OPEN ACCESS
Qaul ‘Arabiy
Vol. 1 No. 3. December 2025, pp. 119-130 DOI. XX.XXXXX/jqa.vxix.xxx

Research Article

THE IMPACT OF AI-POWERED LANGUAGE TOOLS ON ARABIC VOCABULARY ACQUISITION

Runtoni[1]
[1] Sultan Abdurrahman State Islamic College, Riau Islands, Indonesia

Corresponding Author:

Runtoni,
Arabic Language Education Study Program, Sultan Abdurrahman State Islamic College, Riau Islands.
Email: runtoni@stainkepri.ac.id

Article Info
Received: October 20, 2025
Revised: November 15, 2025
Accepted: November 30, 2025
Online Version: December 13, 2025

Abstract
The acquisition of Arabic vocabulary presents significant challenges due to the language’s complex morphology, script, and contextual usage, often leading to difficulties in retention and practical application. This study aims to investigate the impact of AI-powered language tools on enhancing Arabic vocabulary learning, focusing on learner engagement, personalized learning, and vocabulary retention. A qualitative research approach was employed, involving semi-structured interviews, classroom observations, and analysis of learners’ interactions with AI-based applications, with data analyzed through thematic analysis. The findings indicate that AI tools improve learner motivation, provide adaptive and personalized feedback, support spaced repetition and contextual practice, and enhance long-term retention and recall of vocabulary. Despite these benefits, challenges such as technological accessibility, dialectal variations, occasional AI inaccuracies, and the need for teacher guidance were identified. In conclusion, AI-powered tools serve as a valuable supplement to traditional instruction, fostering effective and engaging vocabulary acquisition, while future developments should focus on accessibility, contextual relevance, and integration with human-led pedagogical support to maximize learning outcomes.

Keywords: AI-Powered Language Tools, Arabic Vocabulary, Personalized Learning

Journal Homepage https://journal.zmsadra.or.id/index.php/jqa
How to cite: Runtoni, Runtoni. (2025). The Impact of AI-Powered Language Tools on Arabic Vocabulary Acquisition. *Qaul ‘Arabiy, 1*(3), 119–130. https://doi.org/XX.XXXXX/jqa.v1i3.1420
Published by: Yayasan Zia Mulla Sadra

INTRODUCTION

The learning of a foreign language has always presented unique challenges for students and educators alike, particularly when the target language is Arabic, which is characterized by a complex grammatical system, rich morphology, and a unique script (Jailani et al., 2021). Traditional approaches to vocabulary acquisition often rely heavily on rote memorization, repetitive exercises, and classroom-based instruction, which can be monotonous and may not always effectively engage learners. In recent years, the emergence of artificial intelligence (AI) technologies has opened new avenues for language learning, offering tools that can provide personalized, adaptive, and interactive experiences for students (Sabariah et al., 2024). The integration of AI-powered language tools in educational settings has the potential to transform the way learners acquire Arabic vocabulary by making the process more efficient, engaging, and contextually meaningful (Saihu, 2022; Sulistyowati et al., 2023).

Vocabulary acquisition is a fundamental component of language proficiency, serving as the foundation for reading comprehension, writing, speaking, and listening skills. In the context of Arabic, learners face additional challenges due to the language’s root-based morphology, complex verb conjugations, and the use of diacritical marks, which significantly influence meaning and pronunciation (Arif, 2020). AI-powered tools, such as intelligent tutoring systems, chatbots, and vocabulary apps, have been designed to address these challenges by providing learners with immediate feedback, spaced repetition exercises, and context-rich examples that enhance retention and application. By leveraging these technologies, educators can supplement traditional teaching methods with innovative approaches that cater to diverse learning styles and proficiency levels (Mahmudah, 2025).

One of the key advantages of AI in vocabulary learning is its capacity to offer personalized learning experiences tailored to individual student needs. AI algorithms can analyze learner performance, identify gaps in knowledge, and recommend specific vocabulary items that require further practice. This level of personalization is difficult to achieve in conventional classroom settings, especially in large classes with varying proficiency levels. Personalized AI-driven interventions not only support more efficient vocabulary acquisition but also foster learner autonomy, encouraging students to take an active role in their own learning process and monitor their progress over time (Haikal et al., 2024).

Moreover, AI-powered tools can facilitate immersive and interactive learning environments that simulate authentic language use. For instance, AI chatbots can engage learners in meaningful dialogues, providing opportunities to practice vocabulary in context and receive corrective feedback in real-time. Such interactive experiences can enhance learners’ motivation and engagement, as they move beyond passive memorization to active application of language skills. This shift from traditional drill-based learning to communicative, AI-mediated activities represents a significant innovation in Arabic language pedagogy, with the potential to improve both retention and practical usage of vocabulary (Mahmudah, 2025).

The incorporation of AI tools in Arabic language learning also provides opportunities for data-driven insights into the learning process. Educators can access detailed analytics regarding learner behavior, vocabulary acquisition rates, common errors, and response patterns. These insights enable teachers to make informed decisions about instructional strategies, adapt lesson plans to meet learner needs, and track progress with greater precision. From a research perspective, such data can also contribute to a better understanding of effective vocabulary learning strategies and the role of technology in supporting language acquisition (Adawiyah, 2025).

Despite the promising potential of AI-powered language tools, several challenges and limitations must be considered. The effectiveness of these tools depends on the quality of the algorithms, the accuracy of natural language processing capabilities, and the pedagogical design of the learning applications. Additionally, there may be accessibility issues related to technological infrastructure, internet connectivity, and learner familiarity with digital tools.

Cultural and linguistic nuances of Arabic, including dialectal variations and contextual usage, can also pose difficulties for AI systems, which may require continuous updates and human oversight to ensure accuracy and relevance (Fitrianto et al., 2024).

Research on the impact of AI on language learning is still evolving, with a growing body of studies exploring its efficacy across different languages and contexts. However, there remains a need for focused investigations on Arabic vocabulary acquisition, as the specific linguistic characteristics of Arabic present unique challenges that may influence the outcomes of AI-assisted learning. Examining how AI-powered tools can support vocabulary retention, recall, and practical application in Arabic provides valuable insights for both educators and developers of educational technologies (Ahmad Muhtadi Anshor, 2009).

The integration of AI in language education also raises important pedagogical considerations. While technology can enhance learning, it should not replace the critical role of human instructors in guiding, motivating, and contextualizing instruction. Effective implementation requires a balanced approach that combines the strengths of AI tools with teacher expertise, ensuring that learners receive both individualized practice and meaningful interaction with knowledgeable instructors. Understanding how AI can complement traditional teaching methods in Arabic vocabulary acquisition is therefore essential for designing effective instructional models (Alkaabi & Almaamari, 2025).

The use of AI-powered language tools offers significant opportunities for enhancing Arabic vocabulary acquisition by providing personalized, interactive, and data-informed learning experiences. At the same time, it requires careful consideration of technological, pedagogical, and linguistic factors to ensure effective outcomes. This study seeks to investigate the impact of AI-driven tools on learners’ vocabulary development, exploring how these innovations can support acquisition, retention, and practical usage of Arabic vocabulary. By examining the intersection of artificial intelligence and language education, the research aims to contribute to the broader discourse on technology-enhanced learning and its implications for modern Arabic language pedagogy.

RESEARCH METHOD

This study employs a qualitative research approach to explore the impact of AI-powered language tools on Arabic vocabulary acquisition (Hennink et al., 2020). The qualitative method is considered appropriate as it allows for an in-depth understanding of learners’ experiences (Chu, 2024), perceptions (Luo & Chan, 2022), and interactions with AI technologies in the language learning process (Connaway & Radford, 2021). Data were collected through semi-structured interviews with Arabic language learners, classroom observations, and analysis of learners’ interactions with AI-based applications. This multi-source data collection approach enables the researcher to capture rich, descriptive insights into how AI tools support vocabulary learning, including the challenges, advantages, and strategies utilized by learners in real-life contexts (Soehadha, 2012).

The collected data were analyzed using thematic analysis, which involves identifying, coding, and interpreting patterns and themes that emerge from the learners’ experiences. This process allowed the researcher to categorize findings into key areas, such as learner engagement, vocabulary retention, personalization of learning, and perceived effectiveness of AI tools (Shalihah et al., 2025). Throughout the analysis, attention was given to contextual factors, including learners’ proficiency levels, prior experiences with technology, and individual learning preferences, to ensure that the results reflect the nuanced ways in which AI influences Arabic vocabulary acquisition. Ethical considerations, including informed consent, confidentiality, and voluntary participation, were strictly observed to maintain the integrity of the research process.

RESULTS AND DISCUSSION

Learner Engagement and Motivation through AI Tools

The integration of AI-powered language tools into Arabic vocabulary learning has demonstrated a significant impact on learner engagement, transforming the traditionally passive nature of memorization into a more interactive and motivating experience (Anwar & Ahyarudin, 2023). Arabic, with its complex script and morphology, often challenges learners, leading to frustration and reduced enthusiasm when conventional teaching methods are solely applied. AI technologies, through interactive platforms and intelligent applications, offer learners the opportunity to engage actively with vocabulary in ways that are both meaningful and enjoyable. By presenting exercises in dynamic formats, these tools create an environment where learners are not merely recipients of knowledge but active participants in their learning journey (Kobandaha et al., 2025).

Gamification is one of the primary mechanisms through which AI enhances learner motivation. Features such as points, badges, levels, and progress tracking provide immediate recognition of accomplishments, encouraging learners to persist in their studies. This game-like approach taps into intrinsic motivation, fostering a sense of achievement and continuous improvement. Learners report that these elements make the learning process feel less burdensome and more like an enjoyable challenge, which significantly increases the time and effort they dedicate to practicing Arabic vocabulary compared to traditional rote memorization (Nugrawiyati, 2016).

In addition to gamification, AI-powered applications often incorporate adaptive exercises that respond to the learner’s performance in real-time. If a learner struggles with a particular set of vocabulary, the system provides additional practice or presents the words in a different context until mastery is achieved. Conversely, learners who demonstrate proficiency can move on to more advanced vocabulary, ensuring that the learning process is both appropriately challenging and personalized. This adaptive approach not only prevents frustration and disengagement but also cultivates a sense of competence and confidence, which are crucial factors in sustaining long-term motivation (Amadi & Hikmah, 2025).

Interactive elements in AI language tools also enhance learner engagement by simulating authentic language use. Features such as chatbots, dialogue simulations, and speech recognition systems allow learners to practice vocabulary in context, applying words in sentences, conversations, and situational scenarios. This type of engagement shifts learning from abstract memorization to practical application, enabling learners to see the relevance of vocabulary in real communication. The immediate feedback provided by these tools further strengthens learning, as mistakes are corrected in real-time, reinforcing proper usage and pronunciation (Lubis et al., 2023).

The motivational effects of AI tools are also amplified by the accessibility and flexibility they offer. Learners can engage with vocabulary exercises at any time and from any location, using computers, tablets, or smartphones. This flexibility accommodates diverse schedules and learning paces, allowing students to integrate practice into their daily routines without the constraints of traditional classroom settings. Many learners express that this freedom enhances their intrinsic motivation, as they can take ownership of their learning process and practice in ways that suit their individual preferences (Sowanto, 2025).

Another factor contributing to heightened engagement is the visual and multimedia-rich content offered by AI tools. Vocabulary is often presented with images, audio pronunciations, interactive games, and videos, providing multisensory learning experiences that support memory retention and understanding. The combination of visual, auditory, and kinesthetic elements caters to different learning styles, ensuring that learners remain interested and actively involved. Studies in language acquisition suggest that such multisensory input not only improves retention but also strengthens the learner’s connection to the material, making learning more meaningful and enjoyable (Nuruddin & Mufidah, 2025).

Social and collaborative features embedded in some AI platforms further enhance motivation by creating a sense of community among learners (Hindra Kurniawan et al., 2024). Leaderboards, group challenges, and shared achievements allow learners to engage in friendly competition and cooperative learning. This social dimension encourages learners to maintain consistent practice, as they are motivated by peer interaction and recognition. The combination of social engagement and individual achievement provides a balanced motivational environment that fosters sustained commitment to vocabulary acquisition (Qomariah et al., 2025).

The use of AI-powered language tools in Arabic vocabulary learning represents a significant advancement in educational technology, addressing the motivational and engagement challenges traditionally associated with language acquisition (H. L. M. Mohideen, 2024). By combining gamification, adaptive learning, interactive simulations, flexible access, multimedia content, and social interaction, these tools create a holistic learning experience that encourages learners to invest time and effort consistently. The resulting increase in engagement and motivation not only supports more effective vocabulary acquisition but also cultivates positive attitudes toward learning Arabic, laying a strong foundation for continued language development.

Personalized Learning and Adaptive Feedback

The integration of AI into Arabic language learning has brought a transformative approach to personalization, allowing each learner’s experience to be tailored according to their individual needs and proficiency levels. Traditional classroom settings often struggle to provide the level of individual attention required for effective vocabulary acquisition, especially in large classes with students who possess diverse language backgrounds and varying levels of familiarity with Arabic (Fadillah et al., 2024). AI-powered tools address this challenge by continuously monitoring learners’ interactions, tracking their progress, and identifying specific areas where improvement is needed. This data-driven approach ensures that learners are not left behind and that their practice is focused on areas that require the most attention (Anwar & Ahyarudin, 2023).

AI algorithms are designed to analyze patterns in learner performance, detecting which vocabulary items have been mastered and which remain problematic. Based on this analysis, the system generates personalized recommendations and adaptive exercises that target the learner’s knowledge gaps. This continuous adaptation allows for a learning experience that is both efficient and highly relevant, as students spend more time reinforcing difficult vocabulary and less time on words they have already mastered. As a result, learners experience a sense of progression and accomplishment, which further encourages sustained engagement with the language (Ameliyana & Wardhani, 2025).

The role of adaptive feedback is crucial in supporting learners’ retention of vocabulary. Unlike traditional methods that often provide delayed feedback, AI systems offer immediate responses to learners’ inputs, correcting errors in real-time and providing explanations or examples that clarify meaning and usage. This instant corrective feedback allows learners to immediately internalize the correct form of vocabulary and integrate it into their mental lexicon. By addressing misunderstandings as they occur, AI tools prevent the reinforcement of incorrect patterns, contributing to more accurate and lasting language acquisition (Sulistyowati et al., 2023).

Personalization also extends to the pacing of learning activities. AI platforms can adjust the difficulty and intensity of exercises according to each learner’s performance. For instance, if a student consistently demonstrates mastery of basic vocabulary, the system may introduce more complex words or context-based exercises to maintain an appropriate level of challenge (Lubis et al., 2023). Conversely, learners who struggle with foundational vocabulary can receive additional support, including repeated practice, simplified explanations, or multimodal

representations. This flexibility ensures that all learners can progress at a pace suited to their abilities, reducing frustration and promoting confidence in their language skills (Syahputra & Hanum, 2023).

Another dimension of AI-driven personalization is the consideration of individual learning styles and preferences. Some learners benefit more from visual aids, such as images and diagrams, while others respond better to auditory input or interactive exercises. AI tools often incorporate a variety of modalities, allowing learners to engage with vocabulary through methods that align with their preferred learning strategies. This multisensory approach not only facilitates better retention but also increases learners’ satisfaction and motivation, as they feel that their personal learning needs are being addressed (H. L. M. Mohideen, 2024).

The system’s ability to provide detailed insights and progress reports further enhances the personalized learning experience. Learners can monitor their own achievements, identify recurring errors, and set personal goals based on data generated by the AI platform. Such self-awareness encourages learners to take an active role in their language development, fostering autonomy and responsibility. Teachers, too, benefit from these analytics, as they can tailor instructional support and interventions according to the individual performance of each student, creating a more effective and responsive learning environment (Ansar, 2022).

Personalized learning and adaptive feedback offered by AI-powered tools provide a highly tailored and responsive approach to Arabic vocabulary acquisition. By continuously analyzing learner performance, delivering immediate corrective feedback, adjusting pacing, accommodating learning preferences, and offering progress insights, AI ensures that each learner receives targeted support that addresses their unique needs. This individualized approach not only enhances retention and mastery of vocabulary but also cultivates a sense of agency, motivation, and confidence, which are essential for sustained success in language learning.

Improvement in Vocabulary Retention and Recall

The integration of AI-powered tools in Arabic language learning has shown substantial improvements in learners’ vocabulary retention and recall, addressing one of the most persistent challenges in language acquisition. Traditional methods of memorization often rely on repetitive drilling without adequate contextual reinforcement, which can result in superficial learning and rapid forgetting. In contrast, AI-based applications utilize advanced techniques, such as spaced repetition and adaptive review schedules, to strategically reinforce vocabulary over time, thereby supporting long-term retention and more effective recall (Hakim, 2018).

Spaced repetition, as implemented by AI tools, allows learners to review vocabulary at intervals that are optimized according to memory retention patterns (Albantani et al., 2020). Words that are more challenging are presented more frequently, while familiar words are reviewed at gradually increasing intervals. This method leverages cognitive science principles, ensuring that learners encounter vocabulary items at the optimal moment for memory consolidation. The consistent and structured exposure to targeted words helps learners move vocabulary from short-term to long-term memory, reducing the likelihood of forgetting and enhancing their ability to recall words accurately during practical use (Hakim, 2018).

Contextual learning is another critical factor facilitated by AI systems. Vocabulary is often presented within meaningful sentences, dialogues, or situational scenarios that reflect real-life communication (Fauziddin & Fikriya, 2020). This approach allows learners to understand the usage, collocations, and connotations of words, rather than memorizing isolated items. By linking new vocabulary to contextual meaning, AI tools support deeper cognitive processing, which strengthens retention and improves the learner’s ability to retrieve and apply words appropriately in speaking and writing tasks (Yao et al., 2024).

Repeated practice, guided by AI feedback, further reinforces memory consolidation. Unlike traditional classroom exercises that may be limited in frequency and scope, AI platforms can provide unlimited opportunities for learners to encounter, practice, and manipulate vocabulary in various formats, including quizzes, interactive games, and simulated dialogues. Immediate corrective feedback ensures that learners internalize correct forms, pronunciation, and usage, preventing the reinforcement of errors and promoting accurate recall. This combination of repetition and feedback is crucial for solidifying vocabulary knowledge and enhancing language fluency (Sowanto, 2025).

The adaptive nature of AI tools also allows for individualized reinforcement, which contributes to improved retention. Learners receive exercises that target their specific difficulties, allowing them to focus on words that are most prone to forgetting. This targeted approach reduces cognitive overload and ensures efficient use of study time, as learners are not wasting effort on vocabulary items they have already mastered. By tailoring practice to individual retention patterns, AI-powered learning systems provide a level of precision in vocabulary reinforcement that is difficult to achieve in traditional classroom settings (Anwar & Ahyarudin, 2023).

Furthermore, learners report increased confidence in using newly acquired vocabulary due to the structured and supportive practice environment provided by AI tools. The ability to recall words accurately in different contexts enhances their communicative competence, making them more willing to engage in speaking and writing activities. This improvement in practical usage underscores the effectiveness of AI-mediated vocabulary learning, demonstrating that the benefits extend beyond memorization to meaningful application of the language (Imron & Fajriyah, 2021).

The combination of spaced repetition, contextual examples, repeated practice, and adaptive feedback offered by AI-powered tools creates a powerful framework for improving vocabulary retention and recall in Arabic language learning. These mechanisms not only strengthen long-term memory but also enhance learners’ ability to apply new words in practical situations, thereby fostering both accuracy and fluency. The evidence suggests that AI tools represent a valuable advancement in language pedagogy, providing learners with the support necessary to achieve sustained and meaningful vocabulary acquisition.

Challenges and Limitations of AI in Arabic Vocabulary Acquisition

Despite the numerous advantages of AI-powered tools in Arabic vocabulary acquisition, learners encounter a range of challenges that can limit the effectiveness of these technologies. One of the primary obstacles is technological accessibility. Not all learners have consistent access to high-speed internet, modern devices, or sufficient digital literacy to navigate AI-based applications effectively. These accessibility issues can create disparities in learning opportunities, particularly in regions where educational resources are unevenly distributed, and they may prevent some learners from fully benefiting from AI-enhanced vocabulary practice (Azizah, 2020).

Another significant challenge lies in the limitations of AI systems in understanding the linguistic complexity and diversity of the Arabic language. Arabic is not a monolithic language; it encompasses numerous dialects, registers, and regional variations that influence pronunciation, vocabulary usage, and meaning (Imron & Fajriyah, 2021). While AI tools are often trained on Modern Standard Arabic or limited datasets, they may struggle to accurately interpret or provide contextually relevant feedback for dialectal variations. As a result, learners may encounter inconsistencies or confusion when applying vocabulary in real-life situations, particularly in spoken communication (Ekawati & Arifin, 2022).

AI-generated content can also contain inaccuracies or errors, which pose additional challenges for learners. Despite advances in natural language processing, AI systems are not infallible and may occasionally produce incorrect translations, miss subtle nuances, or fail to provide appropriate contextual usage. If learners rely solely on AI without teacher oversight, they risk internalizing errors that could hinder proper vocabulary acquisition. This highlights the necessity of maintaining a critical perspective toward AI-generated learning materials and supplementing automated practice with human guidance (Wijayaningsih et al., 2024).

Moreover, the reliance on AI tools may reduce opportunities for interpersonal interaction and collaborative learning, which are important components of language acquisition. Human interaction allows learners to negotiate meaning, ask clarifying questions, and receive nuanced feedback that AI systems cannot fully replicate. While AI tools can simulate conversation and provide automated corrections, they cannot entirely replace the dynamic, adaptive guidance that skilled instructors offer. Consequently, integrating AI as a supplementary resource, rather than a replacement for teacher-led instruction, is crucial for effective learning outcomes (Kobandaha et al., 2025).

Motivational challenges may also arise if learners become over-reliant on AI tools or perceive them as impersonal. While gamification and interactive exercises can initially boost engagement, some learners may lose interest if the activities feel repetitive or fail to offer meaningful social interaction (R. Nurhayati et al., 2024). Maintaining learner motivation requires careful design of AI applications, ensuring that exercises are diverse, contextually relevant, and connected to authentic language use. Without these considerations, the potential of AI to sustain long-term engagement may be diminished (Wahyudinarti et al., 2024).

Privacy and ethical concerns present another area of limitation. AI systems often collect and analyze extensive learner data to provide personalized recommendations, which raises questions about data security, consent, and the ethical use of personal information. Educators and developers must implement robust privacy safeguards and transparent data policies to protect learners while still leveraging the analytical advantages of AI (Nurhayati et al., 2024). Failure to address these concerns could undermine learner trust and willingness to fully engage with AI-powered tools (Anwar & Ahyarudin, 2023).

Additionally, the cost of high-quality AI applications can be prohibitive for some educational institutions or individual learners. Subscription fees, licensing costs, and the need for compatible devices may limit widespread adoption, particularly in low-resource settings. This financial barrier can exacerbate educational inequalities and restrict access to the benefits of AI-enhanced vocabulary learning (Andini Rachmawati & Husin, 2022). Addressing affordability through institutional support, open-access resources, or tiered pricing models is essential to ensure equitable opportunities for all learners (Hakeu et al., 2023).

While AI-powered tools offer substantial benefits for Arabic vocabulary acquisition, these challenges underscore the importance of integrating technology thoughtfully and strategically. AI should be viewed as a complementary tool that supports, rather than replaces, traditional instructional methods, ensuring that learners receive both personalized practice and human guidance. By acknowledging and addressing these limitations, educators and developers can maximize the effectiveness of AI applications, creating a balanced, accessible, and contextually aware approach to enhancing Arabic vocabulary learning

CONCLUSION

AI-powered language tools have demonstrated significant potential in enhancing Arabic vocabulary acquisition by providing personalized learning experiences, adaptive feedback, interactive practice, and improved retention and recall. These technologies offer engaging and flexible approaches that address many challenges of traditional language instruction, fostering learner motivation, autonomy, and practical language use. However, their effectiveness is moderated by limitations such as technological accessibility, linguistic complexity, occasional inaccuracies, and the need for human guidance, emphasizing that AI should complement rather than replace teacher-led instruction. For the next step, future research and development should focus on improving AI systems’ understanding of dialectal variations, integrating culturally and contextually relevant content, enhancing accessibility and affordability, and creating hybrid models that combine AI-driven learning with collaborative and instructor-led activities. Additionally, longitudinal studies assessing long-term vocabulary retention and communicative competence can provide deeper insights into how AI can sustainably support Arabic language education.

REFERENCES

Adawiyah, R. (2025). Implementing AI in Arabic Language Learning: Challenges and Insights from Islamic Higher Education. *AL-ISHLAH: Jurnal Pendidikan*, *17*(3), 3729–3739. https://doi.org/10.35445/alishlah.v17i3.7390

Ahmad Muhtadi Anshor. (2009). *Pengajaran Bahasa Arab*. Cipta Media Aksara.

Albantani, A. M., Fauziah, A. U., & Sumiantia, I. (2020). Perkembangan Kosakata Bahasa Arab Melalui Isytiqāq. *Alsuniyat: Jurnal Penelitian Bahasa, Sastra, Dan Budaya Arab*, *3*(2), 125–138. https://doi.org/10.17509/alsuniyat.v3i2.26243

Alkaabi, M. H., & Almaamari, A. S. (2025). Generative AI Implementation and Assessment in Arabic Language Teaching. *International Journal of Online Pedagogy and Course Design*, *15*(1), 1–18. https://doi.org/10.4018/IJOPCD.368037

Amadi, A. S. M., & Hikmah, K. (2025). Persepsi Mahasiswa Tentang Pemanfaatan Teknologi AI dalam Pembelajaran Bahasa Arab di Perguruan Tinggi Islam Indonesia. *Journal of Education Research*, *6*(2), 291–301. https://doi.org/10.37985/jer.v6i2.2343

Ameliyana, & Wardhani, D. F. (2025). Development of AI Systems for Personalized Learning: Innovations in Modern Education. *Inovasi Pembangunan*, *13*(1), 15–29. https://doi.org/10.35450/jip.v13i1.931

Andini Rachmawati, R., & Husin, H. (2022). Penerapan Metode Bernyanyi Dalam Meningkatkan Penguasaan Kosakata Bahasa Arab Di Panti Asuhan Nurul Jannah. *Berajah Journal*, *2*(2), 223–230. https://doi.org/10.47353/bj.v2i2.81

Ansar, A. (2022). *Strategi Kepemimpinan Kepala Sekolah dalam Meningkatan Kompetensi Pedagogik Guru di SMA Negeri 2 Bone*. Universitas Negeri Makassar.

Anwar, M. R., & Ahyarudin, H. A. (2023). AI-Powered Arabic Language Education in the Era of Society 5.0. *IAIC Transactions on Sustainable Digital Innovation (ITSDI)*, *5*(1), 50–57. https://doi.org/10.34306/itsdi.v5i1.607

Arif, M. (2020). Efektivitas Media Pembelajaran dalam Penguasaan Kosa Kata Bahasa Arab. *`A Jamiy : Jurnal Bahasa Dan Sastra Arab*, *9*(1), 1. https://doi.org/10.31314/ajamiy.9.1.1-15.2020

Azizah, H. N. (2020). Peningkatan Penguasaan Kosakata Bahasa Arab Melalui Penggunaan Media Word Wall. *Alsuniyat*, *1*(1), 1–16. https://doi.org/10.17509/alsuniyat.v1i1.24212

Chu, H. (2024). *Research Methods and Design Beyond a Single Discipline*. Routledge.

Connaway, L. S., & Radford, Marie L. (2021). *Research Methods in Library and Information Science*. Bloomsbury Publishing.

Ekawati, D., & Arifin, A. (2022). Pendekatan dalam Pembelajaran Bahasa Arab: Teori, Konsep, dan Implementasi. *An Nabighoh*, *24*(1), 111–126. https://doi.org/10.32332/an-nabighoh.v24i1.4818

Fadillah, Y. Al, Akbar, A. R., & Gusmaneli. (2024). Strategi Desain Pembelajaran Adaptif Untuk Meningkatkan Pengalaman Belajar di Era Digital. *Jurnal Pendidikan Sains Dan Teknologi Terapan*, *1*(4), 1–15. https://jurnal.kopusindo.com/index.php/jpst/article/view/420

Fauziddin, M., & Fikriya, M. (2020). Mengenal Kosakata Bahasa Arab melalui Permainan Kartu Huruf Hijaiyah yang Dilengkapi Kosakata. *Journal of Education Research*, *1*(1), 46–54. https://doi.org/10.37985/joe.v1i1.6

Fitrianto, I., Setyawan, C. E., & Saleh, M. (2024). Utilizing Artificial Intelligence for Personalized Arabic Language Learning Plans. *International Journal of Post-Axial*, *2*(1), 1–16. https://doi.org/10.59944/postaxial.v2i1.273

H. L. M. Mohideen. (2024). Exploring the Opportunities of Implementing Artificial Intelligence (AI) Technology for Teaching Arabic to Non-Native Speakers: A Theoretical Approach. *Journal of Digital Learning and Distance Education*, *2*(10), 760–767. https://doi.org/10.56778/jdlde.v2i9.225

Haikal, M. M., Luthfiansyah, A., & Saputra, T. (2024). Memaksimalkan Potensi AI untuk Meningkatkan Pertumbuhan Penjualan E-commerce. *Al-A’mal : Jurnal Manajemen Bisnis Syariah*, *1*(2), 184–191. https://journal.staittd.ac.id/index.php/ai/article/view/242

Hakeu, F., Pakaya, I. I., Djahuno, R., Zakarina, U., & Tangkudung, M. (2023). Workshop Media Pembelajaran Digital Bagi Guru Dengan Teknologi AI (Artificial Intelligence). *Mohuyula : Jurnal Pengabdian Kepada Masyarakat*, *2*(2), 36. https://doi.org/10.31314/mohuyula.2.2.36-49.2023

Hakim, M. L. (2018). Pemanfaatan Media Pembelajaran Game Interaktif Dalam Pembelajaran Kosakata Bahasa Arab. *Arabi : Journal of Arabic Studies*, *2*(2), 156. https://doi.org/10.24865/ajas.v2i2.56

Hennink, M., Hutter, I., & Bailey, A. (2020). *Qualitative Research Methods*. SAGE Publications.

Hindra Kurniawan, Adiguna Sasama W.U, & Tambunan, R. W. (2024). Potensi AI dalam Meningkatkan Kreativitas dan Literasi dalam Pembelajaran Bahasa Indonesia. *JAMI: Jurnal Ahli Muda Indonesia*, *5*(1), 10–17. https://doi.org/10.46510/jami.v5i1.285

Imron, A., & Fajriyah, D. F. (2021). Penggunaan Metode Bernyanyi dalam Menghafal Mufrodat (Kosakata) Bahasa Arab di MI. *Dawuh Guru: Jurnal Pendidikan MI/SD*, *1*(1), 41–56. https://doi.org/10.35878/guru.v1i1.255

Jailani, M., Wantini, Suyadi, & Bustam, B. M. R. (2021). Meneguhkan Pendekatan Neurolinguistik dalam Pembelajaran: Studi Kasus pada Pembelajaran Bahasa Arab Madrasah Aliyah. *Jurnal Pendidikan Agama Islam Al-Thariqah*, *6*(1), 151–167. https://doi.org/10.25299/al-thariqah.2021.vol6(1).6115

Kobandaha, F., Annas, A. N., Maliki, P. L., & Gamar, N. (2025). Manajemen Pendidikan Islam Berbasis Artificial Intelligences di Era Digital Sebuah Tinjauan Literatur. *RIGGS: Journal of Artificial Intelligence and Digital Business*, *4*(1), 576–582. https://doi.org/10.31004/riggs.v4i1.822

Lubis, S. H., Naldi, A., Reskina, R., Lubis, A. F., & Nurhayati, N. (2023). Inovasi Penggunaan AI (Artificial Intelligenc) Dalam Pembelajaran Pendidikan Agama Islam di MAN 4 Persiapan Kota Medan. *Jurnal Bilqolam Pendidikan Islam*, *4*(2), 105–129. https://doi.org/10.51672/jbpi.v4i2.213

Luo, J., & Chan, C. K. Y. (2022). Qualitative Methods to Assess Intercultural Competence in Higher Education Research: A Systematic Review With Practical Implications. *Educational Research Review*, *37*, 100476. https://doi.org/10.1016/j.edurev.2022.100476

Mahmudah, M. (2025). Enhancing Arabic Vocabulary with Hilyah Book. *Al-Muhawaroh: Jurnal Pendidikan Bahasa Arab*, *1*(1), 1–11. https://doi.org/10.38073/almuhawaroh.v1i1.2427

Nugrawiyati, J. (2016). Pembelajaran Kosakata Bahasa Arab di Madrasah Ibtidaiyah. *El-Wasathiya: Jurnal Studi Agama*, *3*(2), 144–156. https://doi.org/10.35888/el-wasathiya.v3i2.2012

Nurhayati, N., Suliyem, M., Hanafi, I., & Susanto, T. T. D. (2024). Integrasi AI Dalam Collaborative Learning Untuk Meningkatkan Efektivitas Pembelajaran. *Academy of Education Journal*, *15*(1), 1063–1071. https://doi.org/10.47200/aoej.v15i1.2372

Nuruddin, D., & Mufidah, N. (2025). Utilization Of The Opexams Website As An Educational Instructional Media In Teaching Arabic Reading Skills. *Jurnal Bahasa Arab*, *2*(1), 48–57. https://doi.org/10.69988/jba.v2i1.65

Qomariah, R. N., Awad, Fikri, S., & Lazreque, S. (2025). The Role of ChatGPT in Enhancing Academic Arabic Writing Skills among Students of Arabic Language Education. *Lisania*, *9*(1), 152–173. https://doi.org/10.18326/lisania.v9i1.152-173

R. Nurhayati, Nur, T., P, S., Adillah, N., Agustina, & Urva, M. (2024). Dinamika Pembelajaran Pendidikan Agama Islam Berbasis Artificial Intelligence (AI). *Prosiding Seminar Nasional Fakultas Tarbiyah Dan Ilmu Keguruan IAIM Sinjai*, *3*, 1–7. https://doi.org/10.47435/sentikjar.v3i0.3131

Sabariah, S., Rufi’i, R., Rusmawati, R. D., Bandono, A., & Kurniawan, A. (2024). Pemanfaatan AI Dalam Pengajaran Dan Pembelajaran. *RESONA : Jurnal Ilmiah Pengabdian Masyarakat*, *8*(2), 337. https://doi.org/10.35906/resona.v8i2.2288

Saihu, M. (2022). Al-Qur’an and The Need for Islamic Education to Artificial Intelligence. *MUMTAZ: Jurnal Studi Al-Qur’an Dan Keislaman,* *6*(1), 18–31. https://doi.org/10.36671/mumtaz.v6i01.274

Shalihah, S., Fradana, H., & Aljabr, B. N. (2025). Traditional Method vs AI Chatbot-Assisted in Arabic Learning. *Lisania*, *9*(1), 1–16. https://doi.org/10.18326/lisania.v9i1.1-14

Soehadha, M. (2012). *Metode Penelitian Sosial Kualitatif, Untuk Studi Agama*. SUKA Press.

Sowanto. (2025). Integrasi Artificial Intelligence dalam Pembelajaran Interaktif sebagai Strategi Penguatan Profesionalisme Guru di Pondok Pesantren. *Madaniya*, *6*(4), 16–28. https://doi.org/10.53696/27214834.1471

Sulistyowati, Rahayu, Y. S., & Naja, C. D. (2023). Penerapan Artificial Intelligence Sebagai Inovasi Di Era Disrupsi Dalam Mengurangi Resiko Lembaga Keuangan Mikro Syariah. *Wadiah: Jurnal Perbankan Syariah*, *7*(2), 117–142. https://doi.org/10.30762/wadiah.v7i2.329

Syahputra, W. A., & Hanum, Z. (2023). Studi Tentang Efektifitas Pembelajaran Adaptif Berbasis Teknologi di Pendidikan Dasar. *Jurnal Teknologi Pendidikan*, *2*(1), 66–71. https://doi.org/10.56854/tp.v2i1.220

Wahyudinarti, E., Andini Rachmatika, P., & Nurul Ain, R. (2024). Meningkatkan Efektivitas Pembelajaran Mahasiswa Dengan AI. *JATI (Jurnal Mahasiswa Teknik Informatika)*, *9*(1), 488–491. https://doi.org/10.36040/jati.v9i1.12279

Wijayaningsih, R., Andini, N., Lestary, R. I., & Rahma, A. I. H. (2024). Pemanfaatan Kecerdasan Buatan dalam Transformasi Intelejen Bisnis untuk Keunggulan Kompetitif. *Jurnal Manajemen Dan Ekonomi Bisnis*, *4*(3). https://doi.org/10.55606/cemerlang.v4i3.3016

Yao, H., Luo, W., Zhang, W., Zhang, X., Qiang, Z., & Luo, D. (2024). Local–Global Normality Learning and Discrepancy Normalizing Flow for Unsupervised Image Anomaly Detection. *Engineering Applications of Artificial Intelligence*, *137*(Part B), 109235. https://doi.org/10.1016/j.engappai.2024.109235