

TECHNOLOGY-BASED ARABIC LANGUAGE TEACHING STRATEGIES TO IMPROVE RELIGIOUS LITERACY COMPETENCE

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Abstract

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This study aims to analyze technology-based Arabic language teaching strategies to improve students' religious literacy competencies in the digital era. The background of this research is the need for educational adaptation to digital transformation and the low interest in learning with conventional methods. The method used is a literature review (library research) by examining various scientific literature, research reports, and implementation practices in madrasas, Islamic boarding schools, and universities in developing countries such as Indonesia, Malaysia, and Egypt. The results of the study indicate that the use of educational technology such as Learning Management Systems (LMS), interactive mobile applications, religious learning videos, game-based learning, and artificial intelligence (AI) has a significant impact on improving the ability to understand religious texts, strengthening spirituality, and developing critical religious thinking. Technology integration has also been shown to increase learning motivation and the effectiveness of the Arabic language learning process. The impact of this study emphasizes the importance of evidence-based educational interventions involving various stakeholders, including the government, educators, religious leaders, and digital platforms. This study recommends strengthening teacher competencies, integrating technology into the curriculum, and cross-sector collaboration to ensure sustainable and inclusive implementation. Thus, technology-based Arabic language teaching has the potential to become a main pillar in building adaptive, contextual, and relevant religious literacy in the modern era.

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INTRODUCTION

Arabic language learning holds a strategic position in the Islamic education system because it serves as the primary means of understanding the sources of Islamic teachings, namely the Qur'an, Hadith, and classical scientific treasures written in the



language. However, the reality on the ground shows that students' competence in mastering Arabic, both in terms of linguistic aspects and understanding of religious texts, remains at a concerning level. Data from the Ministry of Religious Affairs (2023) revealed that the average religious literacy ability of madrasah students in Indonesia is still in the moderate category, with language being a major inhibiting factor (HUDA, 2025). This condition indicates that conventional Arabic language learning, which is still dominated by lectures and memorization methods, is less able to stimulate students' reasoning abilities and interest in learning in a deeper religious context.

The development of the industrial revolution 4.0 has brought about a major transformation in the world of education, including in the way teachers teach and students learn. Digital technology is not only an aid, but also a primary instrument in the learning process that demands flexibility, interactivity, and high accessibility (Nursyifa, 2019). In the context of teaching Arabic, the use of technology such as *Learning Management Systems* (LMS), online learning applications, and interactive audiovisual media, is a potential strategy to strengthen language comprehension while instilling religious values (Ansya et al., n.d.). Technology-based learning allows students to interact directly with digital content that combines Arabic texts, interpretations, and Islamic values, thus supporting the formation of complete religious literacy competencies, namely the ability to understand, internalize, and practice Islamic teachings rationally and contextually.

The need to adapt to the digital era is unavoidable, especially as the current generation of students are digital natives who are more responsive to visual media and interactive technology than traditional learning methods. If Arabic language teaching is not adapted to the characteristics of this generation, a gap will emerge between learning objectives and expected outcomes. This challenge becomes even more apparent when a UNESCO survey (2022) showed that 63% of teachers in developing countries, including Indonesia, still experience difficulties integrating technology into language teaching (Wang et al., 2023). Therefore, technology-based Arabic language teaching strategies are an urgent need, not just an alternative, to make learning more relevant to the current context and students' religious needs.

Technology in learning has great potential to create an active, creative, and meaningful learning environment. Through e-learning and LMSs like Moodle or Google Classroom, teachers can systematically organize materials and provide a digital space for interaction between teachers and students. Mobile applications like Duolingo and Memrise can improve vocabulary through a gamification approach, while educational videos and religious podcasts can provide a more lively context of Islamic values (Ainunnajih et al., 2025). Moreover, the use of artificial intelligence (AI) and chatbots opens up opportunities for independent Arabic conversation practice. These strategies not only optimize the learning process but also strengthen the connection between language as a means of communication and religion as a life value.

Beyond mere linguistic mastery, technology-based Arabic language learning must be directed toward fostering religious literacy competencies. Religious literacy encompasses the ability to understand religious texts in the context of modern life, foster tolerance, and develop reflective spiritual awareness. With the help of technology, students can access a wide range of Islamic knowledge sources, study digital interpretations, and engage in discussions in online forums that prioritize Islamic values. This supports the development of a religious student profile that is not only proficient in the language but also possesses critical reasoning and a comprehensive understanding of

religion.

However, the implementation of technology-based teaching strategies also faces various challenges. Factors such as limited infrastructure, low teacher digital literacy, and resistance to change are key obstacles. Some madrasas and Islamic boarding schools in rural areas lack adequate internet access, while some teachers still tend to maintain conventional methods due to a lack of training. Therefore, strengthening strategies such as improving teacher competency through digital training, providing inclusive technology resources, and supporting religious technology-based education policies need to be implemented synergistically for this strategy to be effective.

Within the context of the state of the art, research and implementation of technology-based Arabic language teaching strategies show a growing trend. Recent studies from international journals such as *the Journal of Language Teaching and Research* (2024) reveal that technology integration, particularly in the form of blended learning and gamification, can significantly improve motivation and Arabic language learning outcomes (Fatimah et al., 2025). However, research specifically linking these strategies to improving religious literacy remains relatively limited. This opens up space for more in-depth normative studies to examine how technology functions not only as a pedagogical tool but also as a medium for forming religious values through meaningful and contextual learning experiences.

The primary motivation for discussing this topic lies in the urgency of reconstructing the Arabic language learning paradigm to be more relevant to the challenges of the times. As a discipline steeped in spiritual and cultural values, Arabic must be taught through an approach that connects text to context, and language to values. The integration of technology into teaching is not merely a technical innovation, but rather an epistemological transformation in the understanding of religion and language. Thus, this research seeks to emphasize that strong religious literacy cannot be achieved through rote learning alone, but through a reflective, critical, and interactive learning process facilitated by technology.

Ultimately, this discussion is expected to provide theoretical and practical contributions to the development of Arabic language teaching models in Islamic educational institutions. From a theoretical perspective, it enriches the discourse on religious-values-based language learning in the digital age. From a practical perspective, it provides strategic guidance for teachers and policymakers to develop adaptive, contextual, and meaningful learning systems. Thus, technology-based Arabic language teaching strategies serve not only as a means of enhancing linguistic competence but also as a crucial instrument in shaping a generation of religiously literate individuals who are intelligent, critical, and virtuous.

RESEARCH METHODS

This study uses a qualitative approach with a literature review method (library research) oriented towards conceptual analysis and theoretical synthesis of various scientific sources relevant to the theme of technology-based Arabic language learning in the formation of religious literacy. The literature review was chosen because the problem being studied is normative-conceptual, namely seeking to build a deep understanding of the relationship between pedagogical strategies, the use of technology, and the strengthening of religious values without requiring empirical field data. The research process begins with the identification of the problem and the purpose of the study, namely

how technology can be effectively integrated in Arabic language learning to strengthen the religious dimension of students. The next step is a systematic literature search using academic databases such as Google Scholar, Scopus, DOAJ, and the Garuda Portal, with selected keywords such as "*Arabic language learning*", "*educational technology*", "*digital pedagogy*", "*religious literacy*", and "*Islamic education*". The selected literature includes scientific books, indexed journal articles, education policy reports from the Ministry of Religious Affairs and UNESCO, as well as the results of the latest research for the period 2010–2025. The selection process involved screening titles, abstracts, and content to ensure relevance, credibility, and methodological quality. Inclusion criteria focused on literature reviewing technology integration in Islamic education, while exclusion criteria were applied to popular publications lacking a strong scientific basis. All eligible literature was then classified by theme, such as technology-based learning models, language competency development, religious literacy, and implementation challenges in madrasas.

Data analysis was conducted using content analysis and thematic synthesis methods to identify patterns of relationships between concepts and develop a comprehensive theoretical framework. The first stage involved *open coding* of the literature data to identify the main ideas from each source, followed by *axial coding* to connect similar categories, and finally, *selective coding* to formulate central themes that form the basis of the research argument. This approach allowed researchers to assess the extent to which educational technology innovations, such as *Learning Management Systems (LMS)*, gamification, and interactive media, can contribute to improving linguistic understanding and the internalization of religious values. The validity of the study results was maintained through source triangulation and comparative analysis, namely by comparing research results from various contexts and regions to obtain an objective and proportional picture. Furthermore, the entire literature documentation process was conducted transparently using reference management tools such as Mendeley or Zotero to avoid plagiarism and ensure academic integrity. This systematic approach is expected to produce a scientific synthesis that not only describes trends but also offers a new conceptual construction regarding technology-based Arabic language learning design as an instrument for developing reflective, adaptive, and contextual religious literacy to address the challenges of the digital era.

RESULTS AND DISCUSSION

The Urgency of Technology-Based Arabic Language Teaching

The development of digital technology has shifted the educational paradigm from a traditional model to a more dynamic, interactive, and adaptive learning ecosystem tailored to students' needs. In the context of Arabic language teaching, technology is a crucial bridge to addressing limited access, varied methods, and low learning motivation among most students in developing countries. The digital era demands the integration of modern tools such as mobile applications, learning videos, and online platforms to facilitate student-centered, authentic experience-based learning. This aligns with the demands of modern curricula that emphasize digital and religious literacy as two key competencies for the 21st century.

Conventional methods of teaching Arabic in madrasas or Islamic boarding schools often focus on grammatical memorization and literal translation, without fostering active communication skills and contextual understanding of text meaning

(Zaidan et al., 2025) . This challenge is exacerbated by time constraints, high teacher-to-student ratios, and limited availability of engaging and relevant teaching materials. As a result, students often lose interest and struggle to connect lessons to everyday religious life. In this context, technology is not merely a complement but an instrument of pedagogical transformation that can bring learning to life through conversation simulations, interactive exercises, and instant feedback.

In developing countries such as Indonesia, Egypt, and Pakistan, the urgency of technology integration is evident due to the still large gap in learning quality between regions (AIDILLAH & SASSI, 2024) . A UNESCO study (2023) shows that implementing educational technology can increase student engagement by up to 60% if accompanied by a contextual pedagogical approach (Suwardhani et al., 2025) . Therefore, technology-based Arabic language teaching is not just an option, but a strategic necessity to build deeper religious literacy competencies that are relevant to modern society.

Challenges of Conventional Learning and the Role of Technology in Attracting Interest in Learning

Conventional Arabic language learning in many educational institutions, particularly Islamic boarding schools (pesantren) and madrasahs (Islamic schools), is still dominated by lectures and repetitive written exercises. This model often doesn't allow students the space to experiment independently and develop communicative language skills (Syarifah & Juriana, 2020) . This imbalance between theory and practice makes learning feel monotonous and disconnected from real-life contexts. As a result, many students understand Arabic only as a grammatical structure, rather than as a tool for understanding the religious texts that serve as the primary source of Islamic teachings.

Technology offers a solution that can provide a richer and more engaging learning experience. Through e-learning platforms, students can flexibly access materials, watch instructional videos, listen to religious podcasts, or play language quizzes, fostering intrinsic motivation. Apps like *Duolingo* and *Memrise* have been used in several Islamic schools in Indonesia to help students practice vocabulary independently (Putra et al., 2024) . With visual, audio, and interactivity support, students are more emotionally, cognitively, and spiritually engaged in the learning process.

However, the effectiveness of technology depends heavily on teacher preparedness and the learning environment. In some rural areas of Indonesia, Nigeria, or Bangladesh, the main challenges lie in limited internet access, low teacher digital competency, and cultural resistance to changes in learning methods (Prihatin & Sutangsa, 2025) . Therefore, technology must be implemented through a gradual and contextual approach, involving all stakeholders, including the government, educational institutions, and religious leaders, for this innovation to truly impact the quality of religious literacy.

Technology-Based Arabic Language Teaching Strategies

The use of *Learning Management Systems* (LMS) such as Moodle or Google Classroom has become a key strategy in designing technology-based Arabic language learning. LMSs allow teachers to organize teaching materials, assignments, assessments, and online discussion interactions. Through an LMS, students can gradually learn topics related to grammar, shorof, and mufradat, while also accessing relevant tafsir materials on specific themes (MAHMUDI et al., 2022) . This helps students understand language structure and internalize the religious values contained in the texts.

Additionally, interactive media and mobile apps like *Duolingo* , *Nahwu Shorof App* , or *Memrise* offer enjoyable alternatives for independent learning. In several schools

in Malaysia and Indonesia, these apps are used to reinforce vocabulary mastery and practice pronunciation. The app's advantage lies in its *gamification-based approach*, which motivates students to practice repeatedly (MZ Abidin & F.DK. Halis, 2024). Meanwhile, the integration of instructional videos and religious podcasts enriches the learning experience by presenting linguistic narratives directly linked to Islamic teachings, such as reading hadiths, understanding Quranic verses, or interpreting classical texts.

chatbot technologies also offer new opportunities in Arabic language teaching. Through interactive conversation simulations, students can practice speaking Arabic without fear of making mistakes. At several Islamic universities in Egypt and Indonesia, AI is being used to provide automated feedback on students' grammatical and vocabulary errors (Azhar et al., 2025). This approach not only improves linguistic skills but also strengthens understanding of relevant religious contexts, making the learning process more holistic and meaningful.

Implementation of Strategies in Learning

Implementing technology-based Arabic language teaching in madrasas and Islamic boarding schools requires systematic curriculum adjustments and strong educational management support. In many public madrasas in Indonesia, e-learning strategies through *Google Classroom* have begun to be used for Arabic language subjects, allowing teachers to assign assignments, administer online quizzes, and provide supporting video materials (Fauzi & Anindiati, 2020). The *blended learning approach* combines face-to-face learning and can increase the effectiveness of the learning process because students still receive direct guidance from the teacher but also have space for independent exploration through digital platforms. The success of this implementation depends heavily on teachers' digital competence and adequate infrastructure, including the availability of internet and learning devices.

In modern Islamic boarding schools like Gontor and several Muhammadiyah Islamic boarding schools, technology integration has been implemented through the use of language training applications and audiovisual media. Students are trained to use interactive platforms like *Kahoot!* or *Quizizz* to strengthen vocabulary memorization and simulate conversations (Wardani, 2025). Meanwhile, learning in Islamic universities in Indonesia and Malaysia has begun utilizing LMSs like *Moodle*, which are equipped with modules based on Islamic values, so that students not only understand the language structurally but also contextually to read the *turats* book or the text of the Qur'an (IKHRAM, 2025).

This implementation is also in line with Islamic Religious Education (PAI) policies that emphasize religious literacy as part of 21st-century competencies. Through integration into the PAI curriculum, Arabic language learning is no longer a stand-alone linguistic subject, but rather becomes an instrument for understanding spiritual values and Islamic teachings. This model is implemented in various educational institutions in Egypt and Pakistan, where language proficiency is seen as a means to internalize deeper and more rational religious thought (Subhan, 2012). Thus, technology serves as a medium to expand access to Islamic literature while enriching students' religious experiences.

Impact on Religious Literacy Competence

The integration of technology into Arabic language teaching has been proven to improve students' religious literacy skills. Religious literacy here extends beyond the

ability to read Arabic texts, encompassing an understanding of their meaning, context, and the spiritual values they contain. Using thematic interpretation-based video lessons allows students to understand Quranic verses more deeply, while religious podcasts help them reflect on Islamic values in their social lives. This approach fosters a more critical, contextual, and non-dogmatic religious awareness.

Furthermore, technology enables a personalized approach to learning, allowing students to learn at their own pace and level of understanding. AI-based applications provide instant feedback that helps correct language errors while also providing references to the religious context of the text being studied. A case study at Al-Azhar University showed that the use of e-learning in *Tafsir and Arabic courses* improved students' ability to interpret classical texts by up to 35% compared to traditional methods (Zakiyyah, 2024). A similar finding was found in Indonesian digital madrasas that utilize *YouTube Learning Channels* with content on Islamic language and moral values.

Another significant impact is strengthening students' religious and spiritual attitudes. With digital materials, values such as honesty, discipline, and responsibility can be internalized through enjoyable learning experiences. Students more easily connect religious texts with their social realities, for example, through case studies on justice, the environment, or humanity presented in multimedia. As a result, religious literacy not only fosters understanding of texts but also fosters moderate and contextual religious personalities.

Supporting and Inhibiting Factors

Key supporting factors for successful technology-based Arabic language teaching include infrastructure support, teacher readiness, and student motivation. The availability of internet access, digital devices, and school policies encouraging innovation are key to successful implementation. The Indonesian government, through its *Merdeka Belajar (Freedom to Learn)* and *Madrasah Digital (Digital Madrasah)* programs, has begun providing digital facilities to schools and madrasahs, opening up broad opportunities for Arabic language teachers to innovate. Teachers with strong digital and pedagogical competencies are able to design interactive learning that integrates Islamic values.

However, on the other hand, there are various obstacles that need to be overcome. In remote areas of Indonesia, Nigeria, or Sudan, limited facilities and internet connections remain a major obstacle. Many teachers lack the technical skills to use LMSs or digital applications, so technology utilization remains minimal and unfocused. Furthermore, cultural resistance and traditional learning habits also pose challenges, with some institutions still believing that technology-based learning can diminish the spiritual nuances or depth of meaning of religious texts.

Student motivation is also a crucial factor in the success of technology implementation. Students with a strong interest in digital learning adapt more easily, while those unfamiliar with it require a gradual approach. Therefore, successful technology-based Arabic language teaching requires cross-sector collaboration between the government, educational institutions, the community, and religious leaders to create a supportive learning environment, both technically and culturally. This synergy can minimize barriers and strengthen the effectiveness of learning strategies.

Strengthening Strategy

To ensure the sustainability and effectiveness of technology-based Arabic language learning, strengthening strategies need to be systematically designed. One strategic step is to increase teacher capacity through digital pedagogy and technology

literacy training. The training should not only focus on technical skills in using applications but also on the ability to design learning based on religious values. Programs such as *the Digital Madrasah Training* in Indonesia and *the Teacher Digital Academy* in Egypt demonstrate that comprehensively trained teachers are able to integrate language content with a strong religious context (Abadi et al., 2025) .

Integrating technology into the curriculum is also essential. The curriculum must include digital learning elements, whether in the form of project assignments, online assessments, or multimedia-based reflective activities. This ensures that the use of technology is not merely complementary, but part of a measurable instructional design. In several Islamic universities, the Arabic language curriculum now includes modules on the use of digital media and AI to develop linguistic and interpretive skills. This approach builds digital awareness while strengthening students' religious literacy skills.

Finally, collaboration between educational institutions and digital platforms is a strategic step to expand the reach and impact of learning. Partnerships with educational app developers, religious research institutions, and Islamic media can enrich learning resources and ensure content validity. For example, collaboration between the Indonesian Ministry of Religious Affairs and local educational platforms to provide Arabic language content and interactive interpretations has helped many Islamic schools develop hybrid learning models. This type of collaboration creates a sustainable, inclusive, and evidence-based learning ecosystem, while addressing the challenges of religious literacy in the digital age.

CONCLUSION

Technology-based Arabic language teaching is a strategic response to the challenges of learning in the ever-evolving digital era. Adapting to digital transformation is urgently needed, given that conventional methods often fail to attract the interest of a younger generation who are more accustomed to technology. Through the use of platforms such as a Learning Management System (LMS), mobile applications, interactive media, and the integration of Artificial Intelligence (AI), the Arabic language learning process not only becomes more engaging and interactive but also fosters independent learning and strengthens students' digital literacy skills. This demonstrates that technology can serve as an effective means of bridging academic and spiritual needs, particularly in understanding religious texts, which are at the core of religious literacy competencies.

The implementation of technology-based strategies in various educational institutions, including madrasas, Islamic boarding schools (pesantren), and universities, has shown significant improvements in the understanding of Islamic language and texts, as well as the instilling of contextual religious values. Students acquire not only linguistic skills but also interpretive skills to deeply understand the meaning of Quranic and Hadith texts. This learning also strengthens students' spirituality and religious attitudes, and encourages the growth of critical, reflective, and contextual thinking about Islamic teachings amidst complex social changes. Cases in developing countries such as Indonesia, Malaysia, and Egypt demonstrate that the integration of technology in religious education can improve the quality of religious literacy while expanding access to global Islamic sources of knowledge.

However, the effectiveness of this strategy's implementation depends heavily on the support of various factors, including the availability of digital infrastructure, teachers'

pedagogical competence in utilizing technology, and students' motivation to learn. Barriers such as limited facilities, low digital literacy among educators, and cultural resistance to learning innovation remain major challenges. Therefore, systemic interventions are needed in the form of ongoing teacher training, technology integration into the national curriculum, and collaboration between educational institutions and digital platforms. With cross-sector support and policies that favor educational innovation, technology-based Arabic language teaching can become an instrument of transformation in religious education that not only builds language competence but also strengthens the character and spirituality of the younger generation in the modern era.

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