702(78)90003-3

Yuan, Z., & Briscoe, T. (2016). Grammatical error correction using neural machine translation. *Proceedings of the 2016 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies, 380–386.* https://doi.org/10.18653/v1/N16-1044

Zhang, C., Meng, Y., & Ma, X. (2024). Artificial intelligence in EFL speaking: Impact on enjoyment, anxiety and willingness to communicate. *System, 121*, 103259. https://doi.org/10.1016/j.system.2024.103259

Zhang, X., Li, Y., & Wang, L. (2022). Overcoming technical challenges in implementing AI-based education tools. *Journal of Educational Computing Research, 60*(2), 411–430. https://doi.org/10.1177/07356331211058336

Zou, B., Huang, Y., & Xie, H. (2022). Effects of AI-based chatbot tools on EFL learners' speaking performance. *ReCALL, 34*(1), 89–106. https://doi.org/10.1017/S0958344021000144

Zou, B., Liviero, S., Ma, Q., Zhang, W., Du, Y., & Xing, P. (2024). Exploring EFL learners' perceived promise and limitations of using an artificial intelligence speech evaluation system for speaking practice. *System, 126*, 103497. https://doi.org/10.1016/j.system.2024.103497