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Utilizing ChatGPT to Develop Arabic Speaking Skills through Deep Learning Approach

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Pemanfaatan ChatGPT untuk Pengembangan Keterampilan Berbicara Bahasa Arab Melalui Pendekatan Pembelajaran Mendalam

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Abstract
Language serves as a vital medium for human communication, allowing individuals to express ideas, emotions, and knowledge. In Arabic language learning, speaking skill (*mahārat al-kalām*) is a core component that reflects communicative competence. However, current Arabic teaching practices often remain conventional, emphasizing memorization and grammar explanation rather than authentic speaking interaction. Learners frequently experience low motivation, speaking anxiety, and limited opportunities to practice in meaningful contexts. To address these challenges, this study aims to analyze the utilization of ChatGPT, an artificial intelligence (AI)-based conversational model, for developing *mahārat al-kalām* through a deep learning approach. Employing a qualitative descriptive method with literature analysis, this research synthesizes findings from recent scholarly works on Arabic language pedagogy, AI integration, and deep learning principles. The results reveal that ChatGPT can simulate authentic dialogues, provide real-time feedback, and promote reflective and contextual learning, aligning with the core values of deep learning. Furthermore, it offers an engaging, learner-centered environment that fosters communicative confidence and higher-order thinking. The study concludes that integrating ChatGPT into Arabic-speaking instruction represents an innovative pedagogical model for enhancing meaningful and transformative language learning.

Keywords
Arabic language learning; *mahārat al-kalām*, deep learning; artificial intelligence; ChatGPT

Introduction

Language serves as a crucial medium of communication in human life, enabling individuals to express ideas, thoughts, emotions, and knowledge. In the context of foreign language learning, the primary objective extends beyond mastering grammatical structures or receptive skills such as reading and listening. It also encompasses the development of productive competencies, namely speaking

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and writing. Within Arabic language learning, *mahārat al-kalām* (speaking skill) occupies a central position as one of the ultimate goals of language instruction, representing learners' communicative proficiency (Pratiwi et al., 2024).

In Arabic language learning, *mahārat al-kalām* is regarded as the culmination of linguistic mastery, as it reflects learners' ability to use the language communicatively and contextually. Instruction in *mahārat al-kalām* not only focuses on the acquisition of vocabulary and grammatical patterns but also fosters confidence, spontaneity, and the ability to articulate ideas naturally within specific communicative situations. Therefore, speaking instruction should prioritize the creation of meaningful communicative experiences that encourage learners to express their ideas creatively and reflectively (Pratiwi et al., 2024).

Speaking ability is not merely the capacity to articulate words phonetically; rather, it involves cognitive skills, the structural organization of sentences, the accurate conveyance of meaning, and the ability to respond appropriately to communicative contexts. Thus, *mahārat al-kalām* serves as a crucial indicator of success in Arabic language learning, as it reflects learners' ability to use the language authentically within academic, social, and professional settings.

However, the current state of Arabic language instruction across various educational institutions still presents several significant challenges. The learning process remains largely dominated by conventional methods that emphasize vocabulary memorization, theoretical explanations of grammar, and mechanical, structured exercises (Nurfaiza, 2024). Such instructional approaches often position learners as passive recipients, providing limited opportunities for them to actively develop their speaking skills. Consequently, *mahārat al-kalām* does not develop optimally, and learners frequently struggle to use Arabic communicatively in real-life contexts.

On the other hand, another major challenge in developing *mahārat al-kalām* lies in students' low learning motivation. Many learners perceive Arabic as a difficult, tedious, and irrelevant language in relation to contemporary needs. Opportunities for speaking practice are also highly limited, due both to restricted instructional time and the lack of environments that naturally support the use of Arabic (Ramadhan, 2023). Teachers likewise encounter difficulties in designing activities that stimulate active learner participation and in providing timely and constructive feedback. Consequently, these conditions render speaking instruction less meaningful, decontextualized, and unable to foster deep learning awareness among students.

In response to these challenges, the language learning paradigm must shift from traditional approach to those that are learner-centered, collaborative, and meaning-oriented. One pedagogical framework that aligns with the demands of twenty-first-century education is deep learning. Marton and Säljö (1976) describe deep learning as an approach that emphasizes the comprehension of meaning and the interrelationships among concepts, rather than the mere memorization of information. Biggs and Tang (2011) further assert that deep learning occurs when learners are actively and reflectively engaged in understanding principles and capable of applying them to solve real-world problems. Hattie (2017) points out that deep learning encompasses learners' capacity to consciously reflect upon and regulate their own cognitive processes. In Arabic language learning, the implementation of deep learning entails creating authentic and contextual learning experiences that enable learners to use the language as a medium for thinking, meaning construction, and reflective awareness of their communicative processes.

The advancement of artificial intelligence (AI) technology has opened new opportunities in the field of education, including foreign language learning. AI facilitates more adaptive, personalized, and efficient learning processes through systems capable of adjusting to learners' individual learning styles and providing automatic feedback. Such technology assists teachers in managing instruction effectively, enhancing student engagement, and fostering interactive, learner-centered learning experiences. Consequently, the integration of AI marks a transformation from conventional teaching models toward more reflective, contextual, and individually responsive approaches to learning (Sulaeman et al., 2023).

One of the most prominent applications of AI in recent years is ChatGPT, an AI-based language model developed by OpenAI. ChatGPT has the ability to comprehend conversational context, generate relevant responses, and provide instant feedback aligned with users' proficiency levels (Sulaeman et al., 2023). In the context of *mahārat al-kalām* instruction, ChatGPT functions as a virtual conversational partner that enables learners to engage in intensive speaking practice without spatial or temporal constraints. The use of ChatGPT in language learning can enhance student engagement and critical thinking through interactive conversations that simulate authentic communication. Moreover, this technology can provide immediate feedback on linguistic structures, making the learning process more flexible, enjoyable, and meaningful (Hadi & Qohar, 2024).

In addition to its impact on linguistic skill development, ChatGPT also contributes significantly to learners' affective dimensions. Yıldız (2024) found that the integration of ChatGPT into language learning enhances students' self-efficacy and reduces speaking anxiety, as it allows them to practice within a safe and non-judgmental environment. This approach encourages learners to express their ideas more confidently, expand their vocabulary, and strengthen their speaking ability through immediate and constructive feedback. Similarly, Alsalem (2022) emphasizes that ChatGPT functions as a virtual conversational partner that provides authentic and contextual interactions, thereby fostering learners' speaking fluency and enhancing their overall communicative competence.

The use of ChatGPT aligns with the principles of deep learning, as it enables learners to actively engage in communication, reflect on the feedback they receive, and develop higher-order thinking skills through complex and meaningful interactions. ChatGPT transforms speaking instruction from merely mechanical practice into a contextual and relevant learning experience. Through such dynamic interactions, learners not only acquire the ability to speak Arabic but also develop a reflective understanding of the purposes and contexts underlying their language use (Hadi & Qohar, 2024). Therefore, the integration of ChatGPT into Arabic language learning can be regarded as a pedagogical innovation that strengthens communicative competence while simultaneously fostering deep learning awareness.

This study aims to analyze the utilization of ChatGPT in developing speaking skills (*mahārat al-kalām*) through a deep learning approach. Although research on the application of AI in language learning has grown rapidly, studies specifically address the integration of ChatGPT in developing *mahārat al-kalām* based on deep learning principles remain limited. Most previous studies have primarily focused on translation, writing instruction, or the general use of AI in language learning. This indicates a significant research gap that warrants further investigation. Hence, the present study is relevant, as it seeks to explore how ChatGPT can serve as an innovative solution to various challenges in Arabic speaking instruction while integrating deep learning principles.

Accordingly, this study holds both academic and practical significance. Academically, it is expected to contribute to the theoretical and pedagogical development of technology-based Arabic language instruction. Practically, the findings may serve as a reference for educators in designing more interactive, meaningful, and contextual speaking activities that harness the full potential of ChatGPT. To achieve these objectives, this research adopts a qualitative approach employing a descriptive-analytical method based on a literature review.

Methods

This study employs a qualitative descriptive approach using the library research method. This approach was chosen because the aim of the study is not to test a hypothesis, but to gain an in-depth understanding of the phenomenon of ChatGPT utilization in developing Arabic speaking skills (*mahārat al-kalām*) through the lens of deep learning. The qualitative approach enables the researcher to explore meanings, concepts, and theoretical relationships emerging from various scholarly sources in a comprehensive and interpretive manner.

The data in this study are secondary in nature, consisting of journal articles, conference proceedings, academic books, and research reports. All sources were selected based on their relevance to the themes of Arabic language learning, artificial intelligence (AI), ChatGPT, and deep learning pedagogy. Data collection was conducted through academic databases using keywords such as "ChatGPT in language learning," "Arabic speaking skill," "deep learning pedagogy," and "AI in Arabic learning."

The data collection technique involved document analysis, whereby sources were selected based on established criteria of scientific validity, including topical relevance and academic credibility. Each document was systematically analyzed to identify key concepts, research findings, and pedagogical recommendations related to the development of *mahārat al-kalām* through AI-based technologies. Data analysis employed a qualitative content analysis approach. Information obtained from the selected sources was categorized into three main themes: challenges in *mahārat al-kalām* instruction, the potential integration of ChatGPT in Arabic language learning, and the principles of deep learning. These themes were subsequently synthesized to construct a comprehensive conceptual framework. The results of this analysis form the basis for discussing the relevance, opportunities, and pedagogical implications of ChatGPT utilization in Arabic language learning within a deep learning orientation.

Results and Discussion

Speaking skill (*mahārat al-kalām*) constitutes an essential component of Arabic language learning; however, it remains one of the most persistent challenges in the context of foreign language learning. Several studies have shown that language learners often struggle with oral communication due to a lack of fluency, limited vocabulary, and psychological pressure when speaking in public.

In the context of Arabic language learning, Shaharuddin et al. (2024) found that students exhibit high levels of speaking anxiety, primarily caused by a fear of negative evaluation when speaking in class. This condition leads to reluctance, nervousness, and passivity despite sufficient language exposure. Previous studies by Dellah et al. (2020) and Radzi et al. (2021) further reinforce this finding

by revealing that learners often fear making linguistic errors and lack confidence in speaking spontaneously.

From a pedagogical perspective, Al-Khresheh (2024) reports that many language teachers across different contexts still rely heavily on conventional, teacher-centered approaches. Such instructional practices are considered ineffective for developing authentic speaking ability due to the limited use of interactive conversational models and AI-based learning technologies. Although teachers acknowledge ChatGPT's potential to provide personalized interaction and dynamic learning experiences, pedagogical barriers persist, particularly in designing activities that promote active student participation.

Other challenges arise from linguistic and technical dimensions. Rahmouni (2024) highlights the unique complexity of Arabic language learning due to the phenomenon of diglossia, the coexistence of *fuṣḥá* (Standard Arabic) and *'ämmīyah* (Colloquial Arabic), which necessitates differentiated instructional approaches. Moreover, the limited availability of Arabic digital resources and linguistic datasets often causes AI systems such as ChatGPT to misinterpret syntactic structures and diacritical patterns, thereby reducing their optimal function in spoken language learning.

From a psychological standpoint, Yıldız (2024) emphasizes that low self-efficacy constitutes a major obstacle to successful oral communication. Foreign language learners frequently experience anxiety, fear of making errors, and self-doubt when speaking spontaneously. The study found that the lower the level of self-efficacy, the higher the speaking anxiety and the lower the motivation to communicate.

Balcı (2024) also asserts that although the use of information and communication technology can enhance learners' motivation and engagement, it does not necessarily lead to significant improvement in speaking proficiency unless supported by well-structured pedagogical planning and clear learning objectives. According to Balcı, technology should be integrated with meaning-oriented learning strategies to achieve optimal instructional outcomes. In the Indonesian context, limited speaking practice time in large classes, the lack of direct interaction with proficient speakers, and insufficient personalized feedback from teachers are among the key factors hindering the development of *mahārat al-kalām*. Consequently, many learners exhibit low confidence, limited fluency, and the use of vocabulary that is often irrelevant to the conversational context.

Based on these findings, it can be concluded that the challenges in teaching *mahārat al-kalām* are multidimensional, encompassing psychological aspects (such as speaking anxiety and low self-efficacy), pedagogical factors (teacher-centered instruction and the limited use of interactive technology), as well as linguistic and structural issues (such as diglossic complexity and scarcity of Arabic digital data). These conditions highlight the urgent need for innovation in Arabic language instruction that fosters a safe, communicative, and meaningful learning environment. In this regard, the utilization of AI technologies such as ChatGPT becomes particularly relevant, as it can simulate authentic conversations, provide real-time feedback, and build learners' confidence to communicate naturally and reflectively.

In contemporary Arabic language learning, teaching approaches can no longer rely solely on rote memorization of vocabulary and grammatical structures. Speaking skill (*mahārat al-kalām*), which encompasses fluency, accuracy, and meaningful communication, must be developed through more in-depth and reflective learning models. One pedagogical approach aligned with this need is deep learning, which emphasizes conceptual understanding, reflection, and the application of knowledge

in authentic contexts. This approach is not limited to the technological meaning of AI but also represents a pedagogical paradigm that prioritizes active knowledge construction by learners (Biggs & Tang, 2011).

The principles of deep learning include meaningful learning, reflection, project-based learning, and authentic collaboration. According to Biggs and Tang (2011), deep learning requires constructive alignment learning objectives, learning activities, and assessment in order to foster profound understanding. In strengthening *mahārat al-kalām*, these principles can be applied through contextual speaking activities such as role-plays, thematic discussions, and project presentations. Such activities enable learners to use Arabic actively, think critically, and construct meaning within real-life communicative situations.

The urgency of implementing deep learning in *mahārat al-kalām* instruction has intensified with alongside rapid advancements in AI–based educational technologies. Alahmadi et al. (2024) developed a deep learning-based ASR model that combines autoencoder, LSTM, and GRU architectures, achieving a recognition of 95.31% with a word error rate of only 4.69%. These developments indicate that deep learning enables adaptive and responsive feedback, which is essential for improving learners' speaking proficiency. Nevertheless, challenges persist in phoneme-level recognition, particularly for isolated Arabic sounds, which constitute a crucial component of *mahārat al-kalām* instruction. Therefore, integrating deep learning frameworks into Arabic language pedagogy represents a strategic innovation to foster communicative, reflective, and learner-centered speaking instruction aligned with contemporary educational demands.

Aligned with the pedagogical urgency discussed above, the use of AI, particularly ChatGPT, emerges as a promising solution. Developed by OpenAI (2024), ChatGPT is a generative language model designed to process natural language, understand conversational context, and provide adaptive, communicative responses to user input. These features make ChatGPT a relevant tool for use as a virtual conversational partner (*al-muḥādathah al-iḥtiyāṭīyah*) in Arabic-speaking practice.

Recent studies indicate that ChatGPT fosters more reflective and meaningful learner engagement. Klimova (2024) argues that the use of ChatGPT in foreign language learning promotes deep engagement by stimulating higher-order thinking processes such as analysis and reflection on meaning. This perspective aligns with the core principles of deep learning, which emphasize conceptual understanding and meaning construction rather than mere information reproduction.

In the context of Arabic learning, ChatGPT can function as a flexible and personalized speaking practice (*tamrīn al-kalām*) tool. Learners can interact directly with the system to practice thematic vocabulary, correct grammatical errors (*naḥwīyah*), and receive instant feedback (*fawrī*). Rahmouni (2024) notes that integrating ChatGPT in Arabic instruction enhances learners' linguistic awareness (*al-wa'y al-lughawī*) and strengthens their confidence in communication.

Furthermore, ChatGPT serves as a virtual interlocutor that enables unlimited speaking practice regardless of time or location. Through repeated and context-based interactions, learners can improve both fluency (*ṭalāqah*) and accuracy (*daqqah*) in sentence construction. Nevertheless, the application of ChatGPT in Arabic language contexts still faces several challenges. Dhouib et al. (2022) report that AI systems continue to struggle with recognizing Arabic phonemes and pronunciation, particularly with respect to *ḥarakāt* and regional dialects variations. Therefore, the integrating of ChatGPT should ideally be complemented by other approaches, such as Automatic

Speech Recognition (ASR) technologies or direct teacher guidance, to ensure a balance between semantic accuracy and pronunciation authenticity.

Thus, ChatGPT should not be regarded merely as a digital tool, but rather as an instructional medium that reinforces deep learning principles in *mahārat al-kalām*. Through reflective, interactive, and contextual approaches, learners are not only trained to speak but also encouraged to think critically and comprehend meaning more deeply.

The use of ChatGPT to enhance *mahārat al-kalām* carries significant implications for pedagogical practice and curriculum design in Arabic language learning. Pedagogically, teachers are required to shift their roles from knowledge transmitters to learning facilitators who guide students in engaging with ChatGPT in meaningfully and reflective manner. This perspective aligns with Zawacki-Richter et al. (2019), who emphasize that the success of AI integration in education largely depends on instructional design that fosters meaningful human–machine interaction.

In classroom practice, teachers can adopt task-based learning activities that incorporate ChatGPT as a conversational partner. For instance, students may be assigned to engage in dialogues with ChatGPT on topics such as *taʿāruf* (introductions), *mawāḍīʿ ijtimāʿīyah* (social themes), or *al-ḥiwār al-thaqāfī* (cross-cultural dialogues), followed by reflective analysis of sentence structures and semantic meaning. This self-reflective process fosters metalinguistic awareness and critical thinking, which are two core components of deep learning.

From the learner's perspective, ChatGPT promotes autonomous learning (*taʿallum dhātī*) and reduces speaking anxiety (*qalaq al-kalām*). Zou et al. (2023) found that AI-based interactions enhance learners' confidence, as they allow students to practice speaking without social pressure. This psychological benefit is particularly crucial for non-native Arabic learners, who often experience fear of making mistakes or negative evaluation, as identified by Shaharuddin et al. (2024).

From a methodological perspective, the integration of ChatGPT can be implemented within hybrid learning models that combine virtual practice with direct teacher guidance. Teachers may develop evaluation rubrics encompassing aspects such as fluency (*ṭalāqah*), accuracy (*daqqah*), semantic relevance (*ṣilat al-maʿnā*), and self-reflection (*taʿammul dhātī*). Within this framework, ChatGPT functions as a digital scaffold that supports learners in practicing speaking skills while deepening their understanding of communicative contexts.

Future research is recommended to empirically investigate the effectiveness of ChatGPT in improving *mahārat al-kalām* performance in comparison with other deep learning-based technologies, such as Automatic Speech Recognition (ASR). Quantitative and mixed-methods studies would further strengthen the theoretical foundation by demonstrating that AI integration not only facilitates linguistic interaction but also cultivates learner agency and reflective thinking. With appropriate instructional design, ChatGPT holds the potential to become a transformative pedagogical medium, not merely a communicative aid, but a vehicle for shaping *al-mutakallim al-mufakkir*: learners who are capable of deep thinking, effective communication, and internalizing the meaningful values of language.

Conclusion

Based on the findings and analysis of the reviewed literature, it can be concluded that the utilization of ChatGPT as a learning medium holds significant potential in enhancing students' Arabic speaking skills (*mahārat al-kalām*). The integration of deep learning approaches with Artificial Intelligence

(AI) technologies creates a reflective, interactive, and meaningful learning environment. Through interactions with ChatGPT, learners not only practice speaking fluency (*ṭalāqat al-kalām*), but also develop linguistic awareness (*al-wa'y al-lughawī*) and communicative confidence without the pressure of social judgment. Furthermore, the use of ChatGPT aligns with the contemporary student-centered learning paradigm, in which learners actively construct knowledge and meaning through contextualized language experiences. Nevertheless, certain technical limitations remain, particularly in processing Arabic phonemes and diacritics markers, which necessitate complementary support from Automatic Speech Recognition (ASR) systems and teacher guidance to maintain a balance between semantic accuracy and pronunciation authenticity. Therefore, future research is recommended to conduct empirical studies that measure the effectiveness of ChatGPT in improving speaking performance within the context of *fuṣḥá* Arabic learning. Further investigations should also explore hybrid pedagogical designs that integrate AI-based learning with human intervention, with the aim to developing an Arabic language learning model that is communicative, reflective, and adaptive to the needs of digital-era learners.

References

Alahmadi, A., Alahmadi, A., Alduweib, E., Alromema, W., & Ahmed, B. (2024). Development of a deep learning-based Arabic speech recognition system for automatons. *Engineering, Technology & Applied Science Research, 14*(6), 18439–18446. https://doi.org/10.48084/etasr.8661

Al-Khresheh, M. H. (2024). Bridging technology and pedagogy from a global lens: Teachers' perspectives on integrating ChatGPT in English language teaching. *Computers and Education: Artificial Intelligence, 6*, 1–12. https://doi.org/10.1016/j.caeai.2024.100218

Alsalem, M. S. (2024). EFL Students' Perception and Attitude towards the Use of ChatGPT to Promote English Speaking Skills in the Saudi Context. Arab World English Journal, 15(4), 73–84. https://dx.doi.org/10.24093/awej/vol15no4.5

Balcı, Ö. (2024). The Role of ChatGPT in English as a Foreign Language (EFL) learning and teaching: A systematic review. *International Journal of Current Educational Studies, 3*(1), 66–82. https://doi.org/10.46328/ijces.107

Biggs, J., & Tang, C. (2011). *Teaching for quality learning at university* (4th ed.). Open University Press.

Dellah, N. F., Zabidin. N., Nordin, N. A., Amanah, F. H., & Atan, M. A. (2020). Glossophobia: Evaluating university students' speaking anxiety in English oral presentations. *Jurnal Ilmi, 10*(1), 116–126. http://www.unimel.edu.my/journal/index.php/JILMI/article/view/792

Dhouib, A., Othman, A., El Ghoul, O., Khribi, M. K., & Al Sinani, A. (2022). Arabic automatic speech recognition: A systematic literature review. *Applied Sciences, 12*(7), 1–22. https://doi.org/10.3390/app12178898

Hadi, M., & Qohar, H. A. (2024). Peran Artificial Intelligence dalam meningkatkan pembelajaran interaktif bahasa Arab. *Ranah Research: Journal of Multidisciplinary Research and Development, 6*(6), 3011–3023. https://doi.org/10.38035/rrj.v6i6.1543

Hattie, J. A., & Donoghue, G. M. (2016). Learning strategies: A synthesis and conceptual model. *Science of Learning, 1*(1), 1–13. https://doi.org/10.1038/npjscilearn.2016.13

Klimova, B., Pikhart, M., & Al-Obaydi, L. H. (2024). Exploring the potential of ChatGPT for foreign language education at the university level. *Frontiers in Psychology, 15*, 1–10. https://doi.org/10.3389/fpsyg.2024.1269319

Marton, F., & Saljo, R. (1976). On qualitative differences in learning: I—outcome and process. *The British Journal of Educational Psychology, 46*(1), 4–11. https://doi.org/10.1111/j.2044-8279.1976.tb02980.x

Nurfaiza. (2024). Pengaruh penggunaan ChatGPT dalam pembelajaran terjemah Indonesia-Arab. *Ibtidaiyah: Jurnal Pendidikan Guru Madrasah Ibtidaiyah, 2*(2), 70–89. https://doi.org/10.52491/ibtidaiyah.v2i2.228

OpenAI. (2024). GPT-4 technical report. OpenAI. https://arxiv.org/abs/2303.08774

Pratiwi, N., Efendy, A. G., Rini, H. C., & Ahmed, N. A. (2024). Speaking Practice using ChatGPT's Voice Conversation: A Review on Potentials and Concerns. Journal of Language Intelligence and Culture, 6(1), 59–72. https://doi.org/10.35719/jlic.v6i1.149

Radzi, N. A. A., Saat, R., & Idris, N. (2021). Tahap keresahan terhadap mata pelajaran bahasa asing dalam kalangan pelajar kolej universiti. *Jurnal 'Ulwan, 6*(3), 179–188. Retrieved from https://unimel.edu.my/journal/index.php/JULWAN/article/view/1000

Rahmouni, K. (2024). Exploring the use of ChatGPT in teaching Arabic case endings: Effectiveness, challenges and recommendations. *Journal of Arabic Linguistics and Technology, 6*(4), 1–20. https://doi.org/10.61414/jeti.v6i4.198

Ramadhan, A. R. (2023). Strategi penggunaan chatbot artificial intelligence dalam pembelajaran bahasa Arab pada perguruan tinggi di Indonesia. *Jurnal Oase Nusantara, 2*(2), 77–86. Retrieved from https://ejurnal.kptk.or.id/oase/article/view/32

Shaharuddin, H. N., Yahaya, H., Abdelhamid, I. Y., Shafri, M. H., & Najwa, N. (2024). The level of student anxiety in Arabic speaking skills. *International Journal of Research and Innovation in Social Science (IJRISS), 8*(8), 2563–2571. https://dx.doi.org/10.47772/IJRISS.2024.8080195

Sulaeman, I., Syuhadak, & Sulaeman, I. (2023). ChatGPT as a new frontier in Arabic education technology. *Al-Arabi: Journal of Teaching Arabic as a Foreign Language, 7*(1), 83–105. https://doi.org/10.17977/um056v7i1p83-105

Yıldız, C. (2024). ChatGPT integration in EFL education: A path to enhanced speaking self-efficacy. *Novitas-ROYAL (Research on Youth and Language), 18*(2), 167–182. https://dx.doi.org/10.5281/zenodo.13861137

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education: Where are the educators? *International Journal of Education Technology in Higher Education, 16*(39), 1–27. https://doi.org/10.1186/s41239-019-0171-0

Zou, B., Guan, X., Shao, Y., & Chen, P. (2023). Supporting speaking practice by social network-based interaction in artificial intelligence (AI)-assisted language learning. *Sustainability, 15*(4), 1–19. https://doi.org/10.3390/su15042872

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