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## The Role of Artificial Intelligence in Qur'anic Education and Interpretation: A Phenomenological Study of Its Requirements among Scholars in Fars Province, Iran

Mohammad Sharifani<sup>1</sup>; Nasrin Alavinia<sup>2</sup>; Kerwanto<sup>3</sup>; Cipta Bakti Gama<sup>4</sup>; Akmal Kamil<sup>5</sup>

### Abstract

**Purpose** – This study examines the requirements for employing artificial intelligence (AI) in Qur'anic education and interpretation, focusing on how Qur'anic scholars and instructors in Fars Province, Iran, perceive the conditions necessary for its effective, ethical, and pedagogically appropriate use. **Design/methodology/approach** – The study adopts a qualitative phenomenological design using Colaizzi's seven-step analytical procedure. Data were collected through in-depth, semi-structured interviews with ten faculty members in Qur'anic sciences and Hadith and experienced Qur'anic instructors in Fars Province. Participants were selected through purposive and theoretical sampling until theoretical saturation was achieved. The interview data were subjected to thematic analysis, with credibility, dependability, confirmability, and transferability addressed through validation procedures. **Findings** – The analysis generated three principal categories: preliminary and infrastructural requirements, foundational and principled requirements, and technical and operational requirements. These comprised eight subcategories and 45 sub-concepts. The findings indicate that AI can support personalized learning, Qur'anic recitation, comprehension, multimodal instruction, and the integration of Qur'anic knowledge. However, its effective use requires reliable infrastructure, organized and credible Qur'anic data, trained educators, ethical safeguards, source verification, content validation, professional supervision, and interdisciplinary cooperation. **Research implications/limitations** – The framework provides practical guidance for educational institutions, Qur'anic centers, policymakers, and technology developers. However, the study is limited by its ten participants from a single province and its reliance on self-reported perceptions rather than observed AI-supported instruction. **Originality/value** – The study provides an empirically grounded phenomenological framework that connects AI, Qur'anic pedagogy, and ethical requirements for sacred-text education, extending AI-in-education research into the specific epistemic context of Qur'anic learning and interpretation.

**Keywords:** Qur'an Education; Iran; Artificial Intelligence; Phenomenology; Qur'an Interpretation.

<sup>1</sup> Faculty of Theology, Allameh Tabatabaei University, Tehran, Iran,

Email: [sharifani40@yahoo.com](mailto:sharifani40@yahoo.com)

<sup>2</sup> Department of Islamic Studies, Darab Branch, Islamic Azad University, Darab, Iran.

Email: [na.alavinia@yahoo.com](mailto:na.alavinia@yahoo.com)

<sup>3</sup> Universitas PTIQ Jakarta, Jakarta, Indonesia, Corresponding Email: [kerwanto@ptiq.ac.id](mailto:kerwanto@ptiq.ac.id),

Orcid: <https://orcid.org/0009-0006-8453-2259>

<sup>4</sup> STAI Sadra Jakarta, Jakarta, Indonesia, Email: [ciptabaktigama@sadra.ac.id](mailto:ciptabaktigama@sadra.ac.id), Orcid: <https://orcid.org/my-orcid?orcid=0000-0002-3407-760X>

<sup>5</sup> STAI Sadra Jakarta, Jakarta, Indonesia, Email: [akmalkamil@sadra.ac.id](mailto:akmalkamil@sadra.ac.id)

## Introduction

The Holy Qur'an, as the most authoritative divine scripture, the primary source of divine knowledge, and the enduring miracle of the Prophet (PBUH) [1], serves as the guide for Muslims in all aspects of life. Those who convey and transmit it to others are regarded as the standard-bearers of Islam [2]. For this reason, its teaching and interpretation hold great importance for Muslims, as the Qur'an is considered the Word of God and the principal source of guidance, ethics, and life regulations for believers. Given its comprehensiveness, as reported by Qur'anic exegetes [3], this process assists Muslims in understanding the profound concepts and meanings of Qur'anic verses and applying them in their daily lives. Qur'anic exegesis strengthens faith, fosters a closer relationship with God, and facilitates a deeper understanding of religious rulings. Moreover, teaching ethical verses can contribute to the improvement of individual and social behavior among Muslims and enhance social cohesion. Ultimately, Qur'anic interpretation enables Muslims to analyze contemporary social and economic issues and to propose solutions aligned with religious teachings, rendering it a social and cultural necessity.

Given the significance of the Qur'an in the lives of Muslims and the necessity of learning, reciting, and becoming acquainted with its teaching and interpretation, it is essential not only to recite it correctly and without error [4], but also to employ modern technologies in its instruction and interpretation. One such technology is artificial intelligence. Although a precise and universally accepted definition of artificial intelligence has not yet been established among scholars in this field [5], this technology has emerged as a major phenomenon in human life and, through various approaches, has created both opportunities and challenges. Artificial intelligence is a form of non-biological intelligence that imitates human cognitive functions such as learning and problem-solving [6], possessing capabilities that include learning, data comprehension, decision-making, and autonomous action without supervision [7]. It is predicted that artificial intelligence will rapidly expand and influence various aspects of life; for instance, it has been estimated that by 2030 at least 70 percent of companies will adopt some form of artificial intelligence, and approximately 60 percent of occupations will be partially automated within the next decade [8].

Through subfields such as machine learning and natural language processing, artificial intelligence offers significant potential for transforming education across academic disciplines. Its core capability lies in creating adaptive and personalized learning pathways tailored to the individual performance and learning styles of learners. When individuals hold a positive attitude toward it, they feel empowered through its use [9]. AI systems can analyze large amounts

of educational data to identify cognitive weaknesses and knowledge gaps in learners and subsequently provide targeted content, practice, and immediate feedback, thereby enhancing the quality of teaching-learning processes across diverse fields of study [10]. This is particularly effective in complex domains such as engineering, medical sciences, and data science, which require advanced simulations, virtual laboratory environments, and automated assessment. In such contexts, artificial intelligence significantly improves educational efficiency and functions as an intelligent assistant that strengthens the role of human instructors, allowing them to focus on deeper subject matter and critical interactions.

With regard to Qur'anic education and interpretation, artificial intelligence—specifically through advanced natural language processing models based on deep learning architectures—offers substantial capacity for the systematic analysis of the Qur'anic corpus. Its central capability lies in facilitating comparative hermeneutics and validating semantic coherence, enabling the construction of knowledge graphs that provide interpretive layers (lexical, jurisprudential, and occasions of revelation). Ultimately, this approach delivers a data-driven method for adaptive education and the production of multidimensional interpretations.

Considering that learning, education, and familiarity with the Qur'an, as well as the importance of instructional approaches to it, have witnessed both quantitative and qualitative growth over time in various regions of the world, including Iran [11], the deliberate use of artificial intelligence in this field can assist and accelerate Qur'anic education and interpretation. Undoubtedly, the role and position of artificial intelligence in all aspects of life are undeniable, and its application in the teaching and interpretation of the Holy Qur'an appears inevitable. If subjected to rigorous and precise scholarly investigation, artificial intelligence can enhance Qur'anic education and interpretation for both specialists and the general public in terms of quantity, quality, diversity of methods, conditions, and available resources. What is of paramount importance, however, is attention to the requirements and necessities of employing artificial intelligence in this domain. Accordingly, the central research question of this study is: What are the most important requirements and necessities for the use of artificial intelligence in the teaching and interpretation of the Holy Qur'an?

## Theoretical Framework

This study is informed by an integrated theoretical framework that combines general learning theories, cognitive (information-processing) theory, meaningful learning, and Gestalt theory, and relates them explicitly to the affordances of artificial intelligence in education. Learning theories describe relatively enduring changes in an individual's knowledge and behavior as a result of experience [12]. From a behaviorist perspective, learning is strengthened through practice, reinforcement, and immediate feedback. AI-based systems operationalize these principles by providing repeated drill, automatic error detection, and instant corrective feedback [13], [14]. These capabilities are directly relevant to teaching Qur'anic recitation and tajwīd, where phonetic accuracy is paramount and where speech-recognition systems have already been applied [4].

Cognitive theories conceptualize learning as the processing, encoding, storage, and retrieval of information across sensory, working, and long-term memory systems [12], [15]. Artificial intelligence supports these processes in several ways: it segments and sequences content adaptively, presents material in complementary auditory and visual modalities to reduce cognitive load, schedules review to strengthen retention, and builds learner models that diagnose knowledge gaps and prescribe targeted practice [13], [14]. In Qur'anic education, these affordances translate into personalized pathways for memorization, vocabulary acquisition, and the graded comprehension of verses.

Closely related is the notion of meaningful learning, according to which durable understanding arises when new material is anchored to concepts the learner already possesses [16]. AI-based knowledge graphs that connect verses, occasions of revelation (*asbāb al-nuzūl*), lexical information, and layers of exegesis make such relationships explicit, helping learners integrate new interpretive content with prior knowledge rather than memorizing it in isolation.

Finally, Gestalt theory holds that learning emerges from insight gained through perceiving the learning situation as an organized whole and through discovering relationships among its components [16]. Artificial intelligence can support the Gestalt principles of perceptual organization by visualizing the structure of a surah, mapping thematically related verses across the Qur'an, and aggregating multiple interpretations of a single topic into one coherent representation. This affordance is particularly relevant to thematic exegesis (*tafsīr mawdū'ī*), in which comprehension depends on grasping a topic as an integrated whole rather than as scattered fragments.

Taken together, these theoretical perspectives suggest that whether artificial intelligence genuinely improves Qur'anic education and interpretation

depends not only on technological capability, but on the conditions under which such capabilities are aligned with how humans learn and with the epistemic and ethical standards of Qur'anic scholarship. This framework guided the formulation of the research question and the interview protocol, and it is used in the Discussion section to interpret the three categories of requirements identified in the findings.

## **Literature Review**

### **Studies on Qur'anic Education and Interpretation**

Qur'anic education and its interpretation have long been subjects of scholarly attention, and numerous studies have been conducted in this field. Among them, Elahi [17] examined approaches to teaching Qur'anic interpretation in the Qom seminary over the last century and concluded that three methods—passive, semi-active, and active—have been the dominant instructional approaches. The dominant approach has been the passive method, primarily based on explanation and lecturing, while semi-active instruction (involving partial participation of learners) and active methods have received considerably less attention from seminary instructors during this period.

Masoomifard and Nouri Mohammadi Ahmadabadi [18], examining the components of Qur'anic literacy and prioritizing them for strengthening Qur'anic education in the university context based on e-learning, found a significant difference between faculty members and students regarding the components of understanding the meaning of phrases and verses, familiarity with the Holy Qur'an, and contemplation of the Qur'an. Both groups selected understanding the meaning of phrases and verses as their top priority, while learning and recitation were ranked higher than contemplation of Qur'anic verses.

Similarly, Zafari [19], who investigated the lived experiences of student teachers at Farhangian University in Qom regarding Qur'anic education through a qualitative approach, found that Qur'anic instruction can be categorized into five main themes: course resources and content, instructors, opportunities, challenges, and outcomes; subthemes included instructors' ethical conduct as an opportunity and the lack of course dynamism as a challenge. Safarzaei et al. [20], studying the current state of Qur'anic education at the elementary level, identified educational discontinuity in the Qur'anic curriculum as the central category, together with causal conditions (non-specialized perspectives on the Qur'anic curriculum), contextual conditions (environmental factors), facilitating and constraining elements, strategies, and outcomes (demotivation and lack of Qur'anic skill acquisition).

Zarnusheh Farahani [21], examining Qur'anic education in light of second-language learning, concluded that communicative methods are of critical importance: attention to listening skills, emphasis on meaning, and application of meanings in daily life closely align with the Prophet's (PBUH) approach of auditory-oral instruction and meaning-centered learning. Tayyebi [22] examined the methods of the Ahl al-Bayt (AS) in teaching the Qur'an and religious teachings to children, identifying recitation-centered, play-based, encouragement-based, role-model-based, practice-oriented, and motivation-based instruction as key approaches. Faghihi et al. [11] concluded that the objective of Qur'anic education at the elementary level is accurate and fluent recitation, understanding selected verses, and developing familiarity with the Qur'an, realized through content, goals, teachers, supporting institutions, assessment, instruction, management of societal Qur'anic affairs, and media. Finally, Akhavan Moghaddam and Pirayesh Moghaddam [23] showed that presenting a surah in diagrammatic form accompanied by colors concretizes educational concepts for learners and conveys a clear mental image of a surah's content.

### **International Research on Artificial Intelligence in Education**

Beyond the Iranian context, a substantial international literature has examined artificial intelligence in education (AIED). In a widely cited systematic review of 146 studies, Zawacki-Richter et al. [24] identified four broad application areas—profiling and prediction, intelligent tutoring systems, assessment and evaluation, and adaptive systems and personalization—while also noting a weak connection between AIED research and pedagogical theory and limited critical reflection on its ethical challenges. Chen et al. [16] reviewed the field and concluded that AI has measurably improved both instruction (e.g., customized content and tutoring) and educational administration. Hwang et al. [13] articulated the principal roles that AI can play in education—intelligent tutor, tutee, learning tool or partner, and policy advisor—and outlined a research agenda emphasizing interdisciplinary collaboration. Meta-analytic evidence likewise indicates generally positive effects of AI applications on learning achievement and learners' perceptions [25]. More recently, Kasneci et al. [26] analyzed the opportunities of large language models for personalized content generation and instructional support, while cautioning against risks of factual error ("hallucination"), bias, and learner over-reliance, and calling for new teacher competencies—concerns that are directly relevant to religious education, where textual accuracy is non-negotiable.

A smaller but growing body of work addresses AI-assisted religious and Qur'anic learning specifically. Muhammad et al. [4] developed E-Hafiz, an intelligent speech-processing system supporting Qur'an recitation and

memorization. Mohamed and Shokry [27] proposed QSST, a Qur'anic semantic search tool based on word embeddings that retrieves verses by meaning rather than exact wording. Abubakari et al. [28] provided a SWOT analysis of AI in Islamic religious education, identifying personalization and access as strengths and authenticity and ethics as central concerns, while Achruh et al. [29] documented the challenges and opportunities of AI adoption in Indonesian Islamic higher education, highlighting infrastructure, educator readiness, and ethical safeguards. Collectively, these studies demonstrate technical feasibility and institutional interest, but they are largely system-oriented or conceptual in character.

### **Research Gap and Novelty of the Study**

Reviewing these strands of literature reveals three gaps. First, existing Iranian studies of Qur'anic education concentrate on traditional pedagogy and curricula and have paid little attention to artificial intelligence and its capabilities. Second, the international AIEd literature is concentrated in secular domains and rarely engages the specific epistemic and ethical constraints that accompany the teaching of a sacred text, in which any distortion of content is unacceptable. Third, the emerging literature on AI in Islamic and Qur'anic learning consists mainly of tool development or conceptual analyses, rather than empirical investigations of what scholars and instructors themselves consider the necessary conditions for legitimate and effective use of AI. The present study addresses these gaps by providing, to the best of the authors' knowledge, the first phenomenological account of the requirements for using AI in Qur'anic education and interpretation as experienced by scholars with expertise in both Qur'anic studies and AI applications, and by organizing these requirements into a framework that connects Qur'anic pedagogy, educational technology, and artificial intelligence studies. The study's contribution is therefore both empirical—an interview-grounded taxonomy of requirements—and practical, offering actionable guidance to institutions, policymakers, and developers.

## Method

Considering the research objective of identifying the requirements for the use of artificial intelligence in Qur'anic education and interpretation from the perspectives of Islamic studies faculty members and Qur'an instructors in Fars Province, a qualitative research method was adopted, based on a phenomenological approach using Colaizzi's seven-step model [30]. This model consists of seven stages: conducting interviews and reviewing data, identifying significant statements, formulating meanings from significant statements, clustering concepts, developing exhaustive descriptions, summarizing the descriptions, and returning to participants for validation, followed by final validation and presentation of results.

The study population included all faculty members of Islamic studies, Qur'an, and Hadith departments at universities, as well as Qur'anic instructors, in Fars Province. Participants were selected through purposive and theoretical sampling, guided by the principle of theoretical saturation. Efforts were made to interview individuals who possessed rich knowledge and experience regarding artificial intelligence and its application in Qur'anic education and interpretation, as well as the willingness and ability to articulate their responses to the research questions [31]. In addition to possessing literacy in Qur'anic and Hadith education, participants were required to have familiarity with, and practical experience in, using artificial intelligence in this field.

To this end, prior to entering the main study, brief preliminary discussions were conducted between the researcher and potential participants to ensure their familiarity with artificial intelligence and their relative expertise in applying it to Qur'anic education and interpretation. Furthermore, before conducting the research, consultations were held with a group of Qur'anic and Hadith scholars and several artificial intelligence specialists to establish preliminary readiness for the study. This process provided valuable insights into interview strategies, emphasized critical aspects of the topic, and helped eliminate ambiguous questions.

Data were collected through in-depth, semi-structured interviews. The interview process involved posing questions while observing participants' considerations and preferences. The principal question was: "What are the components and subcomponents required for the use of artificial intelligence in Qur'anic education and interpretation?" Exploratory questions were then employed to identify conditions, factors, outcomes, and their relationships with Qur'anic education and interpretation. Throughout the interviews, ethical considerations were strictly observed, including explanation of the purpose and importance of the research, voluntary participation, confidentiality of

participants' identities and responses, and use of the findings solely to enhance the effective utilization of artificial intelligence in Qur'anic education and interpretation.

For data analysis, thematic analysis was employed. The trustworthiness of the data and findings was established based on the four criteria of transferability, dependability, credibility, and confirmability proposed by Lincoln and Guba, as described in [32]. Transferability refers to the potential applicability of findings to other contexts, while dependability reflects internal consistency and the researcher's methodological rigor [33]. These were pursued through controlling confounding factors, researcher diligence, and presenting selected interviews, concepts, and extracted themes to knowledgeable experts for validation. Credibility, which denotes clear and accurate representation of the phenomenon's structure and meaning [34], was supported through member checking in the final Colaizzi step. Confirmability, defined as the extent to which research findings can be corroborated by others [35], was pursued through data review, careful interpretation, and comparison with findings from previous studies.

The study sample consisted of ten faculty members of Islamic studies and Qur'anic instructors in Fars Province, whose demographic information is presented in Table 1.

**Table 1.** *Demographic Characteristics of Interviewees*

| Variable                                | Category           | Frequency | Percentage |
|-----------------------------------------|--------------------|-----------|------------|
| Age                                     | 25–35              | 2         | 20%        |
|                                         | 36–45              | 5         | 50%        |
|                                         | 45 and above       | 3         | 30%        |
| Gender                                  | Male               | 5         | 50%        |
|                                         | Female             | 5         | 50%        |
| Education level                         | Seminary education | 2         | 20%        |
|                                         | Master's degree    | 1         | 10%        |
|                                         | PhD                | 7         | 70%        |
| Experience with artificial intelligence | Less than 5 years  | 1         | 10%        |
|                                         | 5–10 years         | 2         | 20%        |
|                                         | More than 10 years | 7         | 70%        |
| Experience in teaching the Qur'an       | Less than 5 years  | 0         | 0%         |
|                                         | 5–10 years         | 4         | 40%        |
|                                         | More than 10 years | 6         | 60%        |
| Record of writing books or articles     | Active             | 7         | 70%        |
|                                         | Not active         | 3         | 30%        |

|                                              |                                   |   |     |
|----------------------------------------------|-----------------------------------|---|-----|
| Other activities in related institutions     | Mosques and religious bodies      | 2 | 20% |
|                                              | Department of Islamic Propagation | 1 | 10% |
|                                              | Seminaries                        | 3 | 30% |
|                                              | Schools                           | 4 | 40% |
| Target community of interviewees' activities | Children                          | 0 | 0%  |
|                                              | Teenagers                         | 2 | 20% |
|                                              | Youth                             | 7 | 70% |
|                                              | Middle-aged                       | 1 | 10% |

## Result

As previously noted, the research participants consisted of professors of Qur'anic sciences and Hadith as well as Qur'an education instructors. Based on the collected data, 80% of the participants were over the age of 35, and the number of male and female participants was equal. Most participants held advanced academic degrees, particularly PhDs, and had more than ten years of professional experience in the relevant field of Qur'an and Hadith education.

Following the interviews and simultaneous data collection, the process of analysis was initiated. Using the Colaizzi method, the components necessary for the application of artificial intelligence in Qur'an education and interpretation, from the perspective of professors of Qur'anic sciences and Hadith, were identified and categorized. Ultimately, through the integration of codes, concepts, and themes, the core category entitled "Requirements of Artificial Intelligence in Qur'an Education and Interpretation" was formed.

The constructed themes and concepts are based on the components and characteristics of artificial intelligence and the related actions associated with Qur'an education and interpretation. These themes were developed within three distinct domains: "Preliminary Requirements and Infrastructure," "Foundational and Principled Requirements," and "Technical and Operational Requirements." Many of the emerging concepts and themes across these domains exhibit semantic proximity and, in some cases, overlap; accordingly, they may function as prerequisites, companions, parallel elements, or even outcomes of other themes and concepts. The criterion for distinguishing the three domains was the nature, level of abstraction, and sphere of influence of the identified components. This tripartite structure provides a hierarchical framework for organizing the qualitative data: preliminary requirements and infrastructure constitute the prerequisites, foundational and principled requirements represent conceptual considerations, and technical requirements encompass capabilities and specifications related to operational performance.

The process of Qur'an teaching and learning and its interpretation includes all activities that result in relatively stable changes in an individual's knowledge, information, and skills, and can be explained on the basis of various learning theories. By presenting engaging visual representations of Qur'anic verses and their interpretations, artificial intelligence stimulates the learner's mind and prepares it for visualization, in line with cognitive learning theories: information is processed and stored in memory, and the integration of audio and visual media not only increases learning speed but also enhances retention. Furthermore, artificial intelligence is capable of analyzing learners' performance, identifying their strengths and weaknesses, and providing tailored exercises or informational content to facilitate deeper understanding of Qur'anic verses. This is because artificial intelligence can simultaneously integrate rational, transmitted, and experiential knowledge along with the scholarly tools required for understanding and explicating the Qur'an across various interpretive approaches, including rational and ijthadi interpretations.

Artificial intelligence fosters meaningful learning by presenting a structured set of information, concepts, principles, and generalizations, while establishing connections between new content and learners' prior knowledge. In addition, it can deliver content using diverse instructional methods tailored to learners' conditions. For instance, by simulating Qur'anic narratives and presenting diverse models, artificial intelligence can enrich the educational process and contribute to deeper learning. The use of software designed for correct Qur'anic recitation – providing rules of *tajwīd*, proper pronunciation, and fluent reading – represents a simple yet practical application of this technology. Moreover, Qur'anic education through artificial intelligence can offer a richer presentation than unaided human instruction by establishing relationships through diagrams, tables, and visual representations of Qur'anic words and phrases, as well as by providing simultaneous recitation and translation in multiple languages.

Following the analysis of the interviews, three main themes, eight subcategories, forty-five sub-concepts, and more than sixty overarching concepts and evidentiary statements were identified regarding the requirements for benefiting from artificial intelligence in the education and interpretation of the Holy Qur'an. Some of these overarching concepts and evidences are presented in Table 2. Concepts, categories, and themes may overlap in certain sections; this overlap results from the interconnection of human-related factors, which are not confined to a single domain, and is rooted in the holistic perspectives of the participants, who tend to articulate requirements not as isolated elements but as parts of an interconnected system.

**Table 2.** *Requirements for the Use of Artificial Intelligence in Qur'an Education and Interpretation*

| Main categories                             | Subcategories                                   | Sub-concepts                                                                                                                                                                                                                           | General concepts and evidence                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Preliminary requirements and infrastructure | Conditions and prerequisites                    | Goals; accessibility; infrastructure and internet quality; ethics, interest, and standards; conditions of use and institutional cooperation; cultural considerations; development of a culture of technology use in religious contexts | AI knowledge and skills; ease of access; organization of Qur'anic data; collection of and access to various recitations, interpretations, and translations; training and familiarity of instructors; information and data security; data credibility and reliability; adherence to professional ethics; consideration of cultural conditions; proper identification of sources; role modeling; culture-building; cautious and conscious action |
|                                             | Creativity and innovation                       | Motivation enhancement and interactive learning; blended learning and instructional diversity; content production and imagination stimulation                                                                                          | Multimedia content; interactive platforms; diverse instructional methods; emphasis on creativity and idea generation; personalization of learning experiences; multilingual support; sharing of findings; goal setting and commitment; monitoring emerging opportunities; utilization of mobile-device capabilities; future-oriented monitoring                                                                                                |
|                                             | Vision and outlook                              | Planning; flexibility                                                                                                                                                                                                                  | Goal definition; commitment; monitoring and evaluation; identification of future trends                                                                                                                                                                                                                                                                                                                                                        |
| Foundational and principled requirements    | Cognitive, attitudinal, and performance factors | Attention to audience level and target community                                                                                                                                                                                       | Accurate audience analysis; awareness of learners' levels; adherence to Islamic values; positive interaction; encouragement of participation; sensitivity awareness; accountability and responsiveness                                                                                                                                                                                                                                         |

|                                        |                                   |                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                        | Prudent actions                   | Specialization and continuous evaluation; intelligent actions and technical support                                  | Utilization of AI specialists; strategic and operational planning; inter-program communication; institutional support; updated and needs-based content                                                                                                                                                                                                                                                   |
| Technical and operational requirements | Adherence to principles and rules | Respect for the Qur'an and accuracy of information; observance of intellectual property rights and quality assurance | Careful selection of applications; content validation; prevention of Qur'anic distortion; respect for reciters, translators, and exegetes; use of authoritative sources; quality assurance and control; tolerance for failure and risk-taking                                                                                                                                                            |
|                                        | Support and supervision           | Laws, regulations, and awareness-raising; allocation of necessary funding; monitoring and inspection                 | Establishment of supervisory and expert bodies; legal and regulatory frameworks; standard-setting; protection of privacy; transparency; attention to feedback; joint and interactive training; collaborative networks; international interaction; specialized workshops; expert consultation; research and exchange groups; information banks; advisory working groups; online public-expert interaction |
|                                        | Interaction and cooperation       | Communication networks; international interaction                                                                    | Public participation; family involvement; expert participation; exchange of successful experiences; cooperation with public and local institutions                                                                                                                                                                                                                                                       |

In what follows, the main categories, along with their themes and concepts, are examined.

### 1. Preliminary Requirements and Infrastructure

One of the fundamental requirements for the effective utilization of artificial intelligence in the education and interpretation of the Holy Qur'an is attention to a set of preliminary requirements and infrastructural foundations. By preliminaries and infrastructure, this study refers to the factors, conditions, and contextual grounds related to creativity, innovation, and the existence of a

clear vision and outlook, which must be taken into consideration by instructors and educators. Achieving success in this area requires clear goal setting, along with the provision of infrastructures such as enhanced internet bandwidth, while simultaneously observing cultural and social standards and considerations. Moreover, motivation, careful attention to the growing power of artificial intelligence in the contemporary world, and systematic planning through the development of strategic documents and vision statements – tailored to local and indigenous characteristics – are essential for success in this domain.

In Qur'anic education and interpretation, attention to correct recitation, comprehension of verses, familiarity with occasions of revelation (*asbāb al-nuzūl*), and exegetical understanding are among the key aspects that can be effectively addressed through artificial intelligence. Topics such as the history of the Qur'an, the revelation of verses, Qur'anic inimitability (*i'jāz*), awareness of Qur'anic teachings, and the methodology of interpretation can also be incorporated. It is therefore necessary to recognize and provide the required infrastructures and elements in order to benefit from the potential of artificial intelligence in this field.

Furthermore, accurate identification of sources and adherence to professional ethics constitute one of the most important concepts emphasized by respondents as part of the preliminary and infrastructural requirements. Although artificial intelligence is capable of simultaneously presenting multiple interpretations, engaging interactively with learners, and facilitating dialogue and discussion in Qur'anic instruction, it is also susceptible to error. Consequently, most respondents believed that while artificial intelligence can be highly beneficial in Qur'anic education and interpretation, it also possesses a significant potential for distortion or misrepresentation of Qur'anic truths; careful attention must therefore be paid to the credibility of sources and the validity of outputs. In this regard, one respondent stated:

*"Although access to artificial intelligence and its level of creativity and innovation in visualizing Qur'anic narratives, and even imitating the voices of reciters, is considerable, it must be noted that artificial intelligence also has the capacity to distort Qur'anic teachings and interpretations and provide incorrect information to the audience. Therefore, Qur'anic instructors and scholars must exercise great caution and vigilance in this matter"*  
(Respondent No. 2).

Another respondent emphasized that the integration of artificial intelligence through mobile devices represents a unique opportunity for teaching

and learning correct recitation and understanding Qur'anic interpretation, enabling personalized learning:

*"In my opinion, perhaps the most important feature of artificial intelligence in education is the personalization of the learning process. This allows us to avoid offering a single standardized model for teaching value-based matters such as Qur'anic recitation, enabling each individual to adopt a learning approach tailored to their own needs" (Respondent No. 6).*

Another respondent, after sharing several experiences of personalizing learning, noted:

*"Motivation and enthusiasm are everything; all the successful cases in my experience are due to the presence of motivation in my learners, because the enthusiasm of an individual when facing new things that activate the mind creates joy in education" (Respondent No. 4).*

Personalized learning and ease of access to various recitations and interpretations through artificial intelligence constitute a new educational process, exemplified by chatbots embedded in messaging platforms, which are largely accessible to the general public. Such tools appear particularly suitable for educational and ethical interpretations, assisting learners in these domains.

## **2. Foundational and Principled Requirements**

Another essential requirement for the use of artificial intelligence in Qur'anic education and interpretation is attention to a set of foundational principles, including cognitive, attitudinal, and behavioral factors, alongside prudent and deliberate actions. Diverse evidence indicates that the successful application of modern technologies across different fields requires the development of knowledge, attitudes, and, ultimately, behavior. Learning theories emphasize systematic and stable changes in individuals' knowledge, cognition, attitudes, and performance through credible and coherent resources.

Accordingly, sensitivity awareness, accountability, specialization, intelligent and calculated action, and professional and technical support for artificial intelligence and its users in Qur'anic education and interpretation must be carefully considered. Moreover, what is essential in AI-based Qur'anic education and interpretation is the capacity of artificial intelligence to simultaneously integrate cognitive, visual, and perceptual processes by establishing meaningful connections among diverse Qur'anic topics. In simple terms, artificial intelligence functions as a facilitator of Qur'anic education and interpretation, possessing a high capacity to employ appropriate approaches in teaching recitation, fluent reading, contemplation of verses, and enhancement of learning motivation.

Since every Muslim, in order to understand the Qur'an and its teachings, must be able to recite it correctly and comprehend its meaning – thus possessing adequate knowledge and insight into the Qur'an [1] – this requirement must also be considered in the use of artificial intelligence for Qur'anic education and interpretation, and AI-based programs and applications should comprehensively address these dimensions. Most respondents similarly emphasized the necessity of adopting an integrated cognitive, attitudinal, and behavioral perspective in AI-based Qur'anic education. For instance, Respondent No. 3 stated:

*"When we want to teach the Qur'an to an individual, they must first be able to read it properly and be familiar with recitation rules and tajwīd. After that, they should develop an appropriate outlook toward the Qur'an and apply it in their lives alongside continuous recitation, and ultimately reform their lifestyle based on what they have learned from the Qur'an" (Respondent No. 3).*

Another respondent stated:

*"Recognizing the characteristics of the audience and encouraging them based on their strengths, if accompanied by providing up-to-date content tailored to their needs, is definitely useful in the context of the Qur'an" (Respondent No. 5).*

Artificial intelligence in Qur'anic recitation and interpretation has the capacity to recite the Qur'an in different languages and even various Arabic dialects, providing culturally and linguistically appropriate recitation, translation, and interpretation for diverse audiences. Additionally, it can simultaneously present multiple interpretations of a verse or surah and explain the relationships among them.

### **3. Technical and Operational Requirements**

A further necessary aspect of employing artificial intelligence in Qur'anic education and interpretation is the implementation of technical and operational measures, which include adherence to principles and regulations, support and supervision, and interaction and cooperation. Accordingly, allocating sufficient funding by relevant authorities, establishing communication networks, engaging in international cooperation, involving families and various institutions, and benefiting from experts in information and communication technology – particularly artificial intelligence specialists – alongside Qur'anic and Hadith scholars for experience exchange, supervision, and inspection are essential requirements.

Undoubtedly, providing the necessary preliminaries and infrastructures and observing foundational principles for the successful implementation of

artificial intelligence in Qur'anic education requires adequate resources and financial support. Effective execution of this initiative also necessitates participation at all levels – from families and local communities to national and international Muslim collaborations.

Given recent advancements in teaching and learning and the diversity of instructional methods, it is necessary to utilize efficient, rapid, and high-impact approaches for teaching Qur'anic concepts and interpretation, including the use of media and software [36] and interdisciplinary collaboration. Through personalized AI-based learning and increased interactive instruction, practical learning of Qur'anic recitation and comprehensive interpretation can be enhanced. Many respondents emphasized the importance of interdisciplinary collaboration alongside Qur'anic educators, stressing family involvement, cooperation among IT and AI specialists, and – most importantly – verification of the accuracy and validity of AI-generated information. For example, Respondent No. 7 stated:

*“For AI-based Qur'anic education and interpretation – which can teach recitation, present Qur'anic stories through engaging animations, and offer interpretations appropriate to different age groups – collaboration among specialists from various fields and scientific exchange is essential. However, without family involvement and a collective movement starting from families and extending to local, national, and even international levels, this effort will not achieve significant success” (Respondent No. 7).*

Another respondent stated:

*“For greater productivity and deeper impact, there must be continuous engagement with new technologies; new training courses in the form of workshops that can encourage new plans and ideas can have a significant impact if they are accompanied by diagnosing weaknesses and strengthening strengths” (Respondent No. 10).*

## Discussion

The present study aimed to examine the requirements for the use of artificial intelligence in Qur'anic education and interpretation from the perspectives of Qur'anic and Hadith scholars and Qur'an educators, based on interviews analyzed through Colaizzi's phenomenological method and thematic analysis. Analysis of the interview data resulted in the identification of three main categories – preliminary requirements and infrastructure, foundational and principled requirements, and technical and operational requirements – along with eight subcategories, forty-five sub-concepts, and over sixty overarching concepts, centered around the core category of “Requirements of Artificial

Intelligence in Qur'anic Education and Interpretation." The core finding is that utilizing artificial intelligence in value-based and religious education necessitates specific prerequisites; without addressing these, achieving optimal outcomes is unlikely. Given the conceptual overlap across the three domains, effective application of artificial intelligence in Qur'anic education requires their simultaneous fulfillment.

The first category, preliminary requirements and infrastructure, indicates that technological affordances presuppose material, informational, and cultural groundwork: reliable connectivity, organized and accessible Qur'anic data (recitations, translations, and exegeses), trained instructors, and a culture that legitimizes the use of technology in religious contexts. This finding echoes Safarzaei et al. [20], who identified environmental and contextual conditions as decisive for Qur'anic curricula, and Faghihi et al. [11], who highlighted the role of supporting institutions and media. It is also consistent with the international literature: adaptive and personalized AI systems presuppose data infrastructures and institutional readiness [24], and studies of Islamic higher education identify infrastructure and educator readiness as primary bottlenecks of AI adoption [29]. In terms of the theoretical framework, infrastructure is the precondition that allows the cognitive affordances of AI—personalization, feedback, and multimodal presentation—to operate at all [13], [14].

The second category, foundational and principled requirements, foregrounds cognitive, attitudinal, and behavioral factors: accurate audience analysis, awareness of learners' levels, adherence to Islamic values, and prudent, specialized action. This aligns with learning theories that describe education as a systematic change in knowledge, attitude, and performance [12], [16], and with evidence that attitudes toward artificial intelligence shape its empowering effects on learners [9]. The participants' insistence that learners must first read correctly, then understand, and finally apply the Qur'an in their lives parallels the priority that faculty members and students assign to understanding the meaning of verses in Qur'anic literacy [18], and reflects the logic of meaningful learning, in which new interpretive content must be anchored to the learner's existing knowledge and level [16]. The recurring emphasis on personalization in the interviews corresponds directly to the adaptive-learning affordances documented in the AIED literature [13], [14], [24], [25].

The third category, technical and operational requirements, concentrates on the accuracy and integrity of content: careful selection and validation of applications, prevention of Qur'anic distortion, use of authoritative sources, supervision, regulation, and interdisciplinary cooperation. These concerns resonate strongly with recent analyses of large language models, which identify factual error, bias, and over-reliance as principal risks of generative AI in

education [26], and with technical research demonstrating that semantic fidelity to the Qur'anic text is an exacting engineering problem [27]. They likewise correspond to the ethical cautions raised in reviews of AIEd [24] and in analyses of AI in Islamic religious education [28]. Notably, whereas the mainstream AIEd literature tends to foreground achievement gains, the participants of this study foregrounded epistemic and ethical safeguards; this difference plausibly reflects the sacred and non-negotiable character of the Qur'anic text, and constitutes one of the distinctive contributions of studying AI in a religious educational domain.

The findings also speak to the pedagogy of tafsir. Elahi [17] showed that the dominant method of teaching Qur'anic exegesis over the last century has been passive lecturing. The interactive, dialogic, and personalized affordances identified by the participants suggest that – provided the identified requirements are met – artificial intelligence could support a shift toward semi-active and active methods, in line with the communicative, meaning-centered approach advocated by Zarnusheh Farahani [21] and the motivational, learner-centered methods described by Tayyebi [22]. Furthermore, AI's capacity to aggregate interpretations, visualize the structure of surahs, and connect thematically related verses offers holistic representations of Qur'anic themes consistent with Gestalt principles of perceptual organization [16], and extends earlier work on diagrammatic and color-based teaching of Qur'anic concepts [23], [36]. Overall, achieving the objectives of AI-based Qur'anic education and interpretation requires precise alignment among innovative infrastructures, foundational principles, and technical execution: emphasis on cognitive and attitudinal factors serves as the driving force for transforming technical infrastructures into credible and actionable educational and interpretive outputs.

## **Practical Implications**

The identified requirements translate into concrete recommendations for four groups of stakeholders. For educational institutions and Qur'anic centers, the findings suggest beginning with small-scale pilot programs – for example, AI-assisted recitation feedback or chatbot-based review of verse meanings – embedded within blended courses in which the human instructor retains interpretive authority; establishing in-service training and workshops that build instructors' AI literacy; and conducting systematic audience analysis so that content is matched to learners' ages and levels.

For policymakers, the findings imply the need to fund and develop the required infrastructure (connectivity and organized digital corpora of authenticated recitations, translations, and exegeses); to establish standards and an accreditation or validation mechanism – drawing on committees of qualified exegetes and AI specialists – for AI applications that present Qur'anic content;

and to enact regulatory frameworks that address data security, privacy, and intellectual property rights of reciters, translators, and exegetes.

For technology developers, the requirements imply grounding systems in verified and authoritative sources with transparent source attribution for every output; incorporating human-in-the-loop review by Qur'anic scholars before content is released; providing multilingual support and personalization features; and creating feedback channels through which scholars and users can report errors so that the risk of distortion is continuously reduced.

Finally, for families and local communities, the findings emphasize participation and culture-building: familiarizing families with reliable AI tools, encouraging supervised use by children and adolescents, and connecting home practice with mosque-, school-, and seminary-based Qur'anic instruction.

### **Limitations of the Study**

Several limitations should be weighed when interpreting these findings. First, the study relied on ten participants drawn from a single geographical region (Fars Province, Iran). While this is consistent with the depth-oriented logic of phenomenological inquiry and with the principle of theoretical saturation, it inevitably restricts the transferability of the findings: the perspectives of scholars operating in a predominantly Iranian, Shi'a academic and seminary context may differ from those of scholars in other regions, educational systems, or schools of Islamic thought, whose exegetical traditions and institutional arrangements vary. Readers should therefore treat the requirement framework as a transferable starting point—to be judged against their own contexts using the thick description provided—rather than as a generalizable inventory. Second, because participation required prior familiarity with artificial intelligence, the purposive sample may over-represent technologically engaged scholars and thereby understate the concerns of skeptical or less experienced educators. Third, the data consist of self-reported perceptions rather than observations of actual AI-supported instruction, so the requirements identified are normative expectations rather than tested causal conditions. Fourth, artificial intelligence is evolving rapidly; the requirements articulated here are tied to the current generation of tools and will need periodic revalidation as capabilities and risks change. Future research should accordingly pursue multi-site and cross-country comparative designs, include scholars from diverse schools of thought, employ mixed methods and Delphi techniques to validate and weight the identified requirements, develop quantitative instruments based on the present framework, and conduct design-based and experimental evaluations of concrete AI tools in real Qur'anic classrooms.

## Conclusion

This study set out to answer a single question: what are the most important requirements for using artificial intelligence in the teaching and interpretation of the Holy Qur'an? Drawing on the lived experience of scholars who combine expertise in Qur'anic studies with practical familiarity with artificial intelligence, it answers that question with an empirically grounded, three-part framework: infrastructural and preliminary requirements that make AI use possible, foundational and principled requirements that make it pedagogically and religiously sound, and technical and operational requirements that make it trustworthy and sustainable.

The theoretical contribution of the study is twofold. First, it extends learning-theoretical accounts of AI in education – behaviorist feedback, cognitive information processing, meaningful learning, and Gestalt organization – into the domain of sacred-text education, showing how each theoretical affordance of AI corresponds to a concrete opportunity in Qur'anic recitation, comprehension, and exegesis. Second, it demonstrates that in value-laden religious education these affordances are conditional: participants consistently subordinated the benefits of personalization, interactivity, and holistic representation to epistemic and ethical safeguards against the distortion of the sacred text. In this respect, the study adds a dimension that is largely absent from the mainstream AIED literature.

The practical significance of the framework is that it offers actionable criteria for educational institutions, Qur'anic centers, policymakers, and technology developers, as elaborated in the practical implications above. AI-based Qur'anic education and interpretation is not a temporary or unplanned endeavor but a continuous process requiring sustained resources, principled foundations, and consistent support and supervision. As artificial intelligence continues to expand its presence in education, the requirements identified here provide criteria by which its use in Qur'anic education and interpretation can remain simultaneously effective, ethically responsible, and faithful to the integrity of the Qur'anic text. Future developments – particularly the evaluation of concrete AI tools against this framework in real instructional settings – will determine how far this potential is realized.

## Author Contributions

**Mohammad Sharifani:** Conceptualization, Methodology, Writing – review & editing, Supervision, Project administration. **Nasrin Alavinia:** Methodology, Writing – review & editing, Investigation. **Kerwanto:** Conceptualization, Methodology, Writing – review & editing, Investigation. **Cipta Bakti Gama:** Conceptualization, Methodology, Writing – review & editing, Investigation. **Akmal Kamil:** Conceptualization, Methodology, Writing – review & editing, Investigation.

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The authors declare no conflicts of interest.

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