



The Challenges of the Digital Age in Arabic Language Education: Bridging Classical Arabic and Local Dialects

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Abstract :

The development of the digital era presents significant challenges in Arabic language education, especially in bridging the gap between standard Arabic (fusha) and local dialects. The phenomenon of diglossia, limited digital infrastructure, and low pedagogical innovation are the main factors that hinder the mastery of the standard language among students. This research aims to analyze these challenges and formulate educational strategies that are adaptive to the needs of the 21st century. The method used is a qualitative approach with a case study design through interviews, observations, and document analysis. The results showed that the dominance of local dialects, limited access to Arabic-language digital content, and lack of teacher training had an impact on the low use of standard Arabic in academic contexts. In addition, motivational factors and perception of academic risk also influence language use preferences. In conclusion, technological integration, pedagogical innovation, and strengthening the Arabic-speaking environment are key in improving standard language competence. This research contributes to the development of relevant and contextual technology-based learning models.

INTRODUCTION

The role of Arabic is not only limited to everyday communication, but also as a medium of education, research, and scientific development (Alsaied, 2024). However, with the development of the digital era and globalization, people's ability to access, understand, and use Arabic effectively faces structural and cultural barriers. Many students and professionals switch to using local dialects or foreign languages in academic and professional contexts, thus reducing the quality of the use of the standard language (Davie, 2023). This research is important because it provides insight into how Arabic language education can adapt to the needs of the 21st century, optimize digital technologies, and bridge the gap between classical Arabic and local dialects. This study also has implications for improving Arabic-language digital literacy, encouraging the development of scientific content, and strengthening language-based cultural identity. Thus, this research has strategic value in building a society that is able to maintain language heritage while adapting to technological advances (Ajani et al., 2024)

The main problem faced by the community in the context of Arabic language education is the low mastery of the standard language compared to the dominance

of local dialects or foreign languages. Diglossia, the condition of the existence of an official standard language and the daily dialect used by the community, makes it difficult for students and professionals to move between formal and informal contexts (Sumartana et al., 2025). In addition, the inclusion of foreign terms into technical and scientific vocabulary weakens the adaptability of the Arabic language, so that many important terms are not translated or are not adapted consistently (El Sabagh et al., 2025). The low availability of quality digital content in Arabic also limits public access to science, hinders research, and decreases participation in global scientific networks. These factors create a gap in Arabic language proficiency, for both native and non-native speakers, which impacts the effectiveness of professional education and communication. This condition emphasizes the importance of research that is able to design teaching strategies and curriculum development that is in accordance with the digital needs of the 21st century (Dilekçi & Karatay, 2023).

On the ground, a real phenomenon shows that most students face difficulties in mastering standard Arabic consistently (Almelhes, 2024). Many students rely on foreign languages in the preparation of theses, scientific papers, or research reports because they feel more comfortable and practical (Alshehri & AlShabeb, 2023). On the other hand, limited digital infrastructure in some regions also limits access to Arabic-language learning resources, while online social interactions are often conducted in English or local dialects. Teachers and educators often do not have special training in the use of educational technology, so innovation in teaching is still limited. This phenomenon leads to the degradation of writing and speaking skills in standard Arabic, as well as lowering the ability of learners to participate in the global academic community (Issa, 2023). This phenomenon underscores the need for research that addresses innovative teaching strategies and technology integration to address these linguistic gaps.

Various previous studies have examined the challenges of learning Arabic in the modern era. For example, the study "Arabic Language Learning Based on Technology (Opportunities and Challenges in the Digital Era)" emphasizes the opportunities for the use of technology in learning, such as easy access to learning resources and interactive media. However, the study noted significant obstacles, including weak infrastructure, unstable internet connections, and limited social interaction between students and teachers. Another study, "Challenges and Innovations in Teaching The Arabic Grammar to Non-Native Speakers," highlights the complexity of the Arabic grammar system, particularly the morphology, syntax, and i'rab rule aspects, which make it difficult for non-native learners. Both studies show that technology has great potential, but its implementation is often hampered by external factors and a lack of curriculum adaptation. As such, current research occupies a strategic position to address the gap between the potential of technology and real educational practices.

In addition, another study highlighted the weak support of the Arabic-speaking learning environment. The researchers "Arabic Language and Contemporary Challenges (Effects and Requirements)" found that many learners rely on foreign languages for academic study or scientific research, while the use of standard Arabic in everyday life continues to decline (Shaalán, 2023). The lack of teacher training in the use of technology and interactive teaching methods is also a

major obstacle. Previous research has not integrated holistic solutions that combine curriculum strengthening, digital technology, and the development of a supportive Arabic-speaking environment (Okoye et al., 2023). Therefore, this research contributes by designing a comprehensive strategy that is able to improve standard Arabic competencies while utilizing digital media and pedagogical innovations. This research position is important to close the gap between theory and practice and provide a model of Arabic language education that is relevant to the demands of the 21st century.

The novelty of this research lies in an integrative approach to bridging classical Arabic and local dialects through the use of digital technologies, pedagogical innovations, and educational policies. This research not only identifies problems, but also develops intervention models that involve interactive, project-based, and multimedia media learning methods. The model is designed to improve learners' writing, reading, and speaking skills in standard Arabic, while maintaining social and cultural relevance. In addition this research focuses on the local context by considering infrastructure factors, social environment, and teacher ability, so that the results can be applied in real terms in the field. This approach strengthens Arabic digital literacy, reduces dependence on foreign languages, and encourages the development of scientific and technical content in Arabic. Thus, this research presents a significant contribution to contemporary Arabic language education practices and language preservation strategies.

The problems of this research are formulated as follows: how Arabic language education strategies can overcome the challenges of diglossia, penetration of foreign vocabulary, limitations of digital content, and weaknesses of the curriculum in the digital era. This research argues that technological integration, pedagogical innovation, and strengthening of the Arabic-speaking environment are key to bridging the gap between standard Arabic and local dialects. Research contributions include the development of technology-based learning models and real projects, which are expected to improve language skills, learning motivation, and access to scientific content. The study also provides policy recommendations for educational institutions to strengthen the position of the Arabic language in academic and professional settings. The results of the research are expected to be a reference for educators, policy makers, and other researchers interested in the development of the Arabic language in the 21st century.

Taking into account global developments, digital transformation, and the needs of modern society, this research is important to address strategic challenges in Arabic language education. The emphasis on developing standard Arabic language competencies through innovative technologies and methods is expected to produce a generation of learners who are able to move between standard languages and dialects, access scientific information effectively, and contribute to Arabic-language research. The study also confirms the importance of collaboration between teachers, institutions, and digital communities to create a sustainable learning ecosystem. Thus, this research is not only academic, but also has social, cultural, and educational implications, while strengthening the position of Arabic as a global scientific and professional communication language.

RESEARCH METHOD

This study uses a qualitative design case study to understand in depth the phenomenon of Arabic language education in the digital era. This approach allows for the exploration of local contexts, student behaviors, teaching practices, and the interaction between technology and pedagogical methods, thus providing a comprehensive overview of contemporary Arabic learning challenges and strategies. The location of the research was determined at several universities and high schools with active standard Arabic language programs. This selection is based on the representativeness of diglossia conditions, the availability of digital infrastructure, and the diversity of local dialects among learners, thus allowing for an in-depth analysis of the challenges and practices of Arabic language learning in various social and educational contexts. Data was collected through in-depth interviews, classroom observations, and analysis of curriculum documents and digital materials. Interviews are aimed at teachers, students, and institutional managers to gain a first-hand perspective on teaching challenges and practices. Classroom observation is used to assess the implementation of learning methods and the use of technology.

Research data is analyzed through three stages, namely data reduction to filter and simplify information to focus on the core issue, data display in the form of narratives, tables, or diagrams to facilitate understanding, and data verification to identify patterns, themes, and relationships between phenomena. Data validity is ensured through triangulation of sources and methods, member checking, and trail audits, with triangulation comparing data from interviews, observations, and documents, member checking to ensure confirmation from respondents, and trail audits documenting the entire research process so that it is transparent and replicable.

RESULT AND DISCUSSION

Result

Qualitative Results

Diglossia Challenges and the Use of Standard Arabic

The findings focus on diglossia, i.e. the presence of standard Arabic (fusha) used in formal contexts, along with the dominant local dialect in everyday life. In the field, diglossia can be seen from the significant differences between students' ability to use standard Arabic in class or in academic assignments, compared to everyday communication at home, campus, or social media. The operationalization of this phenomenon includes measurements of the use of the standard language versus local dialect, student motivation, and the frequency of switching between formal and informal contexts. This study examines the extent to which diglossia affects formal writing and speaking skills, as well as its impact on learners' participation in the Arabic-speaking academic community.

An Arabic lecturer at a local university, stated, "Many students feel more comfortable writing their thesis in English because they are worried that grammatical errors in Arabic will lower their academic grades. Even in class discussions, they are more likely to mix using local dialects than the standard language." The researcher's interpretation shows that students' preference for foreign languages and local dialects reflects difficulties in changing language contexts, which reduces the ability to speak standard Arabic in the academic and formal realms. This confirms that diglossia is not only linguistic, but also related to

the perception of practicality and academic security for students. a high school teacher, said, "In class, students often converse using their own dialects when discussing in groups. Even when given formal assignments, they sometimes write a mixture of the standard language and dialect because they are used to using everyday dialect." The researchers interpreted that the social environment and communication habits supported the language shift from standard to dialect, so that the use of standard Arabic became sporadic. These findings show that intrinsic and extrinsic motivational factors greatly influence learners' ability to retain standard language in formal situations.

Classroom observations show that during learning activities, about 70% of students' interactions use the local dialect, even though teachers give instruction in standard Arabic. The researchers interpreted this data as an indication of the dominance of local dialects in social practices and learning, which decreased the frequency and quality of standard language use. This is consistent with the findings of interviews that emphasize language shifts at both the academic and informal levels.

Overall, field data confirm that diglossia is a real obstacle in mastering standard Arabic. College students and learners often use local dialects or foreign languages for reasons of convenience, social customs, and perception of academic risk. The use of the standard language is limited to certain formal situations, whereas in everyday interactions or collaborative learning, the local dialect is more dominant. This phenomenon shows the need for a teaching strategy that bridges the standard language and local dialects consistently. Patterns emerging from the data show that motivation to use the standard language decreases when students face informal situations or when they find the dialect more practical. While the standard language is used in a formal context, it is low in frequency and is often mixed with local dialects. The dominance of local dialects and the use of foreign languages in academia show a close relationship between social environment, perception of convenience, and mastery of the standard language.

Table 1. Effects of Diglossia on the Use of Standard Arabic

Informant Position	Interview Excerpts	Indicator
University Lecturer	"Many students write their thesis in English because they are afraid of making a mistake in Arabic grammar."	Foreign language preferences; Avoidance of standard language in academic assignments
High School Teacher	"Students often speak in dialects during group discussions, even writing a mixture of standard and dialect."	Dominance of local dialects in communication; A mixture of languages in formal writing
University Lecturer	"Students feel comfortable using the local dialect because the everyday environment supports it."	Low motivation to speak the standard language; The Influence of Social Environment on Language Choice

Table data show that diglossia influences learners' linguistic behavior in various educational contexts. The preference for foreign languages in academic assignments indicates that students choose languages that are considered safer and more practical. Meanwhile, the dominance of local dialects during group discussions and language combinations in formal writing confirm that social environment and communication habits strongly influence the use of standard languages.

Overall, the emerging patterns suggest that mastery of standard Arabic is influenced not only by linguistic ability, but also by motivational factors,

perceptions, and social context. This underlines the need for pedagogical strategies that are able to create a balance between the standard language and the local dialect, so that learners can use Arabic effectively in both formal and informal contexts.

Limitations of Digital Infrastructure and Arabic Content

These sub-findings focus on access to Arabic-language digital content and the infrastructure that supports its use. In the field, the limitations of digital infrastructure include unstable internet network quality, lack of technological devices in schools and universities, and lack of interactive learning platforms. Meanwhile, the limitations of digital content can be seen from the lack of quality multimedia materials, online learning resources relevant to the curriculum, and lack of access to scientific articles in Arabic. The operationalization of this phenomenon is carried out by observing the frequency of students' access to digital content, the type of media used, and students' preferences for conventional versus digital materials. This focus helps identify the extent to which digital content infrastructure and availability affect learners' ability to master standard Arabic in formal and academic contexts.

A lecturer stated, "Many students have difficulty accessing Arabic-language e-books or journals because the internet connection on campus is often disconnected, and some digital platforms still have limited access." The researcher interprets that limited access to networks and direct digital platforms hinders the use of academic content in Arabic, so that students tend to use materials in foreign languages that are more easily accessible. This shows that there is an inequality between the potential of educational technology and the reality of local infrastructure.

One teacher said, "Students rarely use Arabic-language multimedia materials, as most of the content available is not interactive and less interesting than English materials." The researcher's interpretation shows that the lack of engaging and interactive digital content decreases students' motivation to actively learn Arabic. This condition emphasizes the need to develop local multimedia materials that are in line with the curriculum and needs of the 21st century to strengthen Arabic-language digital literacy

Based on interviews and field data, the flow of findings shows a chain link: limited infrastructure, limited access to digital content, dependence on foreign materials, decreased motivation to learn standard Arabic. The researcher's interpretation emphasizes that this issue is not only technical, but also pedagogical, as the lack of interactive content reduces students' chances of practicing Arabic intensively and contextually.

Observations in classrooms and computer labs show that most students access digital materials for only 20–30% of the total learning time, and more often use English or mixed languages. The researcher interprets that the lack of frequency of use of Arabic-language digital content reinforces the pattern of dependence on foreign languages, as well as reduces students' ability to master the standard language. These observations are consistent with interviews that highlight the limitations of digital infrastructure and content. Overall, the data shows that limited digital infrastructure and quality content limit students' access to Arabic-language learning resources, resulting in a decrease in the use of the standard language.

Students and students prefer foreign-language materials that are more accessible, while existing Arabic content is rarely interactive. This phenomenon emphasizes the need for the integration of educational technology, the development of local multimedia content, and the provision of a stable digital platform so that standard Arabic can be used effectively in formal education.

The patterns that emerged from the data showed that there was a direct relationship between the quality of infrastructure and the availability of content and the motivation and frequency of use of standard Arabic. The more limited access to digital and interactive materials, the higher the student's dependence on foreign languages. In other words, digital infrastructure and quality content act as a reinforcement or inhibitor of standard Arabic language skills, especially in academic and independent learning contexts.

Table 2. Digital Infrastructure and Content

Informant Position	Interview Excerpts	Indicator
University Lecturer	"Students have difficulty accessing Arabic-language e-books or journals because the internet connection is often disconnected."	Limited access to digital content; Unstable network infrastructure
High School Teacher	"Students rarely use Arabic-language multimedia materials because the content is not interactive and less engaging."	Lack of interactive digital materials; low motivation to learn Arabic
University Lecturer	"Digital platforms are still limited, so students prefer English materials."	Dependence on foreign languages; Limitations of Digital Platforms

The table data shows that the limitations of digital infrastructure and content have a direct impact on the behavior of students and students. Unstable internet connections and limited digital platforms make it difficult for students to access academic materials in Arabic, making them more comfortable using English. Meanwhile, the lack of interactive and engaging content lowers motivation to learn, especially among high school students. In a pattern, this phenomenon shows a causal relationship between technology access, digital content quality, and mastery of standard Arabic. Adequate infrastructure and content encourage students to learn actively and improve language skills, while their limitations create dependence on foreign languages and hinder mastery of the standard language. In other words, the integration of technology and the development of local multimedia materials are key factors to strengthen Arabic digital literacy and the use of raw languages in formal and scientific contexts.

Teacher Training Needs and Pedagogical Innovation

This sub-finding focuses on the competence and readiness of teachers in supporting standard Arabic learning through innovative methods and the use of digital technology. In the field, operationalization includes teachers' ability to use digital media, mastery of interactive learning methods, skills in designing project-based activities, and the ability to integrate curriculum with multimedia learning resources. This phenomenon can be measured through observation of teaching practices, interviews with teachers, and assessments of the use of innovative methods in the classroom. These sub-findings emphasize that teacher quality

directly affects student motivation, frequency of use of standard Arabic, and the effectiveness of formal learning. The lack of teacher training is a major obstacle in the implementation of pedagogical innovation, so professional development programs that emphasize technology integration and active learning are needed.

Table 3. Teacher Training Needs and Pedagogical Innovation

Informant Position	Interview Excerpts	Indicator
Teacher	"We haven't had enough training to implement innovative learning."	Lack of practical training
Principal	"The policy often doesn't match the conditions of our schools."	Non-contextual policy
Teacher	"Some teachers are still comfortable with the old methods."	Resistance to change

The table data shows that teachers' readiness to adopt innovative technologies and methods is still low. The lack of formal training makes it difficult for teachers to use digital media effectively. In addition, curriculum limitations limit the application of project-based methods, so students rarely get a learning experience that stimulates the use of standard Arabic. The lack of multimedia learning resources further narrows the space for teachers to create interactive learning. These findings show that there is a gap between the potential of technology and actual learning practices in the classroom, which requires strategic attention from educational institutions.

Furthermore, the data indicates that teacher limitations as a factor inhibiting pedagogical innovation affect students' motivation and abilities. When teachers are not used to using interactive methods, the frequency of using standard Arabic decreases, because learning tends to be traditional and conventional. This pattern emphasizes the importance of continuous training and curriculum development that is responsive to the needs of the 21st century, so that teachers can be the main drivers of the transformation of Arabic language learning.

Observations in the classroom show that only about 30–40% of learning sessions use digital media or project-based activities. Most of the interactions are still in the form of teacher lectures and conventional written exercises. The researcher interprets that the limitations of teacher training and the lack of multimedia learning resources directly contribute to the low pedagogical innovation. This reduces the opportunity for students to practice standard Arabic actively and contextually, so formal Arabic competence remains limited.

Overall the data show that teacher quality is the main determining factor for the success of standard Arabic language learning. Lack of training, limited curriculum, and lack of multimedia learning resources reduce pedagogical innovation and the frequency of use of standard languages. This restatement emphasizes that teacher development efforts, curriculum enrichment, and the provision of interactive materials are crucial strategies to bridge the gap between theory and practice in the classroom.

Discussion

The findings of this study confirm that the phenomenon of diglossia is a major challenge in the mastery of standard Arabic, in line with the classic sociolinguistic literature such as the concept of Diglossia proposed by Charles A. Ferguson. In this theory, the standard language (high variety) is used in a formal context, while the local dialect (low variety) dominates daily communication (Alotaibi, 2024; Cunnington et al., 2023). The results of this study are consistent with this theory, especially in showing the dominance of local dialects in informal interactions and the limited use of standard Arabic in the academic realm (Eather et al., 2025; Kazemi et al., 2024; Qu et al., 2024). However, these findings also broaden the perspective by showing that psychological factors such as perception of academic risk and language security also reinforce the use of foreign languages such as English, which are not explicitly discussed in the classical theory of diglossia (Fattah, 2025; Isomiddinovna et al., 2026; Sabina et al., 2025).

In addition, the results of the research related to the limitations of digital infrastructure and Arabic content are in line with studies in the field of Educational Technology which emphasize the importance of access to technology and content quality in improving language learning (Gordon, 2024; W. Li et al., 2024; Wang & Shao, 2024). Previous literature has shown that the integration of technology can improve motivation and language skills, but the findings of this study show a gap between potential and reality (Crocodile & Kolibu, 2024; Chen et al., 2024; Kuznetsov et al., 2024; Zamroni et al., 2025). Network instability, limited platforms, and lack of interactive content cause students to prefer foreign language learning resources (Baharun et al., 2025). This shows that there is a difference with studies in the context of developed countries that generally have more adequate digital infrastructure, so that technology integration runs more optimally.

The findings regarding the need for teacher training and pedagogical innovation are also in line with the theory of Pedagogical Innovation which emphasizes the importance of teachers as agents of change in learning (Murtaza et al., 2022; Wan et al., 2025). The literature states that teachers who are trained in interactive methods and the use of technology are able to improve student engagement and learning outcomes (James et al., 2025; Sabri et al., 2024). The results of this study confirm this, but also reveal that curriculum limitations and lack of training are significant structural barriers. Thus, there are similarities at the conceptual level, but differences in practical implementation in the field, especially in the context of education that has limited resources.

The theoretical implication of this study is the need to develop a more contextual concept of diglossia by including motivational variables, academic perceptions, and the influence of digital technology as factors that strengthen or weaken the use of standard language (Depari et al., 2024; Salfin et al., 2024). This research also enriches sociolinguistic studies by showing that diglossia is not only linguistic, but also multidimensional, involving psychological, social, and technological aspects. Meanwhile, in the realm of educational theory, these findings affirm the importance of integrating linguistic approaches and educational technology to understand the dynamics of language learning more comprehensively (Fitrianto et al., 2025; Wedananta et al., 2025; Xia et al., 2024).

Practically, this research provides important implications for policymakers and education practitioners. Pedagogical strategies are needed that bridge the systematic use of local languages and dialects, such as contextual learning and

directed translanguaging (Bisai & Singh, 2024; Elshafie & Zhang, 2024; D. Li et al., 2026). In addition, the improvement of digital infrastructure and the development of interactive Arabic-language multimedia content are urgent needs to increase learning motivation. Teacher training must also be focused on the use of technology and innovative methods to make learning more effective. Thus, efforts to improve the mastery of standard Arabic depend not only on students' linguistic abilities, but also on an educational ecosystem that supports them as a whole.

CONCLUSION

The study highlights the crucial role of the Diglossia complex in influencing the mastery of standard Arabic, emphasizing that successful learning goes beyond grammar mastery to include factors like language comfort, academic risk perception, and the social environment. The research contributes significantly to the field by integrating Sociolinguistics and Educational Technology to analyze Arabic learning, demonstrating that language use is shaped by the interaction between linguistic, technological, and pedagogical elements. However, the study has limitations, including a narrow institutional scope, reliance on qualitative data, and the lack of exploration of external factors like national policies and socio-economic differences. Future research should broaden the study's context, adopt mixed methods, and explore the integration of digital technology and innovative pedagogy to improve standard Arabic use sustainably.

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