HISTORICAL ANALYSIS OF IMPACT OF ARABIC LANGUAGE IN PRESERVATION AND TRANSMISSION OF KNOWLEDGE IN THE CONTEMPORARY AGE

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Abstract

The Arabic language has historically been more than a medium of communication. It has functioned as a powerful vehicle for the preservation, enrichment, and transmission of knowledge across civilizations. During the Islamic Golden Age (8th–14th centuries), Arabic was elevated as the universal language of science, medicine, mathematics, and philosophy. Arabic remains the liturgical and cultural language of over 400 million speakers worldwide and one of the six official languages of United Nations. It continues to serve as a vehicle for education and research in many Muslim-majority countries. However, its capacity to transmit modern scientific and technological knowledge faces major challenges. The paper adopted theoretical approach in the presentation. Among other things, the research discovered the dominance of English and French in global academia, insufficient development of standardized Arabic Scientific terminology, the digital divide limiting access to Arabic manuscripts and weak institutional policies supporting Arabic in higher education as threats to Arabic language modern development. The research recommends among other things, that with vision, commitment and collective efforts of all stakeholders, Arabic could be a language of enlightenment and global development again.

Keywords: Golden Age, Arabic language, knowledge preservation, transmission of knowledge, Islamic, contemporary age.

Introduction

In all ages, language remains one of the most powerful tools through which civilizations express, preserve, and transmit their intellectual heritage. It is also a repository of collective memory, identity, and innovation. Arabic as a language occupies a unique position because of its dual mandate as the sacred language of Islam and as the intellectual medium through which vast bodies of scientific, philosophical, and cultural knowledge were developed and transmitted. During the Islamic Golden Age (8th–14th centuries), Arabic emerged as the *lingua franca* of scholarship, transcending ethnic and geographical boundaries. It facilitated the translation of classical works from Greek, Persian,

Indian, and Syrian traditions and at the same time served as the language of original contributions by Muslim scholars in fields such as medicine, mathematics, astronomy, philosophy, and linguistics. The preservation of these works in Arabic manuscripts later laid the foundation for the European Renaissance, demonstrating that Arabic has historically functioned as a global language of science and innovation.

UNESCO (2021) stated that, Arabic continues to be spoken by over 400 million people and is one of the six official languages of the United Nations. It is the language of religion, law, education, and governance across many Muslim-majority countries in the Middle East, North Africa, and beyond. Arabic is also central to religious education in countries like Nigeria, where millions of Muslims rely on it for accessing the Qur'an, Hadith, and classical texts of Islamic scholarship. The role of Arabic in transmitting modern scientific and technological knowledge remains marginal compared to languages such as English, French, or Chinese. This disparity raises urgent questions about the status of Arabic in global knowledge production, its capacity to adapt to contemporary educational demands, and its contribution to national development in Arabic-speaking and Muslim-majority countries.

Al-ihsah, (2019) and Alhabshi, (2020), argued that Arabic has successfully preserved religious and cultural heritage, while its influence in transmitting modern scientific innovations is under threat. Challenges such as the dominance of English in academia, the lack of standardized Arabic scientific terminology, inadequate government investment in Arabic-language scholarship and the limited digitization of Arabic manuscripts continue to hinder its advancement. These issues not only weaken the relevance of Arabic in higher education but also restrict the ability of Arabic-speaking societies to fully participate in global knowledge exchange. At the same time, opportunities for revitalizing Arabic are emerging. Recent initiatives have highlighted the potential of translation projects, digital humanities, and curriculum reforms to strengthen the role of Arabic in education. For example, digitization projects since 2019 have made thousands of rare Arabic manuscripts accessible to global audiences. Similarly, universities in the Arab world are increasingly adopting bilingual or trilingual models that integrate Arabic alongside English and French in teaching and research (UNESCO, 2021). These trends indicate that Arabic, if strategically reformed, can once again serve as a medium of scientific and intellectual progress.

The problem this paper seeks to address is the gap between the historical impact of Arabic in knowledge transmission and its current marginalization in modern scientific discourse. By addressing these issues, this paper contributes to ongoing scholarly debates about the place of Arabic in education and development. It also offers insights into how Arabic-speaking societies, and by extension Muslim communities worldwide, can reclaim their intellectual heritage while participating actively in modern scientific and technological discourse.

Preservation and Transmission of Knowledge

UNESCO (2020) described preservation of knowledge as the processes, systems, and cultural mechanisms through which societies safeguard intellectual, scientific, and cultural heritage for future generations. In the context of Arabic and Islamic civilization, preservation was historically carried out through both oral and written traditions. Oral recitation of the Qur'an, Hadith, and poetry ensured that religious and cultural memory was sustained across generations. The codification of texts in Arabic manuscripts, libraries, and scholarly commentaries served as the written repositories of accumulated wisdom.

Preservation is defined as the conscious effort to safeguard intellectual heritage religious, scientific, or cultural through Arabic as a medium of record. The enduring availability of works by scholars such as Ibn Sina in medicine, Al-Khwarizmi in Mathematics, and Al-Farabi in Philosophy illustrates how Arabic preserved not only Islamic teachings but also the scientific legacies of other civilizations. Preservation thus denotes not only conservation but also accessibility, ensuring that future generations can retrieve and build upon past knowledge. Cambridge Advanced Learner's Dictionary (2015: 1872), opined that transmission is "the process of passing something from one person or place to another". Al-Issa (2019), argued that transmission is the active processes by which preserved knowledge is communicated, disseminated, and applied within and across societies. While preservation ensures that knowledge remains intact, transmission emphasizes its accessibility and applicability in education, policy, and innovation. In Islamic history, transmission was achieved through scholarly institutions such as madrasas, mosques, and the translation movement, where texts were systematically taught, debated, and translated into other languages.

He argued further that transmission of knowledge often implies a pedagogical function-teachers imparting knowledge to students through structured curricula. However, in the broader sociolinguistic sense, it encompasses the diffusion of scientific, cultural, and technological ideas across linguistic and cultural boundaries. Transmission through Arabic is viewed as both historical and contemporary. Historically, it connected Muslim societies with Greek, Persian, and Indian knowledge traditions. In contemporary time, it holds the potential to bridge Arabic-speaking societies with the global scientific community.

Alhabshi (2020), observed that during the golden age of Islam (8th – 14th centuries) Muslim societies made notable contributions to science, technology, philosophy, and the arts. While some scholars caution against the over-romanticization of this era, it is undeniable that Arabic functioned as the global language of scholarship and innovation during this period. The establishment of centers such as the Bayt al-Ḥikmah (House of Wisdom) in Baghdad and libraries in Córdoba depicted exemplified how Arabic-speaking scholars systematically translated and expanded upon works from earlier civilizations. For this study, the Golden Age is conceptualized as a

historical period when Arabic reached its zenith as the international language of knowledge. It represents both a historical reality and a symbolic benchmark against which contemporary discussions about the decline or revival of Arabic in education are measured.

In contemporary age, education in relation to Arabic requires recognizing both opportunities and limitations. On the one hand, Arabic remains significant instruments for moral, cultural, and religious education, grounding learners in identity and heritage. Arabic is not fully represented in global scientific research creates a structural imbalance, often forcing Arabic-speaking students to rely on English or French in scientific field (Al-Issa, 2019). Thus, contemporary education is understood as the arena where the Historical impact of Arabic in knowledge transmission is tested against the demands of globalization, innovation, and digitalization. UNESCO (2021), equally observed that Arabic characterized by structured curricula, standardized assessment, and global competitiveness in research and innovation. For Arabic-speaking societies, modern education often entails the challenge of balancing heritage-based curricula emphasizing Qur'anic and classical Arabic studies with contemporary demands in science, technology, and global languages.

Sociolinguistic Theories of Language and Knowledge Transmission

The theory under pinning this paper is sociolinguistics which emphasizes that language is not only a neutral medium of communication but also a social practice that shapes access to power, knowledge, and identity. According to modern educational theory, knowledge transmission is deeply influenced by the choice of language of instruction (Al-Issa, 2019). Languages that dominate education and research become privileged vehicles of intellectual advancement, while others risk marginalization. Eight to Fourteen centuries were one of the most frequently cited historical examples of the ways language serve as a vehicle for intellectual advancement, cultural preservation, and civilizational dialogue. During this period, Arabic not only unified diverse populations under a shared linguistic umbrella but also functioned as the global medium for science, philosophy, medicine, mathematics, and theology. The Arabic language reached a level of sophistication that enabled it to absorb the intellectual heritage of earlier civilizations and, more importantly, to generate original contributions that shaped the trajectory of world history.

The cornerstone of this Age was the translation movement, which flourished particularly during the Abbasid caliphate in Baghdad. The establishment of the *Bayt al-Ḥikmah* (House of Wisdom) in the 9th century symbolized the state's commitment to knowledge acquisition and dissemination. Sponsored by caliphs such as al-Maʾmūn, scholars translated vast bodies of Greek, Persian, and Indian works into Arabic. Texts on philosophy, medicine, astronomy, and mathematics were rendered into Arabic with precision and often with critical commentary (Alhabshi, 2020). UNESCO (2021) discussed further that, Greek medical works by Hippocrates and Galen were translated into Arabic, but Muslim scholars such as al-Rāzī (Rhazes) and Ibn

Sīnā (Avicenna) expanded these works into comprehensive medical encyclopedias. Al-Khwārizmī's writings on algebra not only preserved earlier mathematical traditions but also introduced innovative methods that later influenced European mathematics. Thus, Arabic became the lingua franca of a cosmopolitan intellectual project that spanned Asia, Africa, and Europe.

Functions of Arabic Language

i. **Arabic as a Vehicle for Scientific Innovation:** Arabic became the medium of original scientific innovation. Muslim scholars developed new fields of inquiry and advanced empirical methods that laid the groundwork for the scientific method. In Mathematics**,** Al-Khwārizmī introduced algebra (*al-jabr*), and his works were translated into Latin in the 12th century, directly influencing European science. In Medicine, Ibn Sīnā's *Canon of Medicine*, written in Arabic, was used in European universities until the 17th century. In Astronomy, Al-Bīrūnī and Ibn al-Haytham contributed to astronomy and optics, their works preserved and transmitted through Arabic texts, while in Philosophy, Ibn Rushd (Averroes) produced extensive commentaries on Aristotle, which shaped European scholasticism.

ii. Arabic as a Language of Intercultural Dialogue**:** Arabic in the age in question functioned as a medium of intercultural dialogue. It connected Muslims with Jews, Christians, and other communities who participated in intellectual life. Jewish scholars such as Maimonides wrote in Arabic, while Syriac-speaking Christians were among the first translators of Greek works into Arabic before they spread into Latin Europe. This demonstrates that Arabic was not exclusive but inclusive, serving as a shared platform for diverse traditions.

The openness of Arabic to borrow, adapt, and innovate demonstrates its flexibility and capacity for intellectual growth. This adaptability explains Arabic could preserve knowledge from multiple civilizations and transmit it beyond the Islamic world.

iii. **Mechanisms of Preservation and Transmission:** Arabic facilitated preservation and transmission through various mechanisms. Among others, thousands of texts were copied, catalogued, and circulated across libraries from Baghdad to Cairo to Córdoba. These manuscripts ensured that knowledge was physically preserved across generations (UNESCO, 2021). The madrasa system and mosque-based learning facilitated systematic transmission of knowledge, where Arabic was the primary language of instruction. Scholars wrote extensive commentaries, marginalia, and glosses on classical texts, ensuring that each generation of learners could engage with earlier works. In addition to manuscripts, oral lectures and debates in Arabic played a vital role in transmitting knowledge in dynamic and interactive ways.

Challenges Facing Arabic Education

i. Dominance of English and Other Global Languages: Ammon (2020) explained that perhaps the most significant challenge is the overwhelming dominance of English as the global language of science, technology, and higher education. Research shows that over 90% of scholarly publications in STEM fields are produced in English (Ammon, 2020). This linguistic hegemony sidelines Arabic in academic discourse, making it difficult for students and researchers in Arab countries to access cutting-edge scientific knowledge in their mother tongue. As a result, higher education in many Arab states often relies heavily on English or French, creating a divide between secondary and tertiary education.

ii. Lack of Standardized Scientific Terminology: Al-Issa (2019) opined that, another barrier is the absence of fully standardized and widely adopted scientific vocabulary in Arabic. Efforts have been made by institutions such as the Arabic Language Academies in Cairo, Damascus, and Amman to coin Arabic equivalents for modern terms. However, inconsistencies across countries and the slow pace of terminology development hinder effective use in scientific education. For instance, the Arabic terms for "computer" or "internet" differ between North Africa and the Middle East, creating confusion for learners.

iii. Curriculum Gaps and Outdated Pedagogies: Alhabshi (2020), recorded that, many educational systems in Arabic-speaking countries suffer from outdated curricula that do not integrate Arabic effectively with modern scientific and technological subjects. In some cases, Arabic is relegated to religious or literary studies, while science and mathematics are taught exclusively in foreign languages. This dual-track system undermines Arabic's role as a comprehensive medium of knowledge and creates identity tensions among students

iv. Digital Marginalization: Al-Saif & Al-Twairesh (2022) stated that, Arabic is among the most widely spoken languages, it is underrepresented in the digital sphere. For example, Arabic-language academic resources and e-learning platforms are relatively scarce compared to English or Chinese. Furthermore, the complexity of Arabic script has historically posed challenges for digitization, although recent technological advances are addressing this. The lack of robust Arabic digital infrastructure limits students' access to modern knowledge in their language.

v. Socio-Political Factors: Elmessiri (2020) noted that, political instability in parts of the Arab world-such as conflicts in Syria, Yemen, and Libya has disrupted educational systems and reduced investment in Arabic-language scholarship. Furthermore, the politicization of language policy in

postcolonial contexts often pits Arabic against colonial languages, creating linguistic tensions rather than constructive bilingualism. These socio-political challenges weaken Arabic's capacity to thrive in modern education.

Opportunities for Arabic in Modern Education

i. Historical Legacy as a Scientific Language: Gutas (2019), observed that the Golden Age of Islam demonstrated that Arabic was fully capable of carrying complex scientific and philosophical discourse. This historical precedent is a powerful resource for re-establishing Arabic as a modern medium of education. By drawing inspiration from figures like Ibn Sīnā, al-Khwārizmī, and Ibn al-Haytham, contemporary institutions can showcase Arabic's intellectual versatility and mobilize pride in its capacity for innovation.

ii. Digital Transformation: UNESCO (2021) noted that, the rise of digital tools presents unprecedented opportunities for Arabic. Advances in artificial intelligence (AI), machine translation, and natural language processing (NLP) are increasingly accommodating Arabic, overcoming historical barriers of script complexity. Platforms such as Coursera and Edraak now provide Arabic-language online courses in science, technology, and entrepreneurship, making knowledge accessible to millions of learners. Digitization of Arabic manuscripts has also opened new possibilities for integrating classical texts into modern education.

iii. Translation Initiatives: Pew Research Center (2022) stated that, large-scale translation projects can bridge the gap between global knowledge production and Arabic-speaking students. For instance, the "Kalima Project" in the UAE has translated hundreds of scientific, philosophical, and literary works into Arabic since 2007, revitalizing Arabic as a scholarly language. Translation ensures that Arabic remains relevant in fields dominated by English while also enriching Arabic vocabulary with new terms and concepts.

iv. Educational Reforms and Bilingual Models: Al-Saidi (2020), opined that, some Arab countries have introduced bilingual or trilingual models in education, blending Arabic with English or French in teaching science and technology. This approach, when managed effectively, ensures that students remain rooted in Arabic while gaining access to global discourse. For example, Qatar and the UAE are experimenting with dual-medium programs in STEM fields, with promising outcomes for student performance.

v. Cultural and Religious Motivation: Gutas (2019) argued that, Arabic enjoys a unique motivational advantage because of its connection to Islam. Unlike other languages that require purely pragmatic incentives, Arabic draws on religious, spiritual, and cultural motivations that ensure its sustained relevance. For many students, learning Arabic is not just about communication but about connecting with the Qurʾān and their heritage. This cultural capital can be

harnessed to strengthen Arabic's role in education.

Conclusion

The role of Arabic in preserving and transmitting knowledge is not confined to the past—it is an ongoing responsibility. The Arabic language has the capacity to bridge civilizations, unify communities, and propel nations into new frontiers of knowledge. With vision, commitment, and collective effort, Arabic can once again become a global language of enlightenment and development.

Recommendations

i. A pan-Arab or OIC-led initiative in collaboration with global organizations like UNESCO should produce consistent terms for emerging fields such as artificial intelligence, biotechnology, and space science.
ii. Government should reform curriculum for repositioning Arabic as a comprehensive medium of education, science, technology, engineering and mathematics (STEM), and ensures that Arabic should be taught at least through secondary school, with gradual bilingual integration at the tertiary level.
iii. Governments and tertiary institutions should invest in training programs that equip teachers with modern pedagogical methods and resources for teaching in Arabic.
iv. Governments and NGOs should collaborate with private tech companies to build Arabic language e-learning platforms covering STEM fields.
v. Departments of Arabic and Islamic in tertiary institutions should digitize Arabic language these and research papers to create accessible knowledge repositories.
vi. Arabic Institutions and scholars should engage in joint research programs, exchange fellowships, and collaborative translation projects to strengthen Arabic's presence in global academia.
vii. UNESCO and other international organizations should support tertiary institutions by providing fund, technical expertise and international visibility for Arabic educational initiatives.

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