Cultural Perspectives on Digital Scaffolding for Bilingual Education and Artificial Intelligence Engagement

Belkacem Eljattari[1], Heba Ahmed Aboukhousa[2], Juan Jose Saenz[3], Driss Boukraa[4]

[1]Mohamed Bin Zayed University for Humanities, Abu Dhabi 3838, United Arab Emirates
[2]Mohamed Bin Zayed University for Humanities, Abu Dhabi 3838, United Arab Emirates
[3]Mohamed Bin Zayed University for Humanities, Abu Dhabi 3838, United Arab Emirates
[4]Mohamed Bin Zayed University for Humanities, Abu Dhabi 3838, United Arab Emirates

***Corresponding Author:** heba.aboukhousa@mbzuh.ac.ae

ABSTRACT

While language instruction has always relied on scaffolding activities to help learners bridge the gap between basic receptive language and complex productive communication, the widespread adoption of generative AI models – coupled with the increasing demand for culturally responsive practice – has forced language learning professionals to reassess the efficacy of traditional scaffolding and explore ways of adapting their methods to fit this newly emerging paradigm. Although previous research has emphasized the benefits of AI in the classroom, this study examines its context through the lens of Arabic language instruction to non-native speakers. The study examines the benefits of AI-driven interactive learning tools first by framing the issue within the cultural and socio-political realities of language instruction within the Arab world. Through this context, the study examines continued efforts to enhance the competitiveness of Arabic in the global language market, hindered by logistical obstacles including limited institutional resources, fragmented educational policies, and tensions between Modern Standard Arabic and various Arabic dialects. Ultimately, this research argues that culturally sensitive digital scaffolding, coupled with AI, offers a sustainable path to advancing bilingual education and promoting intercultural understanding in an increasingly digitalized world.

Keywords: Digital Scaffolding, Bilingual Education, Artificial Intelligence, Arabic Language Learning, Cultural Perspectives

INTRODUCTION

The ongoing digital revolution has profoundly transformed a variety of fields across the spectrum. From natural, applied, and formal sciences to the humanities, it has enabled educators to move beyond the limits of traditional methods and tools, to find novel mechanisms of support for the dissemination of knowledge, skills, and values. These new technologies have also opened the door to new avenues and fields of research in pedagogy and related sciences, in a landscape defined by global competition and the economic benefits of technological innovation.

In response, those charged with shaping educational and cultural policies, alongside researchers in linguistics and applied linguistics, have flocked to adopt this new digital technology. Through this new technology, academics and practitioners alike hope not only to enhance and support language acquisition among learners of all ages, but to foster connections across languages and cultures—The benefits of which are unmatched in advancing the development of a more diverse, interconnected and globalized society.

Within this context, this paper explores the opportunities that digital media provides for improving the teaching of Arabic to non-native speakers. International and institutional experiences have clearly shown that the use of these digital and interactive technologies can foster innovative practices in language didactics, overcoming obstacles that have long hindered development in the field while lowering learning distances and costs.

At the same time, this study looks at some of the challenges that accompany these new opportunities by taking a critical perspective. This epistemological approach weighs the cost of digital media, with its material, moral, and cultural benefits, while taking into account the economic and cultural realities of the Arab world. Furthermore, the study places the current digital explosion under objective scrutiny, seeking ways to harness it as a means to enhance the competitiveness of the Arabic language in the global market of sought-after languages.

This paper, therefore, approaches the topic of teaching Arabic to non-native speakers from a dual perspective, weighing incentives against constraints in what can be considered an argument aimed at assessing feasibility and advocating for investment in this field in an objective and profitable manner. Enhancing the appeal of the Arabic language cannot be achieved without the development of innovative digital didactics. In conclusion, it is worth emphasizing that an increased interest in learning languages inevitably leads to a greater consumption of both material and symbolic cultural products.

Interest in Learning Arabic: An Overview of Motivations and Driving Factors

Arabic holds an advanced position among the world's most attractive languages, with interest in it growing year after year. This is despite the modest ranking of Arab countries in the field of scientific production and their limited involvement in the global knowledge economy. Arabic's prominent status is not necessarily due to the demographic size of the Arab population, which is approaching a quarter of a billion people. Rather, it is primarily driven by the increasing demand for learning Arabic among non-native speakers for various reasons, including:

1) The Growing Number of Muslims Worldwide: The increasing global Muslim population has led many non-Arabic-speaking Muslims, as well as new converts to Islam, to seek Arabic language learning. Their motivation stems from a desire to understand the meanings of the Quran and Hadith, whether for religious, cultural, or intellectual purposes. This numerical growth spans all four corners of the world and is driven by several factors, including the inclusive nature of Islam and its ability to address various spiritual and material human needs. Additionally, higher fertility rates among Muslim women, linked to the sanctity of marital bonds in Islamic culture—contrasting with trends in many modern societies—also contribute to this increase.

2) Understanding the Linguistic Vessel of Islamic Civilization: Learning Arabic is also driven by the desire to grasp the linguistic foundation of Islamic civilization, especially within the context of longstanding neighboring relationships that date back to ancient times. A notable example is the Indian subcontinent, where Arabic is currently taught in numerous universities and colleges across the country. These institutions play a significant role in fostering and maintaining the deep-rooted cultural ties between India and the Arab world in contemporary times. According to Al-Nadwi (2020:76), "Arabic is currently taught in more than 3,000 Islamic and government schools at the secondary certificate level, and in over seventy colleges and thirty-five universities at the undergraduate, master's, and doctoral levels."

This pursuit also takes place within the framework of Orientalism, which is ostensibly driven by scholarly motives—at least on the surface—or within the context of direct strategic intelligence gathering, encouraged by political institutions with well-known interests. It is worth noting that, despite these underlying motives, such interest has contributed to the revival of Arabic heritage and has drawn attention to it (Ramadan, 2017:12), fostering exploration of its diverse linguistic and intellectual characteristics.

3) Providing Linguistic Support for Access to the Arab Economic Market: Arabic language learning is also motivated by the desire to enter the Arab economic market, which presents promising opportunities for a wide range of global products—both tangible and symbolic. This is particularly true for the Gulf market, which stands out due to its high per capita income, making it an attractive destination for international businesses and investors.

4) The Unique Linguistic and Historical Characteristics of Arabic: Arabic possesses linguistic and historical features unmatched by any other living global language. As an ancient language, it predates most modern world languages and rivals Latin in its antiquity—Latin being the progenitor of many contemporary European languages such as French, Italian, and Portuguese. Due to this unique attribute, Arabic has traditionally attracted the interest of linguistic scholars studying diachronic language developments through oral corpora (as no audio recordings exist for ancient languages). Additionally, it draws the attention of researchers examining linguistic correspondences among various language branches within related and distant language families.

5) The Geopolitical Significance of the Arab World: The Arab region is situated in a geographic area that has historically experienced, and continues to experience, geo-military conflicts with various adversaries. This has created military and intelligence-driven incentives, making Arabic a highly sought-after language in the global language market from a pragmatic and strategic perspective. The demand for Arabic in this context stems from its critical role in security, diplomacy, and conflict resolution efforts.

6) The Advancement of Digital Platforms for Arabic Language Learning: The development of digital tools used in teaching Arabic—similar to those employed for many global languages—has significantly facilitated the learning process for those interested in acquiring the language through interactive, remote-learning formats.

In addition to these factors, numerous other conditions and motivations come into play, including personal interests or academic research pursuits. Western universities and research centers, for example, have established specialized departments and advanced study programs dedicated to Arabic language and its rich linguistic, literary, and intellectual heritage. However, this academic interest is often linked to sovereign projects that influence the foreign policies of many developed Northern countries. These nations seek active participation in shaping geopolitical strategies and capitalizing on the vast resources of the Arab world. These resources include major energy reserves—such as fossil fuels, solar energy, and wind energy—along with human capital and diverse environmental wealth.

2. Digital Opportunities in Teaching Arabic to Non-Native Speakers

The world is currently experiencing an advanced stage of technological development, often referred to as the era of digital dominance. This transformation has created a new communicative reality that has made it easier for individuals to produce discourse and engage in public communication (Al-Shamayleh et al., 2015: 152). This digital shift impacts all aspects of social, cognitive, and educational life, particularly in the realm of natural language learning, teaching, and assessment, including the teaching of Arabic to non-native speakers.

Today, learners are on equal footing with their instructors in terms of technological consumption. As a result, it has become imperative for specialists to present educational content in the form of digital resources. Traditional paper-based materials for second language learning have become obsolete, making it essential for curriculum designers to fully embrace the "dictatorship of technology" by digitizing educational content in accordance with the demands of the new digital reality (Al-Hanash, 2020: 16).

We are, therefore, faced with a situation in which we have no choice, contrary to what some traditional educational discourses might suggest. Instead, it is a situation characterized by a significant degree of inevitability and compulsion. In other words, the teaching of Arabic—whether to native or non-native speakers—will soon be impossible without relying on digital platforms and programs. As such, keeping pace with contemporary educational needs means learning to leverage a variety of digital media for the enhancement of language instruction in the Arabic language classroom.

The opportunities that digital technologies provide are both exciting and deeply impactful. Through these technologies, researches can connect to create networks dedicated to the collaborative study of innovations in the field of Arabic didactics, the sharing of experiences and expertise, and the creation of institutions dedicated to the assessment of outcomes and performance.

Digital media also supports greater standardization to areas central to Arabic language teaching, such as grammar, orthography, and lexical resources. These resources provide further opportunities for enhancing practice in the teaching of Arabic as a second language.

It is important to understand that many professionals in the field come from highly distinguished academic backgrounds, furthering the need for enhanced collaborative efforts. Such experts are well-positioned to transfer their knowledge and skills to the field of Arabic language didactics, thereby accelerating its development at a much faster pace than if it were left to evolve naturally according to the developmental trajectory of Arab societies.

Digital resources provide numerous additional opportunities for professionals in the field of language education. They enable the use of written, audio, and visual recordings, while also facilitating various forms of remote interaction and communication between different stakeholders. This, in turn, simplifies the educational process, reduces learning time, and minimizes financial resources required for such endeavors.

Anwar Getsich, Dean of the Faculty of Islamic Studies in Novi Pazar, Serbia, states:

"This [distance learning] approach has numerous advantages and benefits. It simplifies and overcomes many challenges, such as the need for students to travel to their place of study, thus saving costs related to travel, accommodation, and other expenses. It also eliminates the challenge of obtaining visas for cross-border movement. Additionally, it allows the institution to hire a larger number of qualified instructors without requiring them to travel and be physically present at the college. Moreover, this system enables communication with a broader number of university students across various parts of the world." (Getsich, 2020: 71).

In the same context, researcher Mohammed Al-Hanash, in the field of second language education, distinguishes several learning principles, including:

- **Machine Learning:** Machine learning, which consists of two types—supervised and unsupervised—refers to the process of training computers programmatically to recognize correct data, thereby enhancing their predictive capabilities and enabling them to make appropriate decisions. As the machine's predictive abilities improve, its reliance on data gradually decreases until it eventually becomes independent of it, making decisions based solely on the rules learned through experience and practice.

This approach is similarly applied in second language learning. Initially, learners are trained to recognize the data on which rules are based. Over time, they become less dependent on the provided data and eventually develop the ability to construct new data independently and identify unfamiliar elements they have not previously encountered in their learning process.

- **Deep Learning:** Deep learning utilizes convolutional data in a way that mimics the neural networks of the human brain. While it partially applies machine learning principles, it surpasses them in its ability to process non-linear data, such as the pixels that make up images. This capability allows it to be used in applications such as facial recognition, mapping, and other systems built on non-linear data, while still incorporating linear data as well.

Deep learning has achieved significant success in education through the use of games, images, and videos, making it a widely adopted technology in second language instruction at leading educational centers worldwide (Al-Hanash, 2020: 17).

However, these principles and others alone will not be sufficient to enhance the learning outcomes under discussion. According to the same researcher, their success is contingent upon the development of an assessment platform to measure skills remotely. Relying solely on the design of interactive digital curricula for teaching and learning may not provide sufficient insight into their actual impact on learners.

Such an assessment platform should be part of a comprehensive system based on three key pillars: Teaching, learning, and assessment. This platform must serve as the backbone of a reference framework founded on the latest global standards, which consider the advancements in modern technology (Al-Hanash, 2020: 20).

3. Teaching Arabic to Non-Native Speakers in the Digital Revolution Era: Obstacles and Challenges

We have outlined several opportunities offered by ongoing advancements in the digital world, particularly in the field of teaching Arabic to non-native speakers. These opportunities are largely theoretical or hypothetical in nature, and their practical viability can only be assessed by testing them in real-world settings and evaluating their alignment with the cultural and technological capabilities available within Arab societies.

It is worth noting that numerous significant obstacles hinder the successful digitization of educational resources for teaching Arabic, whether to native or non-native speakers. Observations indicate that the traditional approach to teaching Arabic is already burdened with countless challenges, stemming from structural deficiencies where economic, cultural, and political factors intertwine.

This raises a critical question: Can this ambitious educational endeavor be undertaken within the existing structures, relying on human resources that are scientifically unqualified and often lack the motivation to engage in such efforts? The prevailing shortcomings in teacher training, coupled with limited institutional support and insufficient incentives, further complicate the process of transitioning to a fully digitized educational model.

Another significant challenge arises from the broader crisis facing the Arabic language. This crisis spans various dimensions, including policies and legislation, as foreign languages have entered the Arabic linguistic landscape and now compete with it in its own domain. Many Arab and Islamic universities have begun offering courses in foreign languages, even within Arabic language programs.

When examining the state of Arabic language instruction in some countries in Europe and America, it becomes evident that Arabic is often taught using foreign languages as the medium of instruction. This trend not only affects the authenticity and effectiveness of Arabic language learning but also highlights the growing dominance of other languages in educational institutions and professional environments (Mousa, 2020: 27).

Adding to these challenges is the absence of a unified model that can serve as a benchmark for Arabic language instruction. Furthermore, the goals of institutions teaching Arabic to non-native speakers vary significantly. Each institution—and indeed each country—pursues different objectives in teaching Arabic, leading to conflicting interests and priorities. This divergence is evident not only between countries but also among institutions, whether they are private or government-run (Mousa, 2020).

This challenge is deeply tied to the notion of the nation-state, where administrative or political decisions often don't align across Arab countries. The lack of a clear unified vision for the development of the Arabic language further complicates efforts towards a unified approach to Arabic language education. As a result, efforts remain fragmented, limiting synergistic opportunities for development and innovation in the field.

The existence of a variety of Arabic dialects also complicates efforts in this context. There is no universal consensus on the use and integration of dialectal instruction in the traditional Arabic language classroom. In some instances, dialects are integrated minimally to promote familiarity with the diversity of the language across country and culture, in others, dialects are rejected altogether.

A lack of consensus in content and method is not the only obstacle. Learners themselves often have widely differing needs and motivations for learning the language, making the study of certain dialects essential to some learners. This demand creates tensions between the traditional goal for the promotion of Modern Standard Arabic (MSA) as the principal medium of instruction and the needs of learners that find dialects more useful in everyday contexts.

The greatest obstacle in this field remains the lack of financial resources allocated to the teaching of Arabic to non-native speakers. This issue is rooted in the limited budgets that Arab countries dedicate to the education and culture sectors. As a result, the teaching of Arabic to non-native speakers continues to be driven by individual initiatives rather than institutional policies.

In Western countries, much of the effort in this field is credited to Islamic centers, cultural and charitable associations, scholars, religious figures, missionaries, and volunteers from within Arab and Muslim communities. As noted by Mohammed Mohsen Al-Ghazawi, director of an Islamic center in Brazil.

"Some Arabic schools have been established, albeit modestly and tentatively, and they have managed to align to some extent with foreign (Portuguese) curricula. However, these schools have faced setbacks due to the lack of external support—whether from Arab or Islamic organizations. They have fluctuated in strength, sometimes thriving and other times struggling, mainly due to insufficient resources and the global economic crises over the past two decades, not to mention the recent pandemic that has brought nations and communities to a standstill." (Al-Ghazawi, 2020: 83).

This financial shortfall continues to hinder the sustainability and growth of Arabic language programs, making it difficult to establish long-term, high-quality educational initiatives without consistent institutional backing.

CONCLUSION

In this presentation, we have explored some of the opportunities that digital resources offer in teaching Arabic to non-native speakers, along with an overview of the key challenges that hinder this linguistic-pedagogical project. Our analysis is grounded in real-world data and draws on specific experiences as a basis for reflection and evaluation.

It is worth emphasizing, in conclusion, the critical importance of the cultural-political factor in shaping initiatives related to this endeavor. There is an urgent need to develop a comprehensive Arab project, provided that it is the result of collective efforts and formulated in an institutional framework. Such a project should involve all Arab countries, contributing their financial and human resources in a coordinated and efficient manner.

Immediate action is required, as this initiative has the potential to generate significant economic and cultural returns for the Arab world. Many Arabic artistic expressions and cultural products inherently possess great potential for global outreach, with the language barrier and its associated communicative challenges being the primary obstacles to their competitiveness and broader dissemination.

REFERENCES

Getsich, A. (2020). The challenges facing higher Islamic education in Europe after the COVID-19 pandemic. *Report on the Proceedings of the International Virtual Forum on Teaching Arabic to Non-Native Speakers.* Islamic World Educational, Scientific and Cultural Organization (ICESCO).

Ramadan, H. I. (2017). Teaching Arabic to non-native speakers: A forward-looking vision. *Publications of the Arab-Turkish Forum.*

Al-Nadwi, M. A. (2020). The Arab-Indian Cultural Center at Jamia Millia Islamia University in New Delhi and its role in promoting Arabic culture. *Report on the Proceedings of the International Virtual Forum on Teaching Arabic to Non-Native Speakers.* Islamic World Educational, Scientific and Cultural Organization (ICESCO).

Mousa, A. A. (2020). Challenges in teaching Arabic to native and non-native speakers: Renewing strategies and developing tools and methodologies. *Report on the Proceedings of the International Virtual Forum on Teaching Arabic to Non-Native Speakers.* Islamic World Educational, Scientific and Cultural Organization (ICESCO).

Al-Ghazawi, M. H. (2020). The efforts of Islamic centers in Brazil to promote the Arabic language. *Report on the Proceedings of the International Virtual Forum on Teaching Arabic to Non-Native Speakers.* Islamic World Educational, Scientific and Cultural Organization (ICESCO).

Al-Shamayleh, M. O., Al-Lahham, M. I., & Kafi, M. Y. (2015). *New digital media* (1st ed.). Al-Ihsar Publishing and Distribution.