

The Revolution of Arabic Language Learning: Integration of Digital Technology in 21st Century Education

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Abstract: The integration of digital technology into Arabic language education has become increasingly relevant in the context of 21st-century learning, especially in addressing challenges such as low student interest and the perception that Arabic is a difficult subject. This study aims to explore the integration of digital technology in Arabic language learning within Islamic boarding schools. A mixed-methods approach was employed, combining quantitative data from surveys with 100 female students and 4 Arabic teachers from two institutions at Pondok Pesantren Syaikh Zainuddin NW Anjani, and qualitative data from semi-structured interviews and classroom observations. Quantitative data were analyzed using descriptive statistics, while qualitative data were thematically analyzed. The results show that both students and teachers generally perceive technology positively in Arabic learning. It enhances motivation, expands access to resources, encourages collaborative learning, and allows for personalized instruction. Nevertheless, challenges include limited access to devices, inadequate quality of digital content, and insufficient digital competencies among teachers. In conclusion, the integration of digital technology holds great promise for improving Arabic language instruction, provided there is sufficient institutional investment in infrastructure and teacher training.

Keywords: 21st Century Education, Arabic Language Learning, Digital Technology, Islamic Boarding School, Learning Motivation

INTRODUCTION

Arabic is one of the most important languages in world civilization, primarily due to its status as the language of the Qur'an and Hadith, which are the main sources of Islamic teachings (Maskur & Santosa, 2023; Nasri, Muliadi, et al., 2024; Syukur, 2015). In addition to being a religious language, Arabic plays a significant role in international communication, diplomacy, and the development of knowledge, especially in Islamic studies (Hady & Nasri, 2023; Nasirin et al., 2023). However, in the context of both formal and non-formal education in Indonesia, Arabic language learning still faces various challenges—particularly low student motivation, conventional teaching methods, and a lack of relevance between learning materials and students' contemporary lives. Amidst rapid changes marked by technological advancements, it is necessary to re-examine approaches to Arabic language education to keep it relevant, engaging, and effective (Manan & Nasri, 2024).

The development of digital technology has transformed many aspects of life, including the field of education. This digital transformation demands a shift from traditional, one-way

teaching methods to interactive, collaborative, and resource-rich digital learning models (Afdhala & Laksmi, 2021; Bahani & Kholid, 2024). In the context of Arabic language learning, integrating digital technology has become a necessity to bridge the gap between curriculum content and the needs of today's digital-native students. The use of digital applications, interactive media, video platforms, and artificial intelligence (AI) can create more personalized, flexible, and enjoyable learning experiences (Muda & Nasri, 2024; Nasri, Indinabila, et al., 2024; Shahzad et al., 2024; Stolpe & Hallström, 2024; Su & Zhong, 2022; Wang, 2024).

Globalization and digitalization have shifted the paradigm of education from merely transmitting knowledge to developing 21st-century skills such as critical thinking, creativity, collaboration, and communication (Atika Nur Ardila Hasibuan et al., 2023; Fahrurrozi & Thohri, 2020). These competencies require educational institutions to innovate—including in language instruction. Arabic, which has traditionally been taught in a textual and rigid manner, holds significant potential to be enhanced through adaptive digital approaches (Aravantinos et al., 2024; Southworth et al.,

2023). For example, Arabic animation videos, gamified vocabulary exercises, or online discussion platforms can help students develop communication skills in both written and spoken forms. These innovations allow for more meaningful and context-based learning (Azhari, 2022).

However, the integration of technology in Arabic language education does not come without challenges. Major obstacles include limited technological infrastructure in many institutions, low digital literacy among teachers, and a lack of high-quality Arabic learning content tailored to the national curriculum and local needs. Furthermore, there is still a perception that Arabic learning is sacred and must be taught traditionally. This mindset can hinder the adoption of technology in pesantren or Islamic boarding schools. Therefore, systematic efforts are needed to shift perspectives, build teacher capacity, and provide high-quality digital learning resources.

Islamic boarding schools (*pesantren*), as traditional Islamic educational institutions, play a strategic role in the development of Arabic in Indonesia (Islam & Baihaqy Yussof, 2024; Ramzi et al., 2023). Many pesantren have begun adapting to modern times by integrating technology into teaching and learning. This reflects an awareness that mastering digital technology does not conflict with Islamic educational values; rather, it can serve as a means (*wasilah*) to strengthen religious instruction. When used wisely and purposefully, technology can become an effective tool to deepen understanding of Arabic and Islamic values in a more contextualized manner (Jayanti et al., 2025; Ma'ruf et al., 2024; Nasihin et al., 2024; Nasri & Rahmatullah, 2025). This article presents a scholarly contribution in addressing the challenges and opportunities of integrating digital technology into Arabic language learning, particularly in the pesantren setting. By analyzing students' and teachers' perceptions and identifying supporting and inhibiting factors, this study aims to provide an empirical basis for developing more innovative, relevant, and sustainable Arabic teaching strategies. The findings are expected to offer new insights for educators, policymakers, and curriculum developers in designing Arabic language instruction that meets the demands of the present age while maintaining the deep-rooted scholarly traditions of the pesantren.

METHOD

This study employed a mixed-methods approach using a sequential explanatory design, which combines quantitative and qualitative methods in sequence to gain a comprehensive understanding of the integration of digital technology in Arabic language learning in the 21st century. Quantitative data were collected through closed-ended questionnaires distributed to 100 female students and 4 Arabic language teachers from two educational institutions at Pondok Pesantren Syaikh Zainuddin NW Anjani, aiming to measure perceptions and the extent of technology use in the classroom. Subsequently, qualitative data were obtained through semi-structured interviews and classroom observations to explore the quantitative findings in greater depth. Quantitative data were analyzed using descriptive statistics, including percentages and frequency charts, while qualitative data were analyzed using thematic analysis to identify recurring patterns, themes, and meanings from participants' experiences. The adoption of a mixed-methods approach follows the framework of Creswell & Plano Clark (2018), who emphasize the value of integrating both approaches to enhance the validity and depth of understanding of the studied phenomenon (Brodeur et al., 2023; Mainwaring & Aujla, 2023; McCoy et al., 2022; Nasri, 2023; Nasri, Nuha, et al., 2024; Von Behren et al., 2024).

Quantitative data were collected through surveys using closed-ended questionnaires distributed to 100 female students and 4 Arabic language teachers at two educational institutions under the auspices of Pondok Pesantren Syaikh Zainuddin NW Anjani. The questionnaires were designed to assess respondents' perceptions of the use of digital technology in Arabic learning, particularly in terms of effectiveness, learning motivation, accessibility to learning resources, and the level of interactivity provided (Creswell, 2014; Randall et al., 2023). Meanwhile, qualitative data were obtained through semi-structured interviews and classroom observations. Interviews were conducted with teachers and selected students to explore their experiences with digital technology, the challenges they faced, and their expectations for future developments. Classroom observations were conducted to directly observe how technology was being used in the learning process, the forms of interaction occurring in class, and the extent to which technology

supported the achievement of Arabic language learning objectives (Le Roux et al., 2023; Olsen, 2020).

The quantitative data collected through the questionnaires were analyzed descriptively using simple statistics to identify trends, frequencies, and percentages of respondent perceptions. Qualitative data from interviews and observations were analyzed using thematic analysis, identifying key patterns or themes emerging from the participants' responses and observation notes. This approach enabled the researcher to capture the dynamics of technology use in Arabic language learning in a holistic and contextual manner (Mitrakas et al., 2024; Oeschger et al., 2022). By combining these methods, the study aimed not only to provide a statistical overview of technology usage perceptions but also to present narrative depth that strengthens the interpretation of findings and their practical relevance. The mixed methods approach also supported data triangulation, thereby increasing the overall validity and reliability of the research findings.

RESULT AND DISCUSSION

Results

1. Respondent Profile

This study involved 100 female students and 4 Arabic language teachers from two educational institutions under Pondok Pesantren Syaikh Zainuddin NW Anjani, namely MTs. Mu'allimat NW and MA Mu'allimat NW. All student respondents were female, aged between 13 and 18 years old, representing adolescents in an active stage of cognitive and social development. The participating teachers had relevant educational backgrounds and an average teaching experience of over five years. This demographic profile provides important context for understanding the perceptions regarding the integration of digital technology in Arabic language learning.

2. Positive Perceptions Toward Technology Use

A majority of students (85%) expressed positive perceptions toward the use of digital technology in learning Arabic. They believed that technology made the learning process more engaging, interactive, and easier to understand. Similarly, 75% of the teachers acknowledged that technology

helped improve teaching quality by diversifying content delivery, facilitating assessments, and encouraging student participation in class discussions.

3. Benefits of Technology in Arabic Language Learning

Findings from interviews and classroom observations revealed several key benefits of technology integration. First, students' motivation increased significantly when engaging digital media were used. Second, students gained easier access to a wide range of learning resources through the internet, including educational apps, websites, and e-learning platforms. Third, technology enhanced student interaction and collaboration through online discussion forums and educational social media tools. Fourth, it enabled personalized learning, allowing teachers to tailor materials and teaching methods to suit individual student interests and needs, making learning more relevant and effective.

4. Challenges in Technology Integration

Despite its benefits, the study also identified several challenges in integrating technology into Arabic language education. One of the major barriers was limited access to digital devices and internet connectivity, particularly for students in under-resourced areas. Additionally, the quality of digital learning content was found to be inconsistent, with many resources lacking interactivity and contextual relevance. Another significant issue was the insufficient digital competence among some teachers, who lacked the necessary skills to integrate technology effectively in planning, teaching, and assessment. Lastly, there was an absence of comprehensive evaluation tools to measure the impact of technology on student learning outcomes.

5. Implications of the Findings

The findings of this study suggest several important implications for the development of Arabic language education in the digital age. First, there is a need to improve access to technological infrastructure for both students and teachers through the provision of devices, internet services, and technical training. Second, the development of high-quality, interactive, and pedagogically

sound digital learning materials must be prioritized. Third, Arabic language teachers should receive continuous professional development to enhance their digital competencies. Fourth, further research should be conducted to develop valid and reliable tools for evaluating the effectiveness of technology use in Arabic language learning.

Discussion

The results of this study confirm that digital technology holds great potential to transform Arabic language education in 21st-century learning contexts. The positive perceptions from both students and teachers highlight a growing readiness to adopt digital innovations in educational settings traditionally dominated by classical methods (Dalimunthe, 2020; Motasim et al., 2024; Nasri & Mulyohadi, 2023). The alignment of findings from both quantitative and qualitative data reinforces the argument that technology not only enhances motivation and access to learning resources but also supports a shift toward learner-centered pedagogy.

However, the challenges identified must not be overlooked. Infrastructure gaps, limited digital literacy among educators, and the lack of high-quality Arabic language learning content present significant barriers. These issues are consistent with previous studies conducted in similar contexts, suggesting a systemic need for investment in digital education ecosystems. Moreover, the lack of rigorous assessment tools indicates a research gap that should be addressed to monitor and improve the long-term impact of technology in Arabic language learning.

This study contributes to the existing literature by providing a contextual understanding of how technology is perceived and implemented in a pesantren-based learning environment. It also supports the notion that educational technology, when used appropriately, can bridge traditional and modern educational paradigms.

CONCLUSION

This study explored the integration of digital technology in Arabic language learning within two educational institutions affiliated with Pondok Pesantren Syaikh Zainuddin NW Anjani. The findings demonstrate a strong positive perception among both students and teachers regarding the benefits of technology in making

Arabic learning more engaging, accessible, and personalized. However, various challenges—including limited access to technology, inadequate digital content, and low teacher competency—highlight the need for comprehensive support and training. In conclusion, while technology offers promising solutions for revitalizing Arabic language education, successful integration requires strategic efforts in infrastructure development, teacher training, digital content creation, and outcome evaluation. These findings underscore the importance of collaborative efforts among educators, policymakers, and content developers to create an inclusive, effective, and future-ready Arabic language learning environment.

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