Education and Learning Journal
Volume 6, Issue 2, July 2025, pp. 130-137
ISSN 2720-9156

Challenges and Strategies in Implementing Artificial Intelligence-Based *Maharah al-Kalam* Learning in Arabic Language Education Study Program

Baiq Raudatussolihah[a,1,*], Mardhiana Jamal[a,2], Ali Fathurrahman[b,3]
[a]Universitas Negeri Makassar, Kampus Gunung Sari baru, Jl. A.P. Pettarani, Makassar, 90222, Indonesia
[b]Institut Elkatarie, Labuhan Haji, Lombok Timur Kode Pos. 83611, Indonesia
[1]baiq.raudatussolihah@unm.ac.id, [2]mardhiana@unm.ac.id, [3]alifathurrahman190196@gmail.com
*Correspondent

ARTICLE INFORMATION

Article History:
Received: 01 July 2025
Revised: 25 July 2025
Accepted: 30 July 2025
Published: 31 July 2025

Keywords:
Artificial Intelligence (AI); Maharah al-Kalam; Arabic Language Education; Learning Challenges and Strategies; Technology-Based Curriculum Integration

ABSTRACT

This study examines the implementation of Artificial Intelligence (AI)-based *Maharah al-Kalam* learning in the Arabic Language Education Study Program, State University of Makassar (PBA UNM). This study used a qualitative approach, employing in-depth interviews, participant observation, and documentation analysis as the primary instruments for data collection. The results revealed several challenges, including limited technological infrastructure, the level of lecturer readiness, and students' adaptability to the use of AI in learning. To address these challenges, this study proposes several strategies: ongoing training for lecturers and students, technology-based curriculum integration, and developing collaborations with AI application developers. These findings are expected to serve as a reference in developing an innovative, adaptive, and relevant *Maharah al-Kalam* learning model in line with developments in modern educational technology.

Kata Kunci:
Kecerdasan Buatan (AI); Maharah al-Kalam; Pendidikan Bahasa Arab; Tantangan dan Strategi Pembelajaran; Integrasi Kurikulum Berbasis Teknologi

ABSTRAK

Penelitian ini mengkaji implementasi pembelajaran *Maharah al-Kalam* berbasis Kecerdasan Buatan (AI) di Program Studi Pendidikan Bahasa Arab, Universitas Negeri Makassar (PBA UNM). Penelitian ini menggunakan pendekatan kualitatif, dengan menggunakan wawancara mendalam, observasi partisipan, dan analisis dokumentasi sebagai instrumen utama pengumpulan data. Hasil penelitian menunjukkan beberapa tantangan, antara lain keterbatasan infrastruktur teknologi, tingkat kesiapan dosen, dan kemampuan adaptasi mahasiswa terhadap penggunaan AI dalam pembelajaran. Untuk mengatasi tantangan tersebut, penelitian ini mengusulkan beberapa strategi: pelatihan berkelanjutan bagi dosen dan mahasiswa, integrasi kurikulum berbasis teknologi, dan pengembangan kolaborasi dengan pengembang aplikasi AI. Temuan ini diharapkan dapat menjadi acuan dalam mengembangkan model pembelajaran *Maharah al-Kalam* yang inovatif, adaptif, dan relevan sejalan dengan perkembangan teknologi pendidikan modern.

How to Cite? (APA Style)

Raudatussolihah, B., Jamal, M., & Fathurrahman, A. (2025). Challenges and Strategies in Implementing Artificial Intelligence-Based Maharah al-Kalam Learning in Arabic Language Education Study Program. Education and Learning Journal, 6(2), 130–137. https://doi.org/10.33096/eljour.v6i2.1512

1. Introduction

The development of digital technology, especially artificial intelligence (AI), has brought about significant transformation in the world of education, including in *maharah al-Kalam* learning. Learning Arabic is very important in understanding the Qur'an and understanding Arabic language teaching over time, this is mentioned in the Qur'an as follows: إِنَّا أَنزَلْنَاهُ قُرْآنًا عَرَبِيًّا لَّعَلَّكُمْ تَعْقِلُونَ. Meaning: "Indeed, We have sent it down as an Arabic Qur'an so that you may understand." (Yusuf:2). AI offers various features such as speech recognition, machine translation, learning chatbots, and automated writing assessments that can improve the quality of interaction in the teaching and learning process (Al-Harbi, K., 2022).

In the Arabic Language Education Study Program environment of Makassar State University (PBA UNM), AI integration is a strategic step to answering the challenges of the Industrial Revolution 4.0 and Society 5.0 eras. AI not only supports improving the quality of teaching but also enriches students' learning experiences through a more interactive and personal approach. (Nasution, M., 2021).

However, the application of AI in Arabic language or *maharah al-kalam* learning faces complex challenges. Infrastructure limitations, the lack of digital competence of teaching staff, and student adaptation to new technologies are issues that arise in the field. (Yusuf, R., 2023). These challenges require the right strategy so that AI-based learning can run effectively and inclusively in the UNM PBA Study Program environment.

Previous studies on technology-based *maharah al-kalam* learning have shown that digital media and AI-based learning applications can increase student participation, enrich learning resources, and facilitate faster and more personalized feedback. However, most of this research is general and has not specifically examined the learning context in the Arabic Language Education Study Program at Makassar State University (UNM). Furthermore, there are limitations in exploring implementation challenges at the institutional level, such as infrastructure readiness, lecturer competency, and the integration of AI into the *maharah al-lughawiyah* al-arba'-based curriculum.

This study addresses these shortcomings by examining the challenges faced in implementing AI-based *maharah al-kalam* learning at UNM and formulating contextual implementation strategies. Using a qualitative approach that combines needs analysis, in-depth interviews, and documentation studies, this research seeks to provide comprehensive solutions, from lecturer competency development and infrastructure optimization to developing an AI-based learning model that suits the characteristics of UNM students.

Therefore, this study aims to identify the main challenges in implementing AI-based *maharah al-kalam* learning and formulate optimal strategies that can be applied in the UNM PBA Study Program.

2. Method

Qualitative descriptive research is a research method that attempts to describe and interpret objects as they are. (Raudatusolihah, Baiq dkk, 2022). Thus, it is in his other writings: البحث الكيفى هو عملية التحقيق المشابهة لعمل المخبر, meaning: qualitative research is an investigative process that is similar to laboratory work. (Raudatussolihah, Baiq, and Fathurrahman, Ali, 2024).

As for writing طريقة الملاحظة للحصول على المعلومات، وطريقة المقابلة للحصول على البيانات والمعلومات وأما طريقة التوثيق المستخدم للحصول على البيانات والمعلومات Meaning: The observation method is used to obtain information, the interview method is used to obtain data or information, while the documentation method is used to obtain data or information. (Fathurrahman, Ali and Raudatussolihah, Baiq., 2022). This can be seen in the following image:

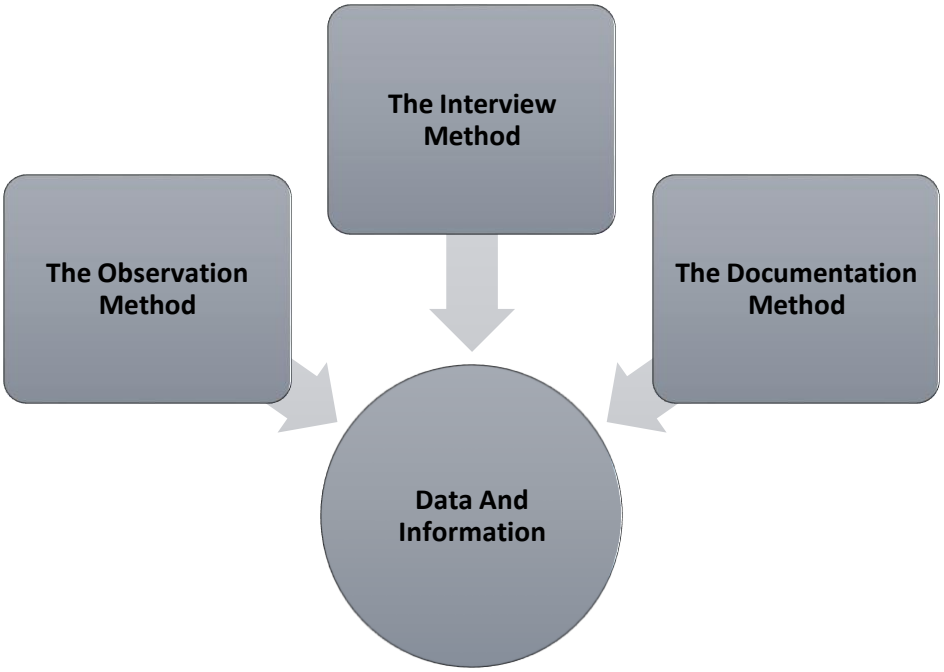

Figure 1: Data and Information Acquisition Process

This study uses a descriptive qualitative approach with a case study type that focuses on the implementation of AI-based *maharah al-kalam* learning in the Arabic Language Education Study Program at Makassar State University. This approach was chosen because it can provide in-depth information about complex and contextual phenomena (Creswell, J. W., 2016).

Data collection techniques are carried out through three main instruments: 1) In-depth interviews with lecturers and students directly involved in the AI-based learning process. 2) Participatory observation in classrooms or digital platforms that use AI-based applications. 3) Documentation of learning devices, syllabus, and AI applications used. This can be seen in the following image:

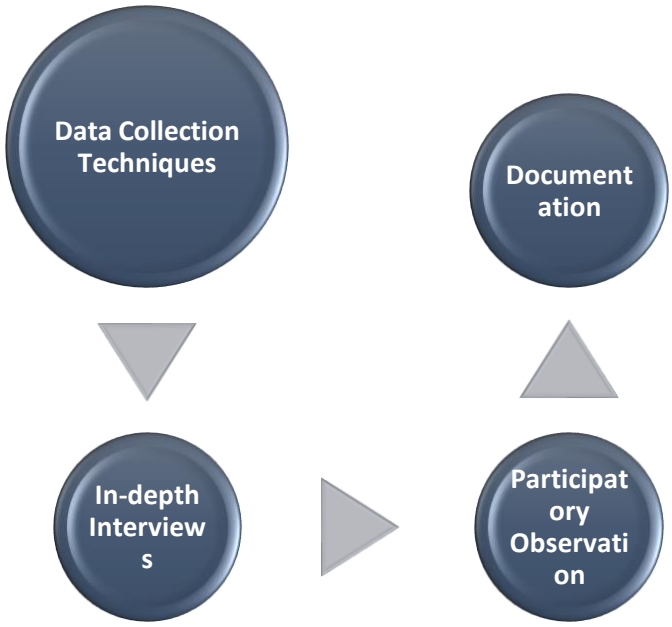

Figure 2: Data Collection Techniques

Data analysis was carried out with the stages of data reduction, data presentation, and conclusion. Data validity was maintained using source and method triangulation techniques, and member checking was carried out to ensure the accuracy of information from respondents. (Moleong, L. J., 2018). This can be seen in the following image:

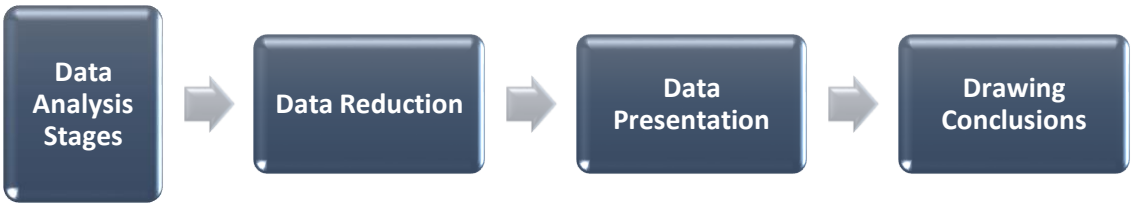

Figure 3: Data Analysis Stages

The qualitative method is a research approach that seeks to understand phenomena through an in-depth exploration of participants' experiences, perspectives, and meanings. Instead of numerical data, qualitative research emphasizes descriptive and interpretative data, often collected through interviews, observations, and document analysis. Researchers using this method aim to gain a deep understanding of social contexts, behaviors, and emotions, rather than to generalize findings to larger populations. (John W. Creswell, 2018). This can be seen in the following image:

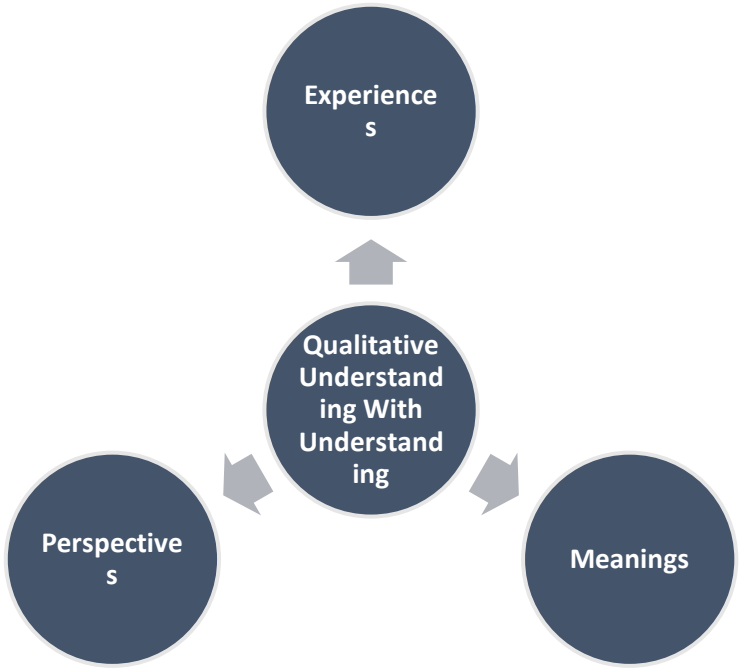

Figure 4: Qualitative understanding

Flexibility and openness are crucial in qualitative research, allowing the study to adapt as new insights emerge. Common designs include case studies, ethnography, grounded theory, phenomenology, and narrative research (Sharan B. Merriam and Elizabeth J. Tisdell, 2016). Data are typically analyzed using thematic, content, or discourse analysis, often resulting in rich, detailed descriptions and theoretical insights.

Qualitative research is particularly effective when studying complex, sensitive, or previously unexplored issues, providing nuanced understandings that quantitative methods might miss. (Norman K. Denzin and Yvonna S. Lincoln, eds., 2018).

Participants in this study were selected using purposive sampling, taking into account their direct involvement in the AI-based *maharah al-kalam* learning process. Participant criteria included: 1) UNM PBA lecturers who teach courses related to Arabic speaking skills. 2) UNM PBA students participating in courses integrating AI-based technology or applications. 3) Study program managers who understand the policies and strategies for implementing technology-based learning.

Interviews were conducted semi-structured to allow researchers to explore participants' responses flexibly while remaining guided by the research questions. To accommodate participant availability, interviews were conducted face-to-face and/or online using a videoconferencing platform. Each interview was recorded (with participant consent) and supplemented with field notes to capture relevant non-verbal context.

3. Results and Discussion

There are three main challenges identified: 1) Technology infrastructure, limited fast internet access, adequate hardware, and appropriate AI applications are the main obstacles to the implementation of AI-based *maharah al-kalam* learning. This impacts the limitations of optimal use of technology in Arabic classes. 2) Teaching Staff Competence, most lecturers are still adapting to the digital approach, especially in using AI-based tools such as Natural Language Processing (NLP), machine learning translation, and educational chatbots. 3) Student Readiness: Students show varying abilities in utilizing AI technology. Some find it difficult to understand how artificial intelligence-based applications work and how they are used, especially in the context of complex Arabic linguistics. This can be seen in the following image:

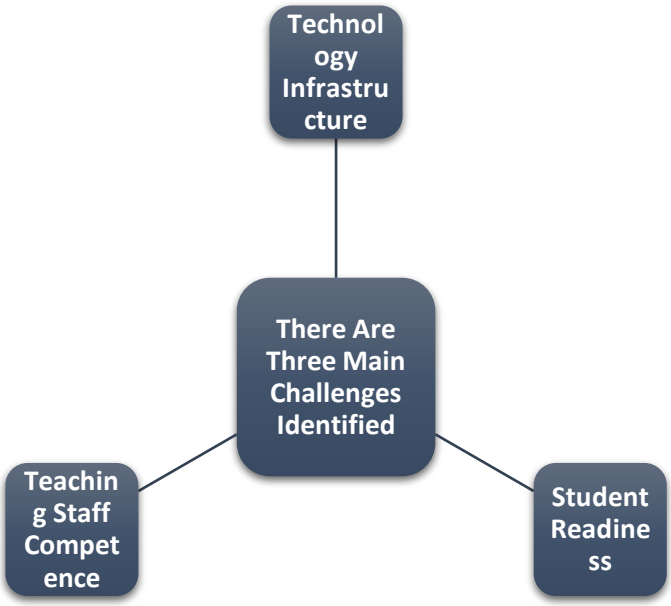

Figure 5: There Are Three Main Challenges Identified

In response to the challenges, several proposed strategies include: 1) Training and Capacity Development, providing regular training to lecturers and students on using AI technology in *maharah al-Kalam* learning. This training includes using NLP applications, chatbots, and other AI tools that support mastery of language rules. 2) Integration of Technology Curriculum The UNM PBA curriculum must explicitly accommodate technological elements. Courses such as Arabic for AI, Digital Arabic Literacy, and Teaching Arabic with Technology can be developed to shape students' digital competencies. 3) Local-Based Collaboration and Innovation: Developing collaboration

between the UNM PBA Study Program and AI development institutions to create applications appropriate to the local context, including developing Arabic content with a South Sulawesi cultural approach. This can be seen in the following image:

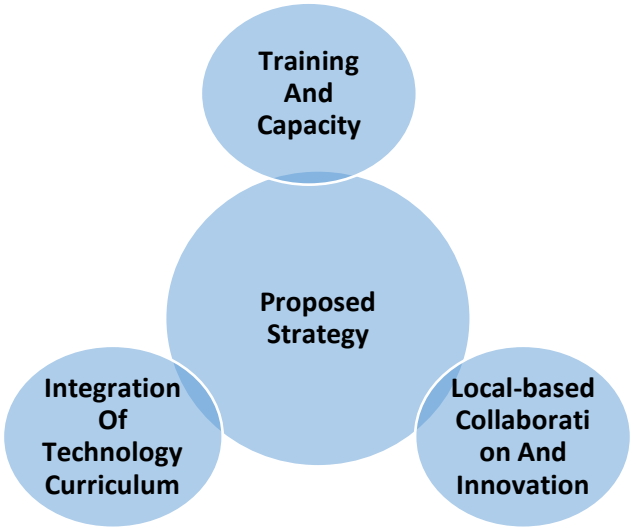

Figure 6: Three Proposed Strategies

This study found that the implementation of artificial intelligence (AI)-based *Maharah al-Kalam* learning in the Arabic Language Education (PBA) Study Program at UNM faced several challenges, including limited technological infrastructure, resistance to changes in learning methods, and a digital literacy gap among lecturers and students. One lecturer stated:

"We recognize the potential of AI to enhance Arabic speaking learning, but not all lecturers are ready with the technological skills. Sometimes it takes extra time to adapt." (Lecturer, Arabic Language Education (PBA), UNM, personal communication).

This aligns with findings (Al-Mashaqbeh & Al-Mahameed, 2023), which stated that the adoption of AI in second language learning is often hampered by user readiness and inadequate institutional support.

On the other hand, students highlighted the benefits of AI as an interactive practice medium. One student stated:

"If there were an AI-based application, I would be more confident practicing speaking Arabic without fear of making mistakes in front of my friends." (Student of Arabic Language Education (PBA) at UNM, interview)

This statement supports the findings of research (Chen & Kessler, 2022), which showed that conversational AI can reduce foreign language anxiety and increase student confidence. However, this study also found that the lack of integration between AI-based learning and the formal curriculum is a significant obstacle. Without clear institutional guidelines, the use of AI risks becoming merely an optional addition, rather than a primary pedagogical strategy. This aligns with research (Godwin-Jones, 2022), emphasizing the importance of structured technology-based learning policies for sustainable innovation.

To address these challenges, this study identified three main strategies: 1. digital literacy training for lecturers and students, 2. development of AI learning modules integrated with the learning outcomes of Maharah al-Kalam, and 3. ongoing mentoring in technology implementation. These

strategies not only address gaps identified in previous research, which tends to focus on the potential of AI, but also provide a practical framework for implementation in local contexts.

In line with the Technological Pedagogical Content Knowledge (TPACK) theory proposed by Mishra and Koehler (2006), the success of AI-based learning innovations requires synergy between mastery of content, pedagogy, and technology. In the context of PBA UNM, this means building lecturers' capacity to integrate AI not merely as a tool but as part of the instructional design that supports the authentic development of Maharah al-Kalam.

Therefore, this study expands the discourse on AI-based learning by emphasizing the implementation dimension at the study program level, a previously under-recognized area of literature. This approach is expected to be a practical reference for similar study programs in Indonesia and other countries with identical learning contexts.

4. Conclusion

Based on the research findings, the implementation of Artificial Intelligence (AI)-based *Maharah al-Kalam* learning in the Arabic Language Education (PBA) Study Program at UNM faces three main challenges: limited technological infrastructure, lecturers' competence in utilizing digital technology, and students' varying readiness in using AI-based applications. These challenges affect the optimal use of technology in Arabic language learning, compounded by the minimal integration of AI into the official curriculum. Nevertheless, AI is considered to have great potential as an interactive medium to reduce language anxiety and increase students' confidence, which aligns with previous research findings.

To address these challenges, this study recommends concrete strategies, including digital literacy training for lecturers and students, developing AI learning modules integrated with the *Maharah al-Kalam* learning outcomes, and ongoing mentoring in technology implementation. In line with the Technological Pedagogical Content Knowledge (TPACK) framework, the success of this innovation depends on the synergy between mastery of content, pedagogy, and technology, making AI not merely an additional tool but an integral part of authentic instructional design.

Acknowledgments

The author would like to thank the Arabic Language Education Study Program of Makassar State University (UNM) for supporting and participating in this study. Thanks are also extended to all lecturers and students willing to be respondents.

Bibliography

Al-Harbi, K. (2022). *"The Role of Artificial Intelligence in Language Education",* International Journal of Language and Technology, 9 (2), 77–90.

Nasution, M. (2021). *Digitalisasi Pendidikan dan Tantangan Abad 21*. Jakarta: Kencana.

Yusuf, R. (2023). *"Analisis Kesiapan Dosen dalam Menghadapi Pembelajaran Berbasis AI"*, Jurnal Teknologi Pendidikan, 11(1), 14–25.

Raudatussolihah, Baiq. Fathurrahman, A. dan Alhabsy, Abdurrahman. (2022). *Budaya Majlas dalam dalam Komunitas Keturunan Arab di Ampenan.* Jurnal Studi Keislaman dan Ilmu Pendidikan, 10 (1), 2540-9697, 35. https://ejournal.stitpn.ac.id/index.php/palapa/article/view/1644

Raudatussolihah, Baiq. Dan Fathurrahman, Ali. *Idaroh Maharatu Al-Lughah Al-Arabiyah Bisyu'bati Tadrisi Al-Lughah Al-Arabiyah Kuliyah At-Tarbiyah Walmudarrisiyah Jami'ah Mataram Al-*

Islamiyah Al-Hukumiyah. (2024). *El-Tsaqafah: Jurnal Jurusan PBA*, 23 (2). 2655-7746, https://journal.uinmataram.ac.id/index.php/eltsaqafah/article/view/11275

Fathurrahman, A. dan Raudatussolihah, Baiq. (2022). *Tatbiqu Ta'lim Aswat Al Arobiyyah Al Manhaj Ad Dirosy 2013 Bi Madrosati Atsanawiyah*, *El-Tsaqafah: Jurnal Jurusan PBA*, 21 (2), 2655-7746, https://journal.uinmataram.ac.id/index.php/eltsaqafah/article/view/5821

Creswell, J. W. (2016). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches.* California: SAGE Publications.

Moleong, L. J. (2018). *Metodologi Penelitian Kualitatif (Edisi Revisi).* Bandung: Remaja Rosdakarya.

John W. Creswell. (2018). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*, 4th ed. Thousand Oaks, CA: Sage Publications.

Sharan B. Merriam & Elizabeth J. Tisdell. (2016). *Qualitative Research: A Guide to Design and Implementation*, 4th ed. San Francisco, CA: Jossey-Bass.

Norman K. Denzin and Yvonna S. Lincoln, eds. (2018). *The SAGE Handbook of Qualitative Research*, 5th ed. Thousand Oaks, CA: Sage Publications.

Ziad Al-Mashaqbeh & Ziad Al-Mahameed (2023). *"Artificial Intelligence in Language Learning: Challenges and Opportunities," International Journal of Emerging Technologies in Learning* 18, no. 2, https://doi.org/10.3991/ijet.v18i02.34567.

Jie Chen & Greg Kessler (2022). *"Artificial Intelligence for Language Learning: Reducing Anxiety and Enhancing Confidence," Language Learning & Technology* 26, no. 4.

Robert Godwin-Jones (2022). *"AI and Language Learning: From Hype to Implementation," Language Learning & Technology* 26, no. 3.

Punya Mishra & Matthew J. Koehler (2006). *"Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge," Teachers College Record* 108, no. 6.

Al-Mashaqbeh, Z., & Ziad Al-Mahameed. (2023). *"Artificial Intelligence in Language Learning: Challenges and Opportunities." International Journal of Emerging Technologies in Learning* 18, no. 2, https://doi.org/10.3991/ijet.v18i02.34567.

Chen, J., & Greg Kessler. (2022). *"Artificial Intelligence for Language Learning: Reducing Anxiety and Enhancing Confidence." Language Learning & Technology* 26, no. 4.