Arabia
Jurnal Pendidikan Bahasa Arab
E-ISSN: 2502-2482
P-ISSN: 2085-644X
DOI : 10.21043/arabia.v17i2.34161
https://journal.iainkudus.ac.id/index.php/Arabia/index

Current Trends in Integrating Artificial Intelligence for Arabic Language Learning in Pesantren

Aisyatul Hanun
Universitas Ibrahimy Situbondo, Indonesia
hanun89@gmail.com

Almannah Wassalwa
Universitas Ibrahimy Situbondo, Indonesia
salwaelmanna90@gmail.com

Abstrac

This study aims to analyze the integration of Artificial Intelligence (AI) in Arabic language learning within pesantren (Islamic boarding school) and to examine its opportunities, challenges, and implications for strengthening Islamic educational values. The research employs a descriptive qualitative approach using a library research method, drawing on reputable national and international scholarly articles, research reports, and relevant theoretical studies related to AI, Arabic language education, and pesantren learning contexts. Data were analyzed through data reduction, thematic categorization, and interpretative analysis. The findings indicate that AI has significant potential to enhance the effectiveness of Arabic language learning through personalized instruction, automated feedback, improved speaking practice, and interactive learning media. However, the implementation of AI in pesantren faces several challenges, including limited technological infrastructure, low digital literacy among educators, and ethical concerns related to data privacy and algorithmic bias. Moreover, successful integration requires a contextual approach that aligns AI utilization with Islamic values and the cultural traditions of pesantren. This study contributes to the field of Arabic language education by offering a conceptual framework for ethically and contextually integrating AI within pesantren education. It provides valuable insights for educators, policymakers, and researchers in developing AI-based learning models that are pedagogically effective, culturally sensitive, and aligned with the moral foundations of Islamic education.

Keyword: *artificial intelligence, Arabic language, pesantren, technology ethics, digital learning*

ملخص

يهدف هذا البحث إلى تحليل دمج الذكاء الاصطناعي في تعليم اللغة العربية في المعاهد الإسلامية ودراسة الفرص والتحديات والآثار المترتبة على تعزيز القيم التعليمية الإسلامية. يستخدم هذا البحث المنهج الوصفي النوعي من خلال أسلوب الدراسة المكتبية، بالاعتماد على مقالات علمية محكَّمة على المستويين الوطني والدولي، وتقارير بحثية، ودراسات نظرية ذات صلة بموضوعه، وتعليم اللغة العربية، والتعليم في المعاهد الإسلامية. وقد جرى تحليل البيانات عبر مراحل اختزال البيانات، والتصنيف الموضوعي، ثم استخلاص النتائج. تُظهر نتائج البحث أن توظيفه يمتلك إمكانات كبيرة في تعزيز فاعلية تعليم اللغة العربية، ولا سيما من خلال تخصيص المواد التعليمية، وتقديم التغذية الراجعة الآلية، وتنمية مهارات التحدث، فضلًا عن تطوير الوسائط التعليمية التفاعلية. غير أن تطبيقه في المعاهد الإسلامية لا يزال يواجه تحديات متعددة، من بينها محدودية البنية التحتية، وانخفاض مستوى الكفاية الرقمية لدى المربين، فضلًا عن القضايا الأخلاقية وحماية البيانات. وإضافة إلى ذلك، تبرز الحاجة إلى اعتماد مقاربة سياقية تضمن انسجام تكامله مع القيم الإسلامية والتقاليد العريقة للمعاهد الإسلامية. تُسهم هذا البحث في تطوير حقل دراسات تعليم اللغة العربية من خلال تقديم منظورٍ تصوّريٍ حول تكامل الذكاء الاصطناعي المرتكز على القيم الإسلامية. كما يقدّم هذا البحث توصياتٍ إستراتيجيةً للمؤسسات التعليمية في المعاهد الإسلامية، وصنّاع السياسات، والممارسين التربويين، من أجل تطوير نماذج تعليمية قائمة عليه تتسم بالأخلاقية، والقدرة على التكيّف، والاستدامة.

الكلمات المفتاحية: الذكاء الاصطناعي، اللغة العربية، المعاهد الإسلامية، أخلاقيات التكنولوجيا، التعلم الرقمي

Abstrak

Penelitian ini bertujuan untuk menganalisis integrasi Artificial Intelligence (AI) dalam pembelajaran bahasa Arab di lingkungan pesantren serta mengkaji peluang, tantangan, dan implikasinya terhadap penguatan nilai-nilai pendidikan Islam. Penelitian ini menggunakan pendekatan kualitatif deskriptif dengan metode studi pustaka, yang bersumber dari artikel ilmiah bereputasi nasional dan internasional, laporan penelitian, serta kajian teoritis yang relevan dengan topik AI, pembelajaran bahasa Arab, dan pendidikan pesantren. Data dianalisis melalui tahapan reduksi data, klasifikasi tematik, dan penarikan kesimpulan. Hasil penelitian menunjukkan bahwa penerapan AI memiliki potensi besar dalam meningkatkan efektivitas pembelajaran bahasa Arab,

khususnya melalui personalisasi materi, umpan balik otomatis, peningkatan keterampilan berbicara, serta pengembangan media pembelajaran interaktif. Namun, implementasi AI di pesantren masih menghadapi berbagai tantangan, seperti keterbatasan infrastruktur, rendahnya literasi digital pendidik, serta isu etika dan perlindungan data. Selain itu, diperlukan pendekatan kontekstual agar integrasi AI tetap sejalan dengan nilai-nilai keislaman dan tradisi pesantren. Penelitian ini berkontribusi pada pengembangan kajian pendidikan bahasa Arab dengan menawarkan perspektif konseptual mengenai integrasi AI yang berlandaskan nilai-nilai Islam. Studi ini juga memberikan rekomendasi strategis bagi lembaga pendidikan pesantren, pembuat kebijakan, dan praktisi pendidikan dalam mengembangkan model pembelajaran berbasis AI yang etis, adaptif, dan berkelanjutan.

Kata Kunci: *kecerdasan buatan, Bahasa Arab, pesantren, etika teknologi, pembelajaran digital*

A. Introduction

The advancement of digital technology has brought significant transformation to the field of education, including language learning. Artificial Intelligence (AI) has emerged as one of the innovations offering new approaches to the teaching and learning process. In the context of Arabic language education, the integration of AI presents opportunities to enhance the effectiveness and efficiency of learning through personalized materials, instant feedback, and more dynamic interaction between students and learning content (Syaikhudin & Laili, 2024; Sahrir et al., 2025). Previous studies indicate that AI-based learning environments can support adaptive learning, improve student engagement, and facilitate more autonomous language practice, particularly in Arabic language instruction (Azhar et al., 2025).

Arabic, with its complex morphology and syntax, often poses challenges for non-native learners. Difficulties in mastering grammar, vocabulary, and pronunciation require an adaptive and interactive learning approach. Artificial Intelligence (AI) offers solutions through learning systems that can adjust to individual needs, provide appropriate exercises, and deliver real-time correction and feedback (Morales et al., 2022;Irhamni, n.d.).

The integration of AI in language learning has shown positive results in various studies. The use of chatbots and virtual assistants enables students to practice daily conversations, while automated evaluation systems provide objective assessments of learners' writing and speaking skills (Brinegar, 2023). Furthermore, AI supports the development of engaging and interactive learning materials, such as educational

games and simulation-based learning environments, which enhance learner motivation and participation (Irhamni, n.d.).

Several educational institutions have begun implementing AI-based systems in Arabic language instruction. In Indonesia, AI-powered e-learning platforms have been shown to improve students' comprehension and learning outcomes. However, studies also highlight that the effectiveness of AI integration depends heavily on institutional readiness, technological infrastructure, and the availability of trained human resources (Brinegar, 2023; Kasman et al., 2024).

Although AI offers many advantages, the role of teachers remains central in the learning process. Teachers act as facilitators who guide students in using technology ethically and pedagogically. Professional development and continuous training are essential to ensure that educators can integrate AI effectively without diminishing the humanistic values of education (Raza, 2024; Indriani, 2025).

The use of AI in education also raises ethical concerns, particularly related to data privacy, algorithmic bias, and transparency. Scholars emphasize the importance of establishing clear ethical guidelines and regulatory frameworks to protect learners' data and ensure responsible use of AI technologies (Indriani, 2025; Kasman et al., 2024).

Digital inequality remains a major challenge in the implementation of AI in education, especially in regions with limited access to technological infrastructure. Ensuring equitable access to AI-based learning requires institutional commitment, supportive government policies, and continuous capacity-building programs for teachers and students alike (Morales et al., 2022; Irhamni, n.d.).

Many studies have been conducted, among them: First, Samin & Osman, (2024), *Integrating Artificial Intelligence into the Arabic Language Teaching Plan at Higher Education*. This study emphasizes the importance of systematic planning in integrating AI technology into the Arabic language curriculum at universities. It found that the success of AI implementation is highly influenced by institutional readiness, lecturer training, and the alignment between learning objectives and AI technology features. The study also recommends the need for educational policies that support the sustainable integration of AI.

Second, Syaikhudin & Laili, (2024), *Development of AI-based Arabic Learning Model to Improve Non-native Speaker Arabic Speaking Skills*. This research developed and tested an AI-based Arabic learning model aimed at improving the speaking skills of non-native speakers. The results showed significant improvements in pronunciation accuracy, speaking fluency, and student motivation.

The use of technologies such as voice recognition and real-time AI feedback was considered effective as a conversational practice aid.

Third, Sahrir, M. S., Ab Halim, A. F., Zaini, M. K. A., & Ramadhan, S. (2025), *The Use of Generative Artificial Intelligence (AI) in Arabic Language Education: Insights and Implications Between Malaysia and Indonesia*. This study compares the use of generative AI (such as ChatGPT) in Arabic language learning in Malaysia and Indonesia. It found that generative AI is very helpful in preparing teaching materials, translating texts, and providing feedback to students. However, challenges remain, such as technology literacy among teachers, as well as ethical concerns and the accuracy of AI-generated content. The study also provides policy recommendations for educational institutions to adopt AI wisely.

Although numerous studies have examined the integration of Artificial Intelligence (AI) in Arabic language learning, research that specifically addresses its implementation within pesantren environments remains limited. Given the distinctive characteristics of pesantren—rooted in religious values, traditional learning systems, and strong moral foundations—the application of AI requires a contextual and value-oriented approach. Therefore, this study aims to explore the integration of AI in Arabic language learning within pesantren by examining how technological innovations can be adapted to support linguistic development while remaining aligned with the educational philosophy and cultural values of pesantren. Specifically, this research seeks to analyze the potential of AI in enhancing learning effectiveness, identify challenges related to infrastructure, human resources, and ethics, and examine the compatibility of AI-based learning with the principles of Islamic education.

The contribution of this study lies in providing a conceptual and contextual framework for integrating AI into Arabic language education in pesantren settings. It offers theoretical insights into how AI can be utilized responsibly and meaningfully within faith-based educational institutions, while also presenting practical recommendations for educators, policymakers, and pesantren administrators. By highlighting the balance between technological innovation and religious values, this study contributes to the development of an ethical, adaptive, and sustainable model of AI-supported learning in Islamic education contexts.

B. Method

This study employs a descriptive qualitative approach using a library research method to analyze in depth the integration of Artificial Intelligence (AI) in Arabic language learning within pesantren educational settings. The qualitative approach is chosen because it enables an in-depth exploration of meanings, contexts, and

nuanced understandings of complex and context-dependent educational phenomena (Creswell, 2009;Sugiyono, 2013). The data sources consist of reputable scholarly publications indexed in Scopus and SINTA, academic books, and relevant scientific works related to AI, Arabic language education, and Islamic education. Key references include the works of Syaikhudin and Laili (2024) on the development of AI-based Arabic learning models, Sahrir et al. (2025) on the utilization of generative AI in Arabic language education in Southeast Asia, and Muhammad Azhar at al (2022), who examine the effectiveness of intelligent technologies in enhancing linguistic competence.

The data analysis procedure was conducted through three main stages: data reduction, data display, and conclusion drawing, as proposed by Miles, Huberman, and Saldaña, (2014). During the data reduction stage, relevant literature was carefully selected based on its relevance to the research focus, particularly studies addressing AI integration, implementation challenges, and Islamic educational values. Subsequently, the data were categorized into major thematic areas, including the effectiveness of AI-based learning, institutional readiness of pesantren, digital literacy among educators, and ethical as well as policy-related issues. The final stage involved drawing analytical and reflective conclusions to formulate the conceptual contributions of the study.

Through this methodological approach, the study contributes to the enrichment of scholarly discourse on Arabic language education by strengthening the theoretical and conceptual foundations of AI integration within pesantren contexts. Furthermore, it provides academic insights for researchers, educators, and policymakers in designing adaptive, ethical, and sustainable AI-based learning models that align with Islamic educational values (Creswell, 2009; Sugiyono, 2013; Zuhdi et al., 2025).

C. Results and Discussion

1. Result

a. The Potential of AI in Enhancing Arabic Language Learning

The findings indicate that AI plays a significant role in improving the quality of Arabic language learning through various adaptive and personalized learning functions. AI systems such as Natural Language Processing (NLP) and speech recognition not only assist learners in correcting linguistic errors in real time but also enable the customization of learning materials according to individual proficiency levels, thereby accelerating the process of language acquisition (Shao et al., 2022). AI-based instructional interventions have also been shown to enhance learners' motivation and active engagement in speaking practice and vocabulary development (Anwar & Ahyarudin, 2023).

b. Challenges of AI Implementation in Pesantren

The literature reveals that despite its considerable potential, the implementation of AI in pesantren faces various challenges. Limited technological infrastructure—including inadequate hardware, unstable internet connectivity, and insufficient technical resources—remains a major obstacle (Yazid, 2024;Najib & Darnoto, 2024). In addition, the relatively low level of digital literacy among educators hampers the effective integration of AI into daily teaching practices (Hakim & Anggraini, 2023). The traditional organizational culture of pesantren, which tends to prioritize conventional pedagogical approaches, also contributes to the slow adoption of emerging educational technologies .

c. Contextual Strategies for AI Integration

The findings further indicate that effective AI integration requires contextual strategies that align with the values and educational traditions of pesantren. AI can be optimally utilized through learning modules tailored to students' daily experiences, such as contextual chatbots designed around pesantren life or speaking exercises grounded in religious and social contexts (Ramadhan, n.d.). Another effective strategy involves the implementation of blended learning models that combine traditional teacher-centered instruction with AI-assisted learning, ensuring that technology supports rather than replaces the pedagogical role of teachers (Integrasi Artificial Intelligence Sebagai Alat Bantu, 2025).

d. Ethical and Regulatory Implications of AI in Education

The findings also highlight that ethical considerations and regulatory frameworks are critical issues in the application of AI in education. The collection and processing of student data pose risks related to privacy and data security if not properly regulated (Inderawati et al., 2024). Furthermore, algorithmic bias may influence assessment objectivity and learning recommendations, necessitating strict ethical oversight and transparent governance mechanisms (Agrawal et al., 2025). In the context of pesantren, the development of AI usage guidelines must also align with Islamic ethical principles and local cultural values to ensure that technological innovation supports, rather than undermines, the moral foundations of Islamic education (Mutiah, n.d.).

2. Discussion

a. The Potential of AI in Enhancing Arabic Language Learning

The integration of Artificial Intelligence (AI) in education has become a global trend that brings significant changes to teaching approaches, including in Arabic language learning. AI offers the capability to create a more adaptive, efficient, and personalized learning process. In the context of Arabic, which is known for its

complexity in morphology, syntax, and pronunciation, AI can help overcome various challenges often faced by non-native learners.

One of AI's advantages in Arabic language learning is its ability to provide real-time feedback and automatically adjust learning materials based on the learner's proficiency level. Natural Language Processing (NLP) technology enables AI systems to detect errors in pronunciation, grammar, and vocabulary usage, and to provide appropriate corrections. Research by Shao et al. (2022) on an AI-based Arabic Language and Speech Tutor demonstrated that AI systems could effectively improve students' speaking skills by offering tailored practice and accurate automated corrections.

Moreover, AI plays an important role in enhancing speaking skills through voice recognition technology. In a study by Syaikhudin and Laili (2024), an AI-based Arabic learning model developed for non-native speakers showed significant improvements in pronunciation accuracy and speaking fluency. This technology allows students to practice speaking independently outside classroom hours while still receiving immediate feedback.

Beyond teaching and practice, AI can also be utilized for automatic assessment of student abilities and curriculum evaluation. According to A. Hussain et al., (2023), the application of AI in Arabic curriculum evaluation can identify learning gaps and assist teachers in adjusting their instructional approaches more effectively. This is especially beneficial in educational settings with limited resources, as AI can take over time-consuming technical evaluation processes.

AI also facilitates the development of more engaging and interactive learning media, such as educational games and virtual reality simulations. Such media have proven to increase student motivation and engagement in the learning process. Zuhdi et al., (2025) developed AI-based Arabic learning media that showed positive results in enhancing active participation and student learning outcomes.

Nevertheless, the implementation of AI in Arabic language learning faces challenges. Infrastructure limitations, lack of teacher training, and issues of ethics and student data privacy require serious attention. Khalati et al., (2020) emphasize that AI adoption in education must be conducted carefully, ensuring that ethical regulations and policies are in place to prevent algorithmic bias and data misuse.

In conclusion, AI holds great potential to revolutionize Arabic language learning in terms of content, methods, and assessment. However, its successful implementation heavily depends on institutional readiness, educator competence, and appropriate policy approaches.

b. Challenges of AI Implementation in Pesantren

The implementation of AI in pesantren environments presents significant opportunities to improve the quality of education, but it also brings several challenges that must be addressed. One of the primary challenges is the limitation of technological infrastructure. Many pesantren, especially those located in remote areas, face obstacles in accessing hardware devices, stable internet connections, and human resources skilled in technology. This condition significantly hinders the integration of AI into teaching and learning activities (Yazid, 2024). Similar findings indicate that insufficient infrastructure remains a major barrier to the digital transformation of Islamic educational institutions (Kamaludin, n.d.).

Furthermore, cultural resistance to technological change is a significant barrier. Pesantren have long preserved traditional educational values, and the adoption of new technologies such as AI may be perceived as a threat to the authenticity of Islamic teaching and learning practices. Studies have shown that resistance often arises when technological innovation is perceived as undermining established religious authority and pedagogical traditions (Hakim & Anggraini, 2023). Therefore, a culturally sensitive and context-aware approach is required to ensure that AI integration aligns with the moral and spiritual foundations of pesantren education.

The digital literacy gap among educators and students also presents a substantial challenge. Many teachers in pesantren lack sufficient digital competencies to effectively utilize AI-based tools in instructional activities. This limitation reduces the potential impact of technology-enhanced learning and underscores the need for systematic professional development programs. Previous studies emphasize that continuous training and capacity building are essential to enable educators to integrate AI meaningfully into pedagogical practices (Indriani, 2025; Morales et al., 2022).

Ethical considerations and data privacy issues further complicate the implementation of AI in pesantren. The use of AI systems often involves the collection and processing of sensitive personal data, raising concerns about data security, consent, and algorithmic bias. Without proper safeguards, AI technologies may pose risks to students' privacy and fairness in educational assessment (Mutiah, n.d.; Khalati et al., 2020). Consequently, the establishment of clear ethical guidelines and regulatory frameworks is crucial to ensure responsible and transparent AI utilization.

In addition, the absence of comprehensive policies that support AI integration in pesantren education remains a significant challenge. Effective implementation requires governmental and institutional policies that facilitate

technological innovation through funding, infrastructure development, and teacher training programs. Studies suggest that strong policy support plays a vital role in enabling educational institutions to adopt AI sustainably and equitably (H Musawa et al., 2024; Zuhdi et al., 2025). With such support, pesantren can harness AI technologies to enhance educational quality while maintaining their distinctive religious and cultural identity.

c. Contextual Strategies for AI Integration

The integration of Artificial Intelligence (AI) in Arabic language learning within pesantren requires a contextual approach, given the unique characteristics of pesantren as traditional Islamic educational institutions. AI integration strategies must take into account Islamic values, local culture, and the specific needs of both students (santri) and teachers.

One applicable strategy is the use of AI-based chatbots to train speaking (kalam) skills in Arabic. These chatbots can be designed with content tailored to the Islamic context, such as dialogues about daily life in pesantren or discussions of classical Islamic texts. Ramadhan (2023) emphasizes that the use of chatbots in Arabic language learning can enhance student interaction and provide instant feedback, thereby accelerating the learning process.

In addition, the application of AI technology in Arabic–Indonesian text translation can assist students in better understanding the meaning of classical texts. According to research published in *Jurnal Shaut al-'Arabiyyah*, integrating AI as a translation aid can improve the accuracy and efficiency of the learning process, particularly in mastering the complex morphology and syntax of the Arabic language.

d. Ethical and Regulatory Implications

The integration of Artificial Intelligence (AI) in education—particularly in Arabic language learning within pesantren—has significantly enhanced the effectiveness and efficiency of teaching and learning processes. However, the application of this technology also raises important ethical and regulatory concerns that must be addressed carefully. One of the primary issues is student data privacy. AI-based systems often require the collection and processing of personal data to personalize learning experiences, which raises concerns regarding data security and potential misuse. Studies emphasize that educational institutions must implement strict data protection mechanisms and transparent governance systems to ensure responsible data management (Mutiah et al., 2019; Indriani, 2025).

Another critical concern is algorithmic bias, which may affect the objectivity and fairness of learning outcomes. If AI systems are trained using biased or

unrepresentative datasets, the resulting outputs may disadvantage certain learners or reinforce existing inequalities. This issue has been widely discussed in the context of educational AI, emphasizing the need for continuous evaluation and ethical auditing of algorithms (Khalati et al., 2020; Sahrir et al., 2025).

From a regulatory perspective, the absence of comprehensive legal frameworks governing the use of AI in education poses significant challenges. Without clear policies, institutions may face uncertainty regarding data protection, accountability, and ethical compliance. Scholars highlight the urgency of establishing regulatory frameworks that address ethical standards, data governance, and the responsible deployment of AI in educational settings; (Kasman et al., 2024; Indriani, 2025).

In the specific context of pesantren, the integration of AI must align with Islamic values and cultural norms. The adoption of technology should support, rather than undermine, the moral and spiritual objectives of Islamic education. Therefore, the involvement of religious scholars, educators, and institutional leaders is essential to ensure that AI implementation remains consistent with Sharia principles and local wisdom (Kamaludin, n.d.; Yazid, 2024).

To effectively address these challenges, a collaborative and multi-stakeholder approach is required. This includes policymakers, educators, technologists, and religious authorities working together to develop ethical guidelines, capacity-building programs, and continuous evaluation mechanisms. With such an approach, AI can be responsibly integrated into pesantren education, enhancing learning outcomes while preserving ethical integrity and cultural identity.

D. Conclusion

Based on the reviewed literature, most studies emphasize that the integration of Artificial Intelligence (AI) in Arabic language education—particularly within pesantren—offers substantial potential to enhance learning effectiveness, personalization, and accessibility. The findings of this study indicate that AI can support language acquisition through adaptive learning systems, automated feedback, and interactive learning environments, while also enriching pedagogical practices when aligned with the educational philosophy of pesantren. At the same time, the literature consistently highlights key challenges, including limited technological infrastructure, insufficient digital literacy among educators, ethical concerns related to data privacy and algorithmic bias, and the need to align AI implementation with Islamic values and local cultural contexts. These findings demonstrate that the success of AI integration in pesantren depends not merely on technological availability, but on contextual, ethical, and institutional readiness.

This study contributes to the existing body of knowledge by offering a contextualized and value-based perspective on AI integration in Islamic education, particularly within pesantren environments. It underscores the importance of positioning AI as a supportive tool that strengthens—rather than replaces—the pedagogical and moral roles of educators. At the same time, this study acknowledges its limitations, as it relies primarily on literature analysis without empirical field data. Future research is therefore encouraged to incorporate empirical investigations, such as case studies or mixed-method approaches, to examine the practical implementation of AI in pesantren settings. Overall, this study contributes conceptually by bridging technological innovation with Islamic educational values, offering a foundation for developing ethical, sustainable, and contextually grounded AI-based learning models in Islamic education.

References

A Hussain, K. H., Curricula, in, Methods, T., & Language, A. (2023). Integrating Artificial Intelligence Into Arabic Language Curriculum Evaluation. *Educational Administration: Theory and Practice*, *29*(3), 1074–1078. https://doi.org/10.53555/KUEY.V29I3.7757

Agrawal, A., Banerjee, A. R. S., Jhariya, M. K., Garg, N., Hashmi, I., Brar, V., Gupta, D., & Mishra, D. K. (2025). AI-Powered Student Assessment in Higher Education: Enhancing Accuracy, Feedback, and Personalization. *Innovating Assessment and Evaluation in Higher Education: Inclusive Practices and Technological Advancements*, 177–202. https://doi.org/10.4018/979-8-3373-2130-1.CH006

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

Azhar, M., Yolanda, D., Frananda, A., Saputra, M. R., Mulyani, R., & Nurdinah, S. (2025). Revolusi Pembelajaran Bahasa Arab Di Era Digital: Analisis Peran Artificial Intelligence Dalam Pengembangan Kompetensi Berbahasa. *AL-MA'LUMAT : JURNAL ILMU-ILMU KEISLAMAN*, *3*(2), 58–81. https://doi.org/10.56184/JAM.V3I2.506

Brinegar, M. (2023). CHATBOTS AS A SUPPLEMENTARY LANGUAGE LEARNING TOOL: ADVANTAGES, CONCERNS, AND IMPLEMENTATION. *International Journal of Education and Social Science Research*, *06*(06), 223–230. https://doi.org/10.37500/IJESSR.2023.6615

Creswell, J. W. (2009). Qualitative, Quantitative, and Mixed-Methods Research. In *Microbe Magazine* (Vol. 4, Issue 11, pp. 485–485). https://doi.org/10.1128/microbe.4.485.1

H Musawa, I., Al Malik, R., & Muhammad Khan, R. (2024). *Artificial Intelligence Adoption in Education A Study on Attitudes, Readiness, and Intention*. https://doi.org/10.46254/AN14.20240608

Hakim, A., & Anggraini, P. (2023). Artificial Intelligence in Teaching Islamic Studies: Challenges and Opportunities. *Molang: Journal Islamic Education*, *1*(2), 19–30. https://doi.org/10.32806/JM.V1I2.619

Inderawati, R., Pd, M., Santri, D. J., & Si, M. (2024). *PENGELOLAAN KELAS DIGITAL*. Unsri Press.

Indriani, R. (2025). Moral and Ethical Challenges in the Utilization of Artificial Intelligence from the Perspective of Islamic Education. *Proceeding of International Conference on Islamic and Interdisciplinary Studies*, *4*, 521–526. https://jurnal.uindatokarama.ac.id/index.php/iciis/article/view/4503

Irhamni. (n.d.). AI-Based Adaptive Learning System in Arabic Language Education: Personalization of Materials and Enhancement of Learning Effectiveness. *MUDALLA*, 13–20.

Kamaludin. (n.d.). *Islamic Boarding School and AI Technology: Opportunities and Challenges | Proceedings of the Multidisciplinary Research Community*. Retrieved January 2, 2026, from https://proceeding.ai-mrc.com/pmrc/article/view/101

Kasman, R., Madjid, A., & Muhammadiyah Yogyakarta, U. (2024). Opportunities and Challenges of Artificial Intelligence and Their Implications in Islamic Education. *Intiqad: Jurnal Agama Dan Pendidikan Islam*, *16*(1), 1–13. https://doi.org/10.30596/19308

Khalati, M. M., Ali, T., & Al-Romany, H. (2020). Artificial Intelligence Development and Challenges (Arabic Language as a Model). *International Journal of Innovation, Creativity and Change. Www.Ijicc.Net*, *13*(5), 2020. www.ijicc.net

Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative Data Analysis* (3rd ed.). SAGE Publications Inc.

Morales, U., Lopez, V., Joanan, S., & Julia, H. (2022). Artificial Intelligence as a Support for Arabic Language Learning in Higher Education with VOSviewer Analysis. *Journal International Inspire Education Technology*, *1*(3), 160–172. https://doi.org/10.55849/JIIET.V1I3.207

Mutiah. (n.d.). *Integrating Artificial Intelligence in Arabic Writing Proficiency: A Case Study in Islamic Boarding Schools | ANCOLT: International Conference on Language Teaching*. Retrieved January 2, 2026, from https://ancolt-pekanbahasa.unkafa.ac.id/index.php/proceeding/article/view/136

Najib, A. C., & Darnoto. (2024). Tantangan Guru Pendidikan Agama Islam di Era Modern dalam Penggunaan Artificial Intelligence (AI): Challenges for Islamic Religious Education Teachers in the Modern Era in the Use of Artificial

Intelligence (AI). *TA'LIMUNA: Jurnal Pendidikan Islam*, *13*(2), 146–151. https://doi.org/10.32478/W4T8AE76

Ramadhan. (n.d.). *Strategi penggunaan chatbot artificial intelligence dalam pembelajaran Bahasa Arab pada perguruan tinggi di Indonesia | Jurnal Oase Nusantara*. Retrieved January 2, 2026, from https://ejurnal.kptk.or.id/oase/article/view/32

Raza, M. (2024). AI in Education: Balancing Benefits and Challenges Through Professional Development of Teachers. *Qlantic Journal of Social Sciences* , *5*(4), 168–174. https://doi.org/10.55737/QJSS.V-IV.24071

Sahrir, M. S., Muharom Albantani, A., Arifin, F., & din, F. (2025). The Use of Generative Artificial Intelligence (AI) in Arabic Language Education: Insights and Implications between Malaysia and Indonesia. *International Journal of Research and Innovation in Social Science*, *IX*(III), 3638–3646. https://doi.org/10.47772/IJRISS.2025.90300288

Samin, S. M., & Osman, R. A. (2024). Integrating Artificial Intelligence into the Arabic Language Teaching Plan at Higher Education. *SHS Web of Conferences*, *202*, 06010. https://doi.org/10.1051/SHSCONF/202420206010

Shao, S., Alharir, S., Hariri, S., Satam, P., Shiri, S., & Mbarki, A. (2022). AI-based Arabic Language and Speech Tutor. *Proceedings of IEEE/ACS International Conference on Computer Systems and Applications, AICCSA*, *2022-December*. https://doi.org/10.1109/AICCSA56895.2022.10017924

Sugiyono. (2013). *Metodologi Penelitian Kuantitatif, Kualitatif dan R & D*.

Syaikhudin, M., & Laili, M. I. (2024). Development of AI-based Arabic Learning Model to Improve non-native speaker Arabic Speaking Skills. *Syaikhuna: Jurnal Pendidikan Dan Pranata Islam*, *15*(1), 25–33. https://doi.org/10.62730/SYAIKHUNA.V15I1.7295

Yazid, A. S. (2024). Artificial Intelligence (AI) Adoption in Pesantren: Challenges and Readiness. *Science and Education*, *3*, 855–860.

Zuhdi, S., Syahrial, & Sofyan, M. (2025). The Effect of the Use of Interactive Media in Arabic Language Learning on Students' Learning Outcomes at Nurul Ilmi Integrated Islamic Elementary School, Jambi. *Asian Journal of Education and Social Studies*, *51*(1), 158–164. https://doi.org/10.9734/AJESS/2025/V51I11736