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AI-Driven Transformation of Arabic Language Curriculum: Challenges and Opportunities in Digital Learning

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Abstract

Artificial Intelligence (AI) has transformed educational practices and created new challenges and opportunities for curriculum development, including in Arabic language education. This study aims to analyze the challenges of digital learning in Arabic language education, examine the need for AI-driven curriculum transformation, and explore opportunities for integrating AI into curriculum development. Using a qualitative descriptive approach with a library research method, this study analyzed relevant literature on AI, digital learning, curriculum transformation, and Arabic language education. The findings reveal that digital learning challenges include curriculum rigidity, changing learner characteristics, limited digital competencies among educators, and technological infrastructure issues. The study also shows that AI has become a catalyst for curriculum transformation by influencing learning objectives, competencies, instructional strategies, and assessment systems. Furthermore, AI offers opportunities to enhance Arabic language learning through adaptive learning, intelligent tutoring systems, automated feedback, and technology-based assessment. The study concludes that future Arabic language curricula should integrate linguistic competence with digital literacy, AI literacy, critical thinking, and ethical technology use. This study contributes to the discourse on AI in education by positioning AI as a driving force for curriculum transformation in Arabic language education.

Keywords: *Artificial Intelligence; Arabic Language Education; Curriculum Transformation; Digital Learning; AI Literacy*

Abstrak

Artificial Intelligence (AI) telah mengubah praktik pendidikan dan menghadirkan berbagai tantangan serta peluang baru dalam pengembangan kurikulum, termasuk pada pendidikan bahasa Arab. Penelitian ini bertujuan untuk menganalisis tantangan pembelajaran digital dalam pendidikan bahasa Arab, mengkaji kebutuhan transformasi kurikulum yang didorong oleh AI, serta mengeksplorasi peluang integrasi AI dalam pengembangan kurikulum. Penelitian menggunakan pendekatan kualitatif deskriptif dengan metode studi kepustakaan. Data diperoleh melalui analisis berbagai literatur yang berkaitan dengan AI, pembelajaran digital, transformasi kurikulum, dan pendidikan bahasa Arab. Hasil penelitian menunjukkan bahwa tantangan pembelajaran digital meliputi kekakuan kurikulum, perubahan karakteristik peserta didik, keterbatasan kompetensi digital pendidik, serta infrastruktur teknologi. Temuan penelitian juga menunjukkan bahwa AI menjadi katalis transformasi kurikulum melalui perubahan tujuan pembelajaran, kompetensi, strategi pembelajaran, dan sistem asesmen. Selain itu, AI menawarkan peluang pengembangan pembelajaran bahasa Arab melalui pembelajaran adaptif, tutor cerdas, umpan balik otomatis, dan asesmen berbasis teknologi. Penelitian ini menyimpulkan bahwa kurikulum bahasa Arab di masa depan perlu mengintegrasikan kompetensi kebahasaan dengan literasi digital, literasi AI, kemampuan berpikir kritis, dan penggunaan teknologi yang beretika.

Kata Kunci: *Kecerdasan buatan; Pendidikan Bahasa Arab; Transformasi Kurikulum; Pembelajaran Digital; Literasi AI*

Introduction

Recent advances in Artificial Intelligence (AI) have significantly transformed various aspects of human life, including education. AI is no longer viewed merely as a technological innovation but has emerged as a transformative force that reshapes how people learn, teach, access information, and evaluate learning outcomes. Its integration into education has facilitated the development of more adaptive, personalized, flexible, and data-driven learning models.[1] Technologies such as intelligent tutoring systems, adaptive learning platforms, educational chatbots, speech recognition tools, and automated feedback

[1] Dizon, Gilbert. "ChatGPT as a Tool for Self-Directed Foreign Language Learning." *Innovation in Language Learning and Teaching*, October 9, 2024, 1–17. https://doi.org/10.1080/17501229.2024.2413406.

systems have made digital learning environments more interactive and responsive to learners' needs.[2] Consequently, educational institutions are increasingly required to redesign their curricula to remain relevant to technological advancements and the demands of twenty-first-century education.

These developments have also influenced language education, including Arabic language learning. As a core subject within Islamic education, Arabic language education faces increasing pressure to adapt to digital technologies and AI-driven learning environments.[3] AI-based applications enable learners to engage in more personalized learning experiences through automated translation, grammar correction, interactive conversational practice, and instant feedback.[4] Such technologies create new opportunities for developing Arabic language skills, including listening (*istima'*), speaking (*kalam*), reading (*qira'ah*), and writing (*kitabah*). Therefore, AI has considerable potential to enhance the effectiveness, efficiency, and accessibility of Arabic language learning in the digital era.

Despite these opportunities, Arabic language curricula in many educational institutions continue to be dominated by traditional approaches that emphasize grammar instruction, vocabulary memorization, and teacher-centered learning.[5] While these approaches remain important for developing foundational linguistic competence, they often fail to address the learning preferences of digital-native students who favor interactive, collaborative, flexible, and technology-enhanced learning experiences. The changing characteristics of learners in digital environments call for curriculum transformation that extends

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[2] Liu, Guangxiang, and Chaojun Ma. "Measuring EFL Learners' Use of ChatGPT in Informal Digital Learning of English Based on the Technology Acceptance Model." *Innovation in Language Learning and Teaching* 18, no. 2 (March 2024): 125–38. https://doi.org/10.1080/17501229.2023.2240316.

[3] Anjum, Farheen, Bareq Raad Raheem, and Zanyar Nathir Ghafar. "The Impact of ChatGPT on Enhancing Students' Motivation and Learning Engagement in Second Language Acquisition: Insights from Students." *Journal of E-Learning Research* 3, no. 2 (January 2025): 1–11. https://doi.org/10.33422/jelr.v3i2.679.

[4] Wang, Yiyin, Tiancheng Zhang, Le Yao, and Paul Seedhouse. "A Scoping Review of Empirical Studies on Generative Artificial Intelligence in Language Education." Innovation in Language Learning and Teaching, June 5, 2025, 1–28. https://doi.org/10.1080/17501229.2025.2509759.

[5] Jamil, Husnaini, and Nur Agung. "Tantangan Pembelajaran Bahasa Arab Di Era Society 5.0: Analisis Pembelajaran Bahasa Arab Berbasis Aplikasi Interaktif." *Alibbaa': Jurnal Pendidikan Bahasa Arab* 3, no. 1 (January 2022): 38–51. https://doi.org/10.19105/ajpba.v3i1.5536.

beyond linguistic mastery to incorporate technological developments and twenty-first-century competencies.

Previous studies have highlighted the growing impact of AI on language education and curriculum development. Lee et al. (2025) found that Generative AI supports personalized learning, automated feedback, and adaptive learning in language education.[6] Similarly, Wu (2025) argued that AI creates new opportunities for language teaching by enhancing flexibility and learner autonomy, while simultaneously raising pedagogical and ethical concerns.[7] At the curriculum level, James and Maldonado-Molina (2025) emphasized the importance of systematically integrating AI into curriculum design[8], whereas Salhab (2024) highlighted the need to incorporate AI literacy as a core curricular component.[9] Furthermore, Creely (2024) demonstrated that AI-powered language tools can facilitate more personalized learning experiences through dynamic content delivery and individualized feedback.[10]

Nevertheless, most existing studies focus primarily on AI as a learning tool, AI literacy development, or the implementation of AI technologies in language instruction. Limited attention has been given to AI as a driving force for curriculum transformation in Arabic language education, particularly in addressing the challenges of digital learning and the emerging competencies required in the AI era. This study seeks to address this gap by examining the challenges and opportunities of AI-

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[6] Lee, Seongyong, Hohsung Choe, Di Zou, and Jaeho Jeon. "Generative AI (GenAI) in the Language Classroom: A Systematic Review." *Interactive Learning Environments* 34, no. 1 (January 2026): 335–59. https://doi.org/10.1080/10494820.2025.2498537.

[7] Wu, Wen-Chi Vivian, Kuang-Yun Ting, and Po-Han Lin. "The Impact of Generative AI Tools on Language Teaching and Learning: Investigating Prospective Teachers' Self-Directed Learning." *European Journal of Teacher Education* 48, no. 5 (October 2025): 987–1012. https://doi.org/10.1080/02619768.2025.2554682.

[8] James, Delores C. S., and Mildred M. Maldonado-Molina. "Artificial Intelligence in the Curriculum: Development and Implementation of a Professional Training Program to Promote Literacy Among Health Education College Majors." *Pedagogy in Health Promotion* 12, no. 1 (March 2026): 67–73. https://doi.org/10.1177/23733799251335628.

[9] Salhab, Reham. "AI Literacy across Curriculum Design: Investigating College Instructor's Perspectives." *Online Learning* 28, no. 2 (June 2024). https://doi.org/10.24059/olj.v28i2.4426.

[10] Creely, Edwin. "Exploring the Role of Generative AI in Enhancing Language Learning: Opportunities and Challenges." *International Journal of Changes in Education* 1, no. 3 (April 2024): 158–67. https://doi.org/10.47852/bonviewIJCE42022495.

driven curriculum transformation in Arabic language education within the context of digital learning.

Accordingly, this study aims to analyze the challenges of digital learning in Arabic language education, examine the need for AI-driven curriculum transformation, and explore opportunities for integrating AI into Arabic language curriculum development. The findings are expected to provide insights for curriculum developers, educators, and policymakers in designing Arabic language learning systems that are more responsive to technological advancements and future educational demands.

Method

This study employed a descriptive qualitative approach using a library research method.[11] This approach was selected because the study aimed to critically examine and analyze concepts, theories, and previous research findings related to AI-driven transformation of the Arabic language curriculum within the context of digital learning. Rather than focusing on hypothesis testing or statistical measurement, the study emphasized the exploration and interpretation of relevant scholarly literature to develop a comprehensive understanding of the research topic.

The data sources consisted of both primary and secondary materials. Primary sources included scholarly articles addressing Artificial Intelligence in education, curriculum transformation, digital learning, and Arabic language education. Secondary sources comprised books, conference proceedings, research reports, academic documents, and other relevant references. The selected literature was chosen based on its relevance to the study focus, providing a comprehensive perspective on the relationship between AI development, digital learning, and Arabic language curriculum development.

Data were collected through document analysis and literature review. The process began with the identification of literature related to Artificial Intelligence, digital learning, curriculum transformation, and Arabic language education. The collected sources were subsequently reviewed, analyzed, and classified according to the main themes of the

[11] George, Mary W. *The Elements of Library Research*. Princeton University Press, 2008. https://doi.org/10.1515/9781400830411.

study. This classification enabled the organization of information into three major areas: challenges of digital learning in Arabic language education, the need for curriculum transformation in the AI era, and opportunities for integrating AI into Arabic language curriculum development.

Data analysis followed the interactive model proposed by Miles, Huberman, and Saldaña, which consists of three stages: data reduction, data display, and conclusion drawing and verification. During the data reduction stage, relevant information was selected and organized according to the research objectives. The data were then systematically presented based on thematic categories to facilitate interpretation. Finally, the findings were interpreted and synthesized to generate a comprehensive understanding of the challenges and opportunities associated with AI-driven transformation of the Arabic language curriculum in digital learning environments. Through this process, the study sought to provide a systematic and in-depth analysis that contributes to the development of Arabic language curricula in the era of Artificial Intelligence.

Results and Discussion

Challenges of Digital Learning in Arabic Language Education

The literature review indicates that the rapid advancement of digital technologies and Artificial Intelligence (AI) has introduced new challenges to Arabic language education. Previous studies suggest that these challenges extend beyond the adoption of technology in learning and encompass curriculum readiness, learner characteristics, educators' competencies, and the availability of supporting infrastructure. Achruh argues that digital transformation has fundamentally reshaped the learning ecosystem, requiring substantial adjustments in Arabic language education systems.[12]

From a curriculum perspective, the literature suggests that Arabic language curricula in many educational institutions remain largely

[12] Achruh, Achruh, Muhammad Rapi, Muhammad Rusdi, and Ridwan Idris. "Challenges and Opportunities of Artificial Intelligence Adoption in Islamic Education in Indonesian Higher Education Institutions." *International Journal of Learning, Teaching and Educational Research* 23, no. 11 (November 2024): 423–43. https://doi.org/10.26803/ijlter.23.11.22.

rooted in traditional approaches that emphasize grammar instruction, vocabulary memorization, and teacher-centered learning. While these approaches continue to play an important role in developing foundational linguistic competence, Khushboo argues that they often fail to address the demands of twenty-first-century learning, which require interactivity, creativity, collaboration, and the effective use of digital technologies.[13] As a result, Arabic language education risks becoming increasingly disconnected from rapidly evolving digital learning environments.

The literature further highlights the changing characteristics of learners as a major challenge for Arabic language education. Students who grow up in digital environments tend to learn differently from previous generations. They are accustomed to instant access to information, visual and audiovisual content, and continuous interaction through digital platforms. Research by Butarbutar indicates that contemporary learners are more responsive to interactive, flexible, and technology-enhanced learning experiences than to conventional one-way instructional approaches.[14] This shift necessitates the adoption of more learner-centered pedagogical practices.

In addition, several studies identify educators' digital competence as a critical factor in the successful integration of technology and AI into Arabic language instruction. Khasawneh found that many Arabic language teachers and lecturers lack sufficient digital literacy to effectively incorporate technology into teaching and learning processes.[15] Consequently, technology is often used as a supplementary tool rather than as an integral component of instructional design. As AI continues to evolve, this challenge becomes increasingly complex, as

[13] Kuddus, Khushboo. "Artificial Intelligence in Language Learning: Practices and Prospects." In *Advanced Analytics and Deep Learning Models*, 1–17. Wiley, 2022. https://doi.org/10.1002/9781119792437.ch1.

[14] Butarbutar, Ranta, Sujarwo Sujarwo, Ermelinda Agnes Gunu Pure, Sulviana Sulviana, and Abdul Rizal. "Unlocking the Impact of AI-Assisted Online Interactive Learning Environment in English Language Learning." *The Journal of AsiaTEFL* 22, no. 4 (December 2025): 646–62. https://doi.org/10.18823/asiatefl.2025.22.4.2.646.

[15] Khasawneh, Mohamad Ahmad Saleem, Alaa Aladini, Sabah Abdulkader Assi, and Bemnet Ajanil. "Portfolio Assessment in AI-Enhanced Learning Environments: A Pathway to Emotion Regulation, Mindfulness, and Language Learning Attitudes." *Language Testing in Asia* 15, no. 1 (January 2025): 5. https://doi.org/10.1186/s40468-025-00345-0.

educators are expected not only to possess pedagogical expertise but also to utilize AI tools effectively and responsibly.[16]

The reviewed literature also reveals that infrastructure limitations remain a significant barrier to digital learning implementation. Several studies report unequal access to internet connectivity, digital devices, Learning Management Systems (LMS), and technology-based learning platforms across educational institutions. These disparities contribute to varying levels of readiness for digital transformation in Arabic language education. Overall, the literature suggests that the primary challenge facing Arabic language education in the digital era lies not merely in technological advancement itself, but in the readiness of curricula and educational ecosystems to respond comprehensively to these changes.[17]

AI-Driven Curriculum Transformation

The reviewed literature demonstrates that the development of Artificial Intelligence has triggered a paradigm shift in curriculum development. Whereas curricula were traditionally oriented toward content mastery and knowledge transmission, the emergence of AI demands more adaptive curricula that respond to changing learning environments, learner needs, and technological developments. In Arabic language education, curriculum transformation can no longer be viewed merely as the revision of learning materials; rather, it involves comprehensive changes in learning objectives, competencies, instructional strategies, and assessment systems.[18]

Huyen's findings suggest that Arabic language education in the AI era should move beyond a sole focus on linguistic competence.

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[16] Alsaawi, Ali. "Challenges and Opportunities Associated with AI Chatbots in Language Learning from the Perspective of Users in Saudi Arabia." *International Journal of Learning, Teaching and Educational Research* 24, no. 5 (May 2025): 400–415. https://doi.org/10.26803/ijlter.24.5.21.

[17] Abdaoui, Asma, Houssem Eddine Nouri, and Olfa Belkahla Driss. "AI in Children's Education: Applications of Machine Learning and Large Language Models, Benefits and Challenges." 2025 IEEE Afro-Mediterranean Conference on Artificial Intelligence (AMCAI), October 14, 2025, 1–8. https://doi.org/10.1109/AMCAI66110.2025.11474348.

[18] Amante-Nochefranca, Gemma, Olga Orbase-Sandal, Ericson Olario Alieto, Izar Usman Laput, Salman Ebod Albani, Rochelle Irene Lucas, and Manuel Tanpoco. *AI-Assisted English Language Learning and Teaching in a Developing Country: An Investigation of ESl Student's Beliefs and Challenges*. 2024. https://doi.org/10.1007/978-3-031-48465-0_37.

Curricula should equip learners with the ability to adapt to digital environments, utilize technology productively, and develop critical thinking skills to manage and evaluate information obtained through digital platforms. Consequently, linguistic competence and digital competence should be regarded as complementary dimensions of Arabic language curriculum development.[19]

The literature also points to a shift from teacher-centered instruction toward more learner-centered approaches. AI enables personalized learning through adaptive learning systems that adjust content, task difficulty, and feedback according to individual learner needs. Khasmiri's study indicates that such approaches can enhance learning effectiveness by providing more relevant and individualized learning experiences.[20]

Furthermore, the literature suggests that AI-driven curriculum transformation extends to assessment practices. Assessment is no longer limited to conventional written examinations but increasingly incorporates authentic assessment methods, including digital portfolios, technology-based projects, and AI-supported evaluation systems. These developments demonstrate that AI influences not only how learning takes place but also how learners' competencies are assessed and developed.

Opportunities for AI Integration

The literature indicates that AI offers extensive opportunities for integration into Arabic language curricula. These opportunities encompass learning materials, instructional processes, language skills development, and assessment practices. Malmous found that AI integration can enrich learning experiences and enhance the effectiveness of Arabic language learning in digital environments.[21]

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[19] Le, Trang Thi Huyen, Van Ung Dang, Hoi Khanh Dang, and Thang Thi Nguyen. "Applying AI Tools to Develop a Curriculum Based on Expected Learning Outcomes and Personalize Learning Program for Students at the University of Languages and International Studies." *European Journal of Educational Research* 14, no. 2 (February 2025): 415–27. https://doi.org/10.12973/eu-jer.14.2.415.

[20] Ahmad Kashmiri, Hayat. "Communication Challenges: Saudi EFL Speaking Skills and Strategies to Overcome Speaking Difficulties." *Arab World English Journal*, no. 267 (December 2020): 1–61. https://doi.org/10.24093/awej/th.267.

[21] Malmous, Mouad, Said Zaidoune, and El Mehdi El Hamydy. *Integration of the Rosetta Stone AI-Powered Platform as a Learning Management System (LMS) for*

In terms of learning materials, AI facilitates the development of more interactive and multimodal resources. Learning content is no longer confined to printed textbooks but can be delivered through interactive videos, Arabic-language podcasts, digital simulations, and AI-powered learning platforms. Such diverse resources provide learners with more contextualized and personalized learning experiencesa.[22]

Regarding instructional processes, numerous studies highlight the potential of AI to support adaptive and personalized learning. AI-based systems can recommend learning materials, adjust task difficulty, and provide immediate feedback. These capabilities allow learning experiences to become more flexible and responsive to learners' progress and individual needs.[23]

The literature further suggests that AI has considerable potential to support the development of the four Arabic language skills. In *maharah istima'* (listening), speech recognition technologies can assist learners in improving listening comprehension and pronunciation.[24] In *maharah kalam* (speaking), AI-powered chatbots can facilitate conversational practice.[25] For *maharah qira'ah* (reading), AI tools can support vocabulary analysis and reading comprehension.[26] Meanwhile,

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Language Learning in Moroccan Higher Education. 2025. https://doi.org/10.4018/979-8-3373-2302-2.ch006.

[22] Mahmudah, Menik, Lailil Maghfiroh, Nur Hanifansyah, and Sultan Abdus Syakur. "Enhancing Arabic Rhetoric Education through Mind Mapping: A Focus on Bayan & Badi'." *Lughawiyyat: Jurnal Pendidikan Bahasa Dan Sastra Arab* 8, no. 1 (April 2025): 32–55. https://doi.org/10.38073/lughawiyyat.v8i1.2208.

[23] Hadi, Nurul, Nuri Alvina, and Khaled Radhouani. "Ta'zîzu Dâfi'iyyati Thullâbi Riyâdh al-Athfâl Li Tathwîri Mahârât al-Lughah al-'Arabiyyah al-Syafawiyyah Min Khilâli Barâmiji al-Ta'lîm al-Mukatstsaf." *Alibbaa': Jurnal Pendidikan Bahasa Arab* 5, no. 2 (July 2024): 189–214. https://doi.org/10.19105/ajpba.v5i2.12195.

[24] Dhouib, Amira, Achraf Othman, Oussama el Ghoul, Mohamed Koutheair Khribi, and Aisha al Sinani. "Arabic Automatic Speech Recognition: A Systematic Literature Review." *Applied Sciences* 12, no. 17 (September 2022): 8898. https://doi.org/10.3390/app12178898.

[25] Zaimah, Nely Rahmawati, Risti Kamila Wening Estu, Syarifatul Fitri Hidayah, Syamsul Hadi, and Aiden Button. "Harnessing Gemini for Arabic Mastery: Educators' and Learners' Views." *Alibbaa': Jurnal Pendidikan Bahasa Arab* 5, no. 2 (July 2024): 166–88. https://doi.org/10.19105/ajpba.v5i2.14808.

[26] Allaithy, Ahmed, and Mai Zaki. "Evaluation of AI-Generated Reading Comprehension Materials for Arabic Language Teaching." *Computer Assisted*

in *maharah kitabah* (writing), AI can provide rapid and systematic feedback on grammar, sentence structure, and vocabulary usage.[27]

In addition, AI offers opportunities to enhance assessment practices.[28] AI-powered platforms enable faster, more objective, and continuous evaluation through automated feedback and learning analytics. These capabilities position AI as a key component in supporting the transformation of Arabic language curricula toward greater adaptability and responsiveness to technological developments.

Implications for Future Arabic Language Curriculum

Based on the synthesis of the reviewed literature, future Arabic language curriculum development should promote a more systematic integration of linguistic and digital competencies. Curriculum objectives should extend beyond linguistic mastery to prepare learners to engage critically and productively in increasingly AI-driven digital environments.

The literature suggests that digital literacy and AI literacy should become essential competencies within Arabic language curricula. Learners should not only be able to use technology effectively but also critically evaluate information, understand the limitations of AI systems, and employ technology responsibly. In this context, critical thinking skills become increasingly important to prevent overreliance on automated systems.

Furthermore, Rohit emphasizes the importance of strengthening educators' competencies in response to digital transformation. Arabic language teachers and lecturers should be equipped with both pedagogical and digital competencies to integrate AI effectively into teaching and learning processes. At the institutional level, adequate

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Language Learning, March 6, 2025, 1–33. https://doi.org/10.1080/09588221.2025.2474037.

[27] Kundu, Arnab, and Tripti Bej. "AI in School EFL Learning: A Systematic Review of Impact Pathways for Engagement, Achievement, and Satisfaction." *Journal of Language and Education* 11, no. 4 (December 2025): 131–48. https://doi.org/10.17323/jle.2025.22083.

[28] Albadarin, Yazid, Mohammed Saqr, Nicolas Pope, and Markku Tukiainen. "A Systematic Literature Review of Empirical Research on ChatGPT in Education." *Discover Education* 3, no. 1 (May 2024): 60. https://doi.org/10.1007/s44217-024-00138-2.

infrastructure and technological support are also essential for the successful implementation of AI-enhanced learning.[29]

Although AI offers significant opportunities for curriculum development, the literature consistently highlights the importance of maintaining ethical and educational values throughout the transformation process. Therefore, Arabic language curriculum development in the AI era should incorporate moral values, digital ethics, and character education to ensure that technology serves not only as a means of improving learning efficiency but also as a tool for fostering responsible and ethical individuals.

Discussion

The findings of this study indicate that the development of Artificial Intelligence (AI) has fundamentally transformed the ecosystem of Arabic language education. Based on the synthesis of the reviewed literature, the challenges of digital learning extend beyond the use of technology as an instructional tool and encompass curriculum readiness, changing learner characteristics, evolving learning environments, and the competency demands of the twenty-first century. These findings suggest that the transformation of Arabic language curricula should no longer be viewed merely as the revision of instructional content but rather as a broader process of educational restructuring aimed at adapting to the rapid advancement of AI and digital learning.

One of the key implications of these findings is the need to shift the orientation of Arabic language curricula from a predominantly linguistic focus toward a more technology-responsive framework.[30] Traditionally, Arabic language curricula have emphasized grammar (*qawa'id*), vocabulary acquisition (*mufradat*), and reading comprehension skills. Although these competencies remain fundamental to Arabic language learning, the emergence of AI demonstrates that language proficiency can no longer be separated from the ability to utilize digital technologies for accessing, processing, and

[29] Yadav, Rohit, Mohit Yadav, Xuan-Hoa Nghiem, Ali Najeeb, and Asanga Ranasinghe. *The Role of Teachers in an AI-Driven Language Learning Environment*. 2025. https://doi.org/10.4018/979-8-3693-9606-3.ch003.

[30] Abou Assali, Mouna. "Bridging the Gap: ESL Teachers' Views on AI Integration and Its Impact on Language Learning." *World Journal of English Language* 15, no. 4 (February 2025): 120. https://doi.org/10.5430/wjel.v15n4p120.

communicating information.[31] Therefore, curriculum development should extend beyond linguistic competence to include learners' capacity to learn, adapt, and interact effectively in rapidly evolving digital environments.

In this context, AI can be understood as a driving force behind the development of more adaptive and future-oriented Arabic language curricula. The reviewed literature suggests that AI has transformed the ways learners access learning resources, receive feedback, and develop language skills. These changes require curricula that support more flexible, personalized, and learner-centered approaches to education.[32] Consequently, curriculum transformation in the AI era involves not only the integration of technology into instructional practices but also a paradigm shift from static forms of learning toward adaptive and continuous learning models.

The findings further indicate that the advancement of AI has generated demand for new competencies that have not traditionally been emphasized in Arabic language curricula. While educational success was previously measured primarily through the mastery of language skills, learners in the AI era are increasingly expected to possess both digital literacy and AI literacy.[33] Digital literacy enables learners to effectively access, manage, and utilize information within digital environments, whereas AI literacy equips them with the knowledge and skills necessary to understand, evaluate, and appropriately use AI-based systems. Learners are therefore required not only to operate these technologies but also to recognize their functions, benefits, limitations, and implications for the learning process.[34]

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[31] Sapawi, Mior Syazril Mohamed, and Nik Mohd Rahimi Nik Yusoff. "Integrating Technology into the Arabic Language Curriculum: A Systematic Review of Trends, Strategies and Cultural Dimensions." *Social Sciences & Humanities Open* 12 (2025): 101974. https://doi.org/10.1016/j.ssaho.2025.101974.

[32] Hanafiah, Waode, Muhammad Aswad, Harlinah Sahib, Abdul Hakim Yassi, and Movahede Sadat Mousavi. "The Impact of CALL on Vocabulary Learning, Speaking Skill, and Foreign Language Speaking Anxiety: The Case Study of Indonesian EFL Learners." *Education Research International* 2022 (January 2022): 1–13. https://doi.org/10.1155/2022/5500077.

[33] Russak, Susie, and Elena Zaretsky. "Cognitive and Linguistic Skills Associated With Cross-Linguistic Transfer in the Production of Oral Narratives in English as a Foreign Language by Arabic- and Hebrew-Speaking Children: Finding Common Denominators." *Frontiers in Psychology* 12 (August 2021). https://doi.org/10.3389/fpsyg.2021.664152.

[34] Bedore, Lisa M., Elizabeth D. Peña, Christine Fiestas, and Mirza J. Lugo-Neris. "Language and Literacy Together: Supporting Grammatical Development in

Beyond digital and AI literacy, the literature synthesis highlights the growing importance of critical thinking as a core component of Arabic language curricula. Although AI applications can significantly enhance learning efficiency, they may also encourage excessive dependence on automated systems if not accompanied by adequate evaluative skills. Accordingly, Arabic language curricula should provide greater opportunities for learners to develop analytical, reflective, and evaluative thinking skills. Such competencies enable learners to assess the quality of information, identify inaccuracies, and critically evaluate outputs generated by AI systems. From this perspective, AI should not be viewed as a substitute for human reasoning but rather as a tool that supports the development of learners' intellectual capacities.

The findings also suggest that curriculum transformation in the AI era must recognize the complementary relationship between human expertise and technological capabilities.[35] The literature demonstrates that AI can support personalized learning through content recommendations, automated feedback, and learning analytics. However, AI cannot fully replace the role of teachers in the educational process. In Arabic language education, teachers continue to serve as facilitators, mentors, and role models who guide learners in developing linguistic competence while fostering character formation and moral values.[36] Therefore, curriculum transformation should aim to strengthen the synergy between human competencies and technological capabilities so that both can contribute effectively to the learning process.

Furthermore, this study highlights that the integration of AI into Arabic language curricula cannot be separated from ethical and educational considerations. The literature warns that uncontrolled use of

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Dual Language Learners With Risk for Language and Learning Difficulties." *Language, Speech, and Hearing Services in Schools* 51, no. 2 (April 2020): 282–97. https://doi.org/10.1044/2020_LSHSS-19-00055.

[35] Macaraeg, Jonathan Marcos, Marivic Cruz Gallego, Renz E. Ferrera, and Mark Bedoya Ulla. "Content and Language Integrated Learning (CLIL): Experiences and Challenges of English Preparatory School Graduates in a Cambodian International University." *Social Sciences & Humanities Open* 10 (2024): 101165. https://doi.org/10.1016/j.ssaho.2024.101165.

[36] Cao, Yifan, and Jiali Wang. "Artificial Intelligence Technology in Language Learning: Preschool Teachers' AI Perceptions and AI Adoption Intentions Based on the Technology Acceptance Model." *Proceedings of the 2026 3rd International Conference on Informatics Education and Computer Technology Applications* (New York, NY, USA), January 16, 2026, 234–39. https://doi.org/10.1145/3802133.3802172.

AI may lead to various challenges, including technological dependence, reduced independent thinking, and potential violations of academic integrity. Within the context of Arabic language education, which is often situated in Islamic educational settings, these concerns become even more significant because educational goals extend beyond knowledge and skill acquisition to encompass character development and moral formation.[37] Consequently, curriculum development in the AI era should integrate digital literacy, ethical technology use, and Islamic values as essential components of the learning process.

Based on the overall findings and analysis, this study argues that the transformation of Arabic language curricula in the AI era should be understood as a comprehensive process of educational reorientation. Such transformation cannot be achieved merely by incorporating technology into existing learning practices; rather, it requires the reformulation of learning objectives, the development of new competencies, the redesign of instructional strategies, and the reinforcement of ethical and value-based dimensions of education. Through this approach, AI-responsive Arabic language curricula can contribute to the development of learners who possess not only strong linguistic competence but also digital literacy, critical thinking skills, ethical awareness, and the readiness to navigate the complexities of an increasingly digital society.

[37] Bela Noviana Dewi. "Media Film Untuk Pembelajaran Maharah Istima' Di Pondok Pesantren Modern Gontor Putri: Implementasi Dan Analisis Respon Santriwati." *Alibbaa': Jurnal Pendidikan Bahasa Arab* 3, no. 2 (July 2022): 124–40. https://doi.org/10.19105/ajpba.v3i2.6176.

Conclusion

This study concludes that the challenges of digital learning in Arabic language education extend beyond technological issues and encompass curriculum readiness, changing learner characteristics, educators' digital competencies, and technological infrastructure. The synthesis of the literature demonstrates that Artificial Intelligence (AI) has emerged as a significant driver of curriculum transformation, requiring Arabic language education to move beyond a sole focus on linguistic competence toward a broader orientation that integrates digital literacy, AI literacy, critical thinking, communication, and collaboration skills. The findings further indicate that AI offers considerable opportunities for curriculum development through adaptive learning systems, intelligent tutoring tools, interactive learning platforms, and technology-enhanced assessment practices. Consequently, the transformation of Arabic language curriculum should be viewed not merely as the integration of new technologies into existing learning environments, but as a comprehensive reorientation of educational goals, competencies, learning strategies, and assessment systems in response to the demands of digital learning.

Theoretically, this study contributes to the discourse on AI in education by positioning Artificial Intelligence as a catalyst for curriculum transformation in Arabic language education. Practically, the findings provide insights for curriculum developers, educators, and policymakers seeking to design more adaptive and future-oriented Arabic language curricula. Nevertheless, this study is limited by its reliance on literature-based analysis and the absence of empirical investigation in specific educational contexts. Therefore, future research is recommended to examine the implementation of AI-driven curriculum transformation in Arabic language education through empirical studies involving schools, madrasahs, universities, and other educational institutions. Further studies may also explore the development of AI literacy frameworks, curriculum models, and assessment systems that integrate technological innovation while maintaining pedagogical effectiveness, ethical responsibility, and the values of Islamic education.

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