Alibbaa': Jurnal Pendidikan Bahasa Arab
Special Issue Vol. 01 2026
P-ISSN: 2721-1606 | E-ISSN: 2716-4985
doi:

A Conceptual Framework of Arabic Reading Skills in Qur'anic Memorization: Integrating Philosophy of Science and AI-Assisted Learning

Riza Egy Ramadhani[1], Oktavia Ratnaningtyas[2], M. Yunus Abu Bakar[3], Tharwah Attia[4]
[1,2]Institut Agama Islam Bani Fattah, Indonesia
[3] Universitas Islam Negeri Sunan Ampel Surabaya, Indonesia
[4]Beijing Foreign Studies University, China
Corresponding E-mail: rizaegyramadhani@gmail.com

Abstract

This study addresses the tendency in Qur'anic learning research to separate reading skills (*maharah qira'ah*) and memorization, without integrating them within a philosophy of science framework. In addition, the use of Artificial Intelligence (AI) remains largely technical. This study aims to construct a conceptual framework integrating reading and memorization from ontological, epistemological, and axiological perspectives, and to explore AI-assisted learning as a supporting approach. A qualitative systematic literature-based conceptual design was employed using thematic analysis and conceptual synthesis. The findings indicate that reading functions ontologically as a meaning-making process, epistemologically as a mechanism of knowledge construction through encoding, storage, and retrieval, and axiologically as a means to improve memorization quality in terms of accuracy, retention, and efficiency. AI integration strengthens these processes through real-time feedback and adaptive learning, enabling an integrated learning cycle between reading and memorization. This study contributes a conceptual framework linking reading, memorization, and technology within a unified epistemic system.

Keywords: *Arabic reading skills, Qur'anic memorization, philosophy of science, AI-assisted learning, cognition*

Abstrak

Penelitian ini dilatarbelakangi oleh kecenderungan kajian pembelajaran Al-Qur'an yang masih memisahkan keterampilan membaca (maharah qira'ah) dan hafalan, serta belum mengintegrasikannya dalam kerangka filsafat ilmu. Selain itu, pemanfaatan Artificial Intelligence (AI) masih terbatas pada aspek teknis. Penelitian ini bertujuan mengkonstruksi kerangka konseptual yang mengintegrasikan qira'ah dan hafalan dalam perspektif ontologis, epistemologis, dan aksiologis, serta mengeksplorasi peran AI sebagai pendekatan pendukung. Penelitian menggunakan pendekatan kualitatif dengan desain systematic literature-based conceptual study melalui analisis tematik dan sintesis konseptual. Hasil menunjukkan bahwa qira'ah secara ontologis merupakan proses pemaknaan teks, secara epistemologis berperan dalam pembentukan pengetahuan melalui encoding, storage, dan retrieval, serta secara aksiologis meningkatkan kualitas hafalan dalam aspek akurasi, retensi, dan efisiensi. Integrasi AI memungkinkan penguatan proses tersebut melalui umpan balik real-time dan pembelajaran adaptif, sehingga membaca dan hafalan terintegrasi dalam satu siklus pembelajaran. Penelitian ini menawarkan kerangka konseptual yang menghubungkan membaca, hafalan, dan teknologi dalam satu sistem epistemik.

Kata Kunci: *maharah qira'ah, hafalan Al-Qur'an, filsafat ilmu, AI-assisted learning, kognisi*

Introduction

Language as a symbolic system plays a fundamental role in human cognitive processes, particularly in understanding and processing information.[1] In the context of Arabic language learning, reading skills (*maharah qira'ah*) serve as the primary foundation for accessing texts and constructing comprehension based on linguistic structure and meaning.[2]

From a language learning perspective, reading is not merely a receptive activity but also a cognitive process involving decoding, comprehension, and meaning integration. Proficient reading enables learners to recognize grammatical patterns, understand relationships

[1] Aziz Amen, Mustafa, and Hourakhsh Ahmad NIA. "The Effect of Cognitive Semiotics on The Interpretation of Urban Space Configuration." *Proceedings Article*, 2021, 260–74. https://doi.org/10.38027/ICCAUA2021227n9.

[2] Khuluq, Muchsinul, and Nurul Imamah. "Enhancing Arabic Reading Skills: A Prezi Program-Based Learning Material Development for Integrated Islamic Elementary Schools in Indonesia." *Journal of Arabic Language Learning and Teaching (JALLT)* 2, no. 1 (March 2024): 33–58. https://doi.org/10.23971/jallt.v2i1.157.

between words, and construct mental representations of texts. Ontologically, reading in the context of Arabic, particularly the Qur'an, is not limited to engaging with text as a linguistic object, but also involves encountering it as a complex and multilayered representation of meaning that requires deep cognitive and interpretative engagement.[3]

The intensive interaction between learners and Qur'anic text through reading does not stop at comprehension but extends to internalization, one of which manifests in memorization (*tahfidz*). In practice, many learners encounter challenges in maintaining memorization quality, such as errors in recalling verse sequences, confusion between verses with similar structures (*musyabihat*), and weak long-term retention.[4] These challenges indicate that memorization quality is not solely determined by repetition frequency, but also by the quality of underlying linguistic processing, particularly through reading skills.

Scientifically, memorization involves cognitive mechanisms such as encoding, storage, and retrieval within the memory system. In this regard, *maharah qira'ah* functions as the primary gateway in the encoding process, where linguistically understood information is more effectively stored and retrieved. Mastery of grammatical structures, vocabulary, and phonological accuracy contributes to clearer mental representations, ultimately strengthening memorization quality.[5]

From the perspective of the philosophy of science, the relationship between reading skills and Qur'anic memorization cannot be reduced to a functional link between skill and learning outcomes; rather, it constitutes a more fundamental epistemic relationship. Ontologically, reading is not merely the recognition of symbols but a process of bringing meaning into the learner's consciousness. Epistemologically, understanding acquired through reading forms the

---

[3] Aflisia, Noza, Hendrianto, and Kasmantoni. "Teaching Balaghah for the Purpose of Appreciation of Al-Quran Language." *Lughawiyyat: Jurnal Pendidikan Bahasa Dan Sastra Arab* 4, no. 2 (June 2022): 156–72. https://doi.org/10.38073/lughawiyyat.v4i2.537.

[4] Mu'azah Md. Aziz, Wan Mahani Abdullah, Ainul Maulid Ahmad, Mohd. Aswad Amat Mushim, and Muhammad Shahrizan Shahrudin. "Comparison between Conventional Method and Modern Technology in Al-Qur'an Memorization." *International Journal of Recent Technology and Engineering (IJRTE)* 8, no. 1 (2019): 289–94.

[5] Ayyad, Essam. "Re-Evaluating Early Memorization of the Qurʾān in Medieval Muslim Cultures." *Religions* 13, no. 2 (February 2022): 179. https://doi.org/10.3390/rel13020179.

structure of knowledge that underpins internalization and memory storage. Axiologically, reading skills hold strategic value in ensuring the quality, accuracy, and sustainability of memorization. Thus, reading and memorization should not be viewed as separate activities but as an integrated scientific process that mutually reinforces knowledge construction.

Previous studies have demonstrated that language skills are closely related to learning effectiveness and memory retention. Perfetti and Stafura, in psycholinguistic research, emphasize that reading ability and linguistic comprehension play a crucial role in encoding and retrieval processes.[6] In the context of Arabic, studies have also indicated that reading proficiency contributes significantly to improving the accuracy, fluency, and durability of Qur'anic memorization.[7] Furthermore, philosophical studies in education highlight that learning is not merely about the accumulation of information, but about how knowledge is constructed and meaningfully interpreted by learners.[8] This aligns with Buchanan's view that education is a praxis imbued with ethical and reflective dimensions, where learning processes are inseparable from values, relationships, and contextual meaning. Accordingly, reading should be understood not only as a linguistic process but also as an epistemological activity and an educational praxis embedded with values.[9] However, these studies remain largely partial and have not yet integrated linguistic, cognitive, and philosophical dimensions within a comprehensive analytical framework. This gap indicates the need for a more systematic and philosophically grounded approach to understanding the relationship between reading and memorization.

---

[6] Perfetti, Charles, and Joseph Stafura. "Word Knowledge in a Theory of Reading Comprehension." *Scientific Studies of Reading* 18, no. 1 (January 2014): 22–37. https://doi.org/10.1080/10888438.2013.827687.

[7] Dermayani, Nur Zakiah Harahap, and Fatma Yulia. "Contribution of Maharah Qira'ah Learning in Memorizing the Qur'an for Class IX Students of Mts. Pondok Pesantren Tahfidz Darul Qur'an Deli Serdang." *International Journal of Arabic Language Teaching* 7, no. 01 (June 2025): 176–92. https://doi.org/10.32332/ijalt.v7i01.10767.

[8] Zembylas, Michalinos. "The Affective Dimension Of Epistemic Injustice." *Educational Theory* 72, no. 6 (December 2022): 703–25. https://doi.org/10.1111/edth.12554.

[9] Buchanan, Rachel Anne, Daniella Jasmin Forster, Samuel Douglas, Sonal Nakar, Helen J. Boon, Treesa Heath, Paul Heyward, et al. "Philosophy of Education in a New Key: Exploring New Ways of Teaching and Doing Ethics in Education in the 21st Century." *Educational Philosophy and Theory* 54, no. 8 (July 2022): 1178–97. https://doi.org/10.1080/00131857.2021.1880387.

On the other hand, the development of Artificial Intelligence (AI)-based learning technologies offers new opportunities to support language learning and memorization processes. Studies by Zawacki-Richter and others show that AI can enhance learning effectiveness through adaptive systems, performance analytics, and automated feedback.[10] Technologies such as speech recognition enable real-time pronunciation assessment, while generative AI models facilitate interaction and personalization in language learning.[11] Nevertheless, the application of AI in Qur'anic learning, particularly in integrating reading skills and memorization, remains underexplored within a systematic theoretical framework.

Based on these considerations, a research gap emerges in the absence of an integrative conceptual framework that examines the role of *maharah qira'ah* in Qur'anic memorization from ontological, epistemological, and axiological perspectives, while simultaneously linking it to the potential of AI-assisted learning. Therefore, this study aims to construct a conceptual framework that integrates Arabic reading skills with Qur'anic memorization through a philosophy of science approach. In addition, this study explores how AI-assisted learning can function as a complementary approach to strengthen this integration.

To achieve these objectives, this study is guided by two main research questions: (1) How can *maharah qira'ah* be conceptualized within the framework of the philosophy of science (ontological, epistemological, and axiological) in relation to the quality of Qur'anic memorization? (2) How can AI-assisted learning be integrated as a complementary approach to strengthen the relationship between Arabic reading skills and the quality of Qur'anic memorization?

Method

This study employs a qualitative approach using a systematic literature-based conceptual study design aimed at constructing a conceptual framework on the role of maharah qira'ah in the quality of Qur'anic memorization. This approach was selected to systematically

[10] Zawacki-Richter, Olaf, Victoria I. Marín, Melissa Bond, and Franziska Gouverneur. "Systematic Review of Research on Artificial Intelligence Applications in Higher Education – Where Are the Educators?" *International Journal of Educational Technology in Higher Education* 16, no. 1 (December 2019): 39. https://doi.org/10.1186/s41239-019-0171-0.

[11] *Artificial Intelligence in Society*. OECD Publishing, 2019. https://doi.org/10.1787/eedfee77-en.

integrate various theoretical and empirical findings and to analyze them within a philosophy of science framework encompassing ontological, epistemological, and axiological dimensions. In addition, this study incorporates perspectives on AI-assisted learning to examine the potential of technological integration in strengthening the relationship between reading skills and memorization processes.

Data Sources

The data were obtained from scholarly literature indexed in international databases, including Scopus, Web of Science, and Google Scholar. The search process employed combinations of keywords such as "Arabic reading skills," "maharah qira'ah," "Qur'anic memorization," "language and memory," and "AI-assisted learning in education." The literature search was limited to publications from 2019 to 2025 to ensure the relevance and recency of the review.

Inclusion and Exclusion Criteria

The analyzed literature was selected based on the following inclusion criteria: (1) articles published in peer-reviewed journals; (2) studies related to reading skills, Arabic language learning, Qur'anic memorization, or language cognition; and (3) research addressing the integration of technology or Artificial Intelligence in learning as a supporting perspective. The exclusion criteria included: (1) non-scholarly publications or those not subjected to peer review; (2) literature not directly relevant to the focus of the study; and (3) articles lacking methodological clarity.

Data Analysis Procedure

Data were analyzed using thematic analysis and conceptual synthesis. The analytical procedures involved: (1) literature identification, namely the collection and selection of relevant studies; (2) thematic classification, which grouped the literature into key themes such as reading skills, cognitive processes, memorization, and AI-based learning; (3) conceptual synthesis, involving the integration of these findings within a philosophy of science framework encompassing ontological, epistemological, and axiological aspects; and (4) interpretation, which examined the interrelationships among concepts to construct a comprehensive conceptual framework.

Validity and Trustworthiness

The validity of the data was ensured through source triangulation by comparing multiple references from scholarly journals, academic books, and prior research findings. In addition, analytical consistency

was maintained through a systematic literature selection process and the application of a clear and structured theoretical framework.

Results and Discussion

Ontological Dimension

Based on the analysis of selected literature, reading skills in language learning are not merely understood as technical abilities to recognize linguistic symbols, but also as processes involving cognitive and interpretative meaning construction. Through thematic classification, the reviewed literature consistently positions reading as an activity that connects textual structures with learners' comprehension.[12]

The synthesis indicates that *maharah qira'ah* can be ontologically conceptualized as a process of bringing meaning from the text into the reader's consciousness. In this context, reading is not only related to text as a linguistic object but also as a meaningful entity that interacts with the reader's cognitive structure. Thus, reading reflects an ontological relationship between text, meaning, and consciousness.

In the context of the Qur'an, this ontological dimension exhibits a more complex character. The analyzed literature suggests that Qur'anic text contains layered structures that are not only linguistic but also semantic and rhetorical. For example, in the verse *"إِيَّاكَ نَعْبُدُ وَإِيَّاكَ نَسْتَعِينُ"* (Qur'an 1:5), the linguistic structure demonstrates *taqdim* (foregrounding of the object "إِيَّاكَ") which grammatically functions to emphasize exclusivity. Semantically, this structure does not merely convey "we worship You," but asserts the concept of *tawhid* through restriction (حصر), indicating that worship is directed solely to Allah. Rhetorically, the repetition of "إِيَّاكَ" creates an effect of emphasis and depth of meaning, strengthening the spiritual and emotional dimensions experienced by the reader.

This illustration demonstrates that a single unit of Qur'anic text contains meaning not only at the lexical level but also at structural and compositional levels that interact to form a unified meaning. Therefore, reading in this context is not a linear process of recognizing words but a multidimensional process in which learners simultaneously process phonological, grammatical, semantic, and rhetorical aspects. In this process, meaning is not simply extracted from the text but actualized through active interaction between the text and the reader's

[12] Schmid, Hans-Jörg. *The Dynamics of the Linguistic System*. Oxford University Press, 2020. https://doi.org/10.1093/oso/9780198814771.001.0001.

consciousness. This reinforces the position of *qira'ah* as an ontological process that brings the text into reality as meaning within the learner's cognitive experience.

Furthermore, the analysis shows that readers function as active subjects rather than passive recipients of information. The interaction between textual structure and cognitive structure produces specific mental representations that serve as the basis for internalizing information.[13] In this regard, *maharah qira'ah* serves as the foundational mechanism in establishing the relationship between text and knowledge.

In relation to Qur'anic memorization, the synthesis reveals that memorization quality is influenced by the quality of the ontological relationship between the learner and the text. The analyzed literature indicates that understanding textual structure and meaning contributes to the formation of more stable mental representations, thereby facilitating storage and retrieval processes. Conversely, memorization that relies solely on mechanical repetition tends to produce weaker representational structures.[14]

Epistemological Dimension

Based on the analysis of literature related to language learning, cognition, and memory, reading skills are found to play a significant role in the formation and reinforcement of knowledge. The reviewed literature consistently shows that linguistic comprehension directly contributes to cognitive mechanisms such as encoding, storage, and retrieval within the memory system.[15]

Thematic classification indicates that reading is not merely a receptive activity but represents the initial stage of encoding, in which linguistic information is transformed into meaningful mental representations. In this context, understanding grammatical structures, vocabulary, and relationships between words enables learners to construct more organized representations. These structured

[13] Abou-Elsaad, Tamer, Rawhia Ali, and Haidy Abd El-Hamid. "Assessment of Arabic Phonological Awareness and Its Relation to Word Reading Ability." *Logopedics Phoniatrics Vocology* 41, no. 4 (October 2016): 174–80. https://doi.org/10.3109/14015439.2015.1088062.

[14] Latipah, Eva. "Motives, Self-Regulation, and Spiritual Experiences of Hafizh (The Qur'an Memorizer) in Indonesia." *International Journal of Instruction* 15, no. 1 (January 2022): 653–72. https://doi.org/10.29333/iji.2022.15137a.

[15] Adler, Rachel M., Jorge R. Valdés Kroff, and Jared M. Novick. "Does Integrating a Code-Switch during Comprehension Engage Cognitive Control?" *Journal of Experimental Psychology: Learning, Memory, and Cognition* 46, no. 4 (April 2020): 741–59. https://doi.org/10.1037/xlm0000755.

representations are more easily stored in long-term memory and are more stable during retrieval.

Furthermore, the synthesis reveals that the quality of encoding is strongly influenced by the depth of information processing. Learning or reading activities that involve meaning comprehension, structural analysis, and active cognitive engagement produce stronger memory traces compared to mechanical learning.[16] In this regard, *maharah qira'ah* functions as an epistemological mechanism that enables deeper processing of textual information.

In the context of Qur'anic memorization, these findings indicate that *qira'ah* is not merely a supporting activity but a foundational mechanism in the construction of memorized knowledge. Cognitive research suggests that reading processes involving meaningful comprehension contribute to the formation of more structured and meaningful mental representations. Studies within the *depth of processing* framework confirm that information processed deeply, through understanding, analysis, and meaningful association, produces stronger memory traces than shallow processing.[17]

Moreover, research on working memory indicates that active engagement in linguistic processing during reading facilitates more effective integration of information into long-term memory.[18] this context, understanding grammatical structures and semantic relations plays a crucial role in building cognitive organization, thereby facilitating storage and retrieval processes. This is further supported by findings in reading comprehension studies, which demonstrate that deep understanding of text contributes to the stability of mental representations and the accuracy of recall.[19]

---

[16] Khoirul Mubin, Nasiruddin, Boby Bagas Purnama, and Dionisia Folliero. "Linguistic Harmonization: Dissecting Alfiyah Ibn Malik with Chomsky's Transformational Generative Theory." *Alibbaa': Jurnal Pendidikan Bahasa Arab* 5, no. 2 (July 2024): 215–42. https://doi.org/10.19105/ajpba.v5i2.14610.

[17] Craik, Fergus I. M., and Robert S. Lockhart. "Levels of Processing: A Framework for Memory Research." *Journal of Verbal Learning and Verbal Behavior* 11, no. 6 (December 1972): 671–84. https://doi.org/10.1016/S0022-5371(72)80001-X.

[18] Baddeley, Alan. "Working Memory and Language: An Overview." *Journal of Communication Disorders* 36, no. 3 (May 2003): 189–208. https://doi.org/10.1016/S0021-9924(03)00019-4.

[19] Nation, Kate. "Children's Reading Difficulties, Language, and Reflections on the Simple View of Reading." *Australian Journal of Learning Difficulties* 24, no. 1 (January 2019): 47–73. https://doi.org/10.1080/19404158.2019.1609272.

Within Qur'anic memorization, this implies that *qira'ah* functions as an epistemological mechanism that transforms text from a sequence of symbols into an organized knowledge structure within memory. Learning that involves understanding both meaning and structure enables *meaningful learning*, in which information is not merely memorized but integrated into a broader knowledge framework.[20]

Conversely, memorization that is not supported by linguistic understanding tends to produce shallow and unorganized representations, making it more vulnerable to errors, such as confusion between structurally similar verses (*musyabihat*). From an epistemological perspective, this condition indicates that weak encoding processes directly affect the quality of storage and retrieval, as information is not conceptually integrated from the outset of learning.

Axiological Dimension

The results of the analysis indicate that *maharah qira'ah* contributes significantly to improving memorization accuracy, particularly in reducing errors caused by structural similarities in the text (*musyabihat*). Understanding grammatical patterns and semantic relationships between verses enables learners to distinguish similar structures, thereby minimizing potential errors during retrieval. In this regard, reading skills function as a cognitive control mechanism that helps maintain memorization accuracy.[21]

concrete example can be found in Surah Yasin, where certain verses exhibit highly similar phonological patterns, potentially causing interference in memorization, especially when learners rely primarily on auditory memory. This is evident in two verses that share an identical opening phrase, *"إِلَّا صَيْحَةً وَاحِدَةً"* (Qur'an 36:49 and 36:29), followed by different continuations: *"تَأْخُذُهُمْ وَهُمْ يَخِصِّمُونَ"* and *"فَإِذَا هُمْ خَامِدُونَ"*. These verses demonstrate strong phonological similarity in terms of rhythm, vowel length, and stress patterns, making the initial segment more

[20] Karpicke, Jeffrey D., and Janell R. Blunt. "Retrieval Practice Produces More Learning than Elaborative Studying with Concept Mapping." *Science* 331, no. 6018 (February 2011): 772–75. https://doi.org/10.1126/science.1199327.

[21] MIDHWAH, ALI al, and MOHAMMAD T. ALHAWARY. "Arabic Diacritics and Their Role in Facilitating Reading Speed, Accuracy, and Comprehension by English L2 Learners of Arabic." *The Modern Language Journal* 104, no. 2 (June 2020): 418–38. https://doi.org/10.1111/modl.12642.

dominant in auditory memory than the concluding segments, which actually serve as the key differentiators.[22]

Such similarity often leads to difficulties in accurately continuing the verses, as memory tends to "lock onto" recurring sound patterns, while variations in the latter part are insufficiently salient for spontaneous differentiation. In practice, learners may confuse the continuation of *"فَإِذَا هُمْ خَامِدُونَ"* with *"تَأْخُذُهُمْ وَهُمْ يَخِصِّمُونَ"*, particularly when memorization is performed mechanically without understanding the structure and context of the verses. This phenomenon illustrates that *musyabihat* in the Qur'an can occur at a subtle phonological level, where similarity in sound across most of the verse structure obscures critical differences in other parts.

Therefore, reading skills that involve awareness of sentence structure, phrase positioning, and semantic relationships among verse components are essential for developing clear differentiation in mental representations. Through deep *qira'ah*, learners do not rely solely on recurring sound patterns but also comprehend the structural and semantic flow of the verses, thereby reducing potential errors during retrieval.

Furthermore, the literature indicates that deep understanding of learning materials contributes to long-term memory retention. Meaningful learning has been shown to produce more stable retention compared to mechanical learning.[23] This is supported by findings from Corral, which demonstrate that learning strategies involving meaning processing, such as retrieval practice, significantly enhance retention and knowledge transfer compared to rote repetition.[24]

The synthesis also reveals that reading skills contribute to improving learning efficiency. Learners who understand textual structure and meaning tend to require fewer repetitions compared to those relying solely on mechanical memorization. This suggests that

---

[22] Harison Mohd. Sidek, Muhammad Hafiz Saleh, and Hayati Husin. "Thematic-Based Text Structure Analysis as a Function of Text Memorization: Surah Yasin." *SOCIAL SCIENCES & HUMANITIES* 28, no. 3 (2020): 2405–25.

[23] Roelle, Julian, and Tobias Richter. "Maintaining the Outcomes of Meaningful Learning: Where Are We and Where Do We Need to Go? An Introduction to the Special Issue on Lasting Learning." *Learning and Instruction* 102 (April 2026): 102277. https://doi.org/10.1016/j.learninstruc.2025.102277.

[24] Corral, Daniel, and Shana K. Carpenter. "Effects of Retrieval Practice on Retention and Application of Complex Educational Concepts." *Learning and Instruction* 100 (December 2025): 102219. https://doi.org/10.1016/j.learninstruc.2025.102219.

qira'ah not only enhances memorization quality but also optimizes the overall learning process.

From an axiological perspective, these findings confirm that *maharah qira'ah* holds value beyond its technical role in language learning, extending to the development of more meaningful, effective, and sustainable learning and memorization practices. Reading skills serve as a foundational mechanism enabling learners and Qur'anic memorizers not only to memorize text but also to understand, internalize, and retain knowledge over the long term.

AI-Assisted Learning within the Conceptual Framework

Based on the analysis of literature on educational technology, the development of Artificial Intelligence (AI) has been found to contribute significantly to enhancing learning effectiveness, particularly through adaptive, interactive, and data-driven approaches.[25] The reviewed literature indicates that AI functions not merely as a technical tool but as a system capable of mediating the interaction between learners and learning materials in a more personalized and responsive manner.[26]

From an ontological perspective, the integration of AI in language learning, including Qur'anic *qira'ah* and memorizing, can be understood as an expansion of the learning medium, where texts are no longer presented solely in static forms but also as interactive entities. Technologies such as speech recognition enable Qur'anic texts to be experienced through real-time phonological evaluation, allowing learners not only to read but also to receive immediate feedback on their recitation quality.

Concretely, this integration can be implemented through AI-based learning applications such as Tarteel AI, which can recognize learners' Qur'anic recitation and provide automated assessments of *tajwid*, fluency, and articulation accuracy (*makharij al-huruf*).[27] In

---

[25] Divekar*, Rahul R., Jaimie Drozdal*, Samuel Chabot*, Yalun Zhou, Hui Su, Yue Chen, Houming Zhu, James A. Hendler, and Jonas Braasch. "Foreign Language Acquisition via Artificial Intelligence and Extended Reality: Design and Evaluation." *Computer Assisted Language Learning* 35, no. 9 (December 2022): 2332–60. https://doi.org/10.1080/09588221.2021.1879162.

[26] Zawacki-Richter, Olaf, Victoria I. Marín, Melissa Bond, and Franziska Gouverneur. "Systematic Review of Research on Artificial Intelligence Applications in Higher Education – Where Are the Educators?" *International Journal of Educational Technology in Higher Education* 16, no. 1 (December 2019): 39. https://doi.org/10.1186/s41239-019-0171-0.

[27] Naufal, Ahmad Ghani, Yeti Dahliana, and Arif Prasetyo. "The Role of the Tarteel Application in Maintaining the Memorization of Al-Qur'an Memorizers." *AL-*

practice, learners can recite memorized verses into the system, which then detects errors, such as in vowel length (*mad*), nasalization (*ghunnah*), or articulation, and provides immediate corrections. This process not only improves the quality of *qira'ah* but also strengthens memorization, as learners simultaneously associate correct phonological patterns with the structure of the memorized verses.

In addition, AI integration can be developed through adaptive repetition systems designed based on learners' memorization errors. Verses that are frequently confused due to phonological similarity (*musyabihat*), such as those in Surah Yasin, can be automatically identified and presented with increased repetition frequency. In this scenario, AI functions not only as a reading evaluation tool but also as a system that manages memorization processes in a more structured and personalized manner.

Furthermore, AI integration enables the combination of qira'ah evaluation and memorization reinforcement within a single learning cycle. Learners may be asked to recite verses without looking at the text (recall-based recitation), after which the system compares their recitation with the original text and provides feedback on both recitation accuracy and verse sequencing. Thus, reading and memorization are no longer separate processes but become integrated within a mutually reinforcing learning cycle.

Through this form of implementation, AI not only enriches the learning medium but also transforms how learners interact with the Qur'anic text—from a passive process into one that is interactive, adaptive, and feedback-driven. This demonstrates that AI integration does not alter the fundamental nature of reading as a meaning-making process but rather expands the ways in which this process unfolds within contemporary learning contexts.

Discussion

The findings of this study indicate that the relationship between *maharah qira'ah* and Qur'anic memorization cannot be understood merely as an instrumental relationship, but rather as an epistemic relation that mutually shapes the construction of text-based knowledge . Within this framework, *qira'ah* is not limited to reading activity, but functions as a meaning-making process that forms the foundation for

WIJDÃN Journal of Islamic Education Studies 9, no. 4 (October 2024): 666–80. https://doi.org/10.58788/alwijdn.v9i4.5640.

memorization as a representation of knowledge in memory. Thus, memorization is not simply the result of repetition, but the product of structured understanding.

om an epistemological perspective, these findings confirm that the quality of memorization is determined by the quality of the encoding process that occurs during reading. *Qira'ah* involving an understanding of linguistic structure and semantic relationships enables the formation of more organized mental representations, thereby strengthening storage and retrieval processes. This explains why comprehension-based memorization tends to be more stable and resistant to interference, whereas mechanical memorization is more prone to errors, particularly in verses with phonological similarity (*musyabihat*).[28] In other words, high-quality memorization depends not on the quantity of repetition but on the depth of meaning processing underlying it.

From an axiological perspective, these findings have significant implications for instructional practices. *Qira'ah* should no longer be positioned as a preliminary stage separate from memorization, but as an integral component that determines memorization quality. Memorization practices that rely solely on repetition without comprehension risk producing fragile retention, whereas approaches integrating structural and semantic understanding lead to more accurate, durable, and efficient memorization. This indicates the necessity of shifting from *rote memorization* toward *meaningful memorization*.[29]

Furthermore, the findings demonstrate that AI-assisted learning offers concrete opportunities to operationalize the integration of *qira'ah* and memorization in practice. Unlike conventional approaches that depend on direct teacher supervision, AI-based technologies enable learners to receive real-time feedback on their recitation while simultaneously reinforcing memorization through adaptive learning systems.[30] In practice, speech recognition systems can evaluate recitation

---

[28] Slamet, Sri. "THE EFFECT OF MEMORIZING QURAN ON THE CHILDREN COGNITIVE INTELLIGENCE." *Humanities & Social Sciences Reviews* 7, no. 3 (May 2019): 571–75. https://doi.org/10.18510/hssr.2019.7384.

[29] Jalalkamali, Elnaz, Parisa Moradimajd, Shahnam Sedigh Maroufi, and Jamileh Abolghasemi. "Comparison of the Effectiveness of Two Teaching Methods of Storytelling and Interactive Lecturing on Long-Term Memory of Anesthesia Technology Students." *Journal of Education and Health Promotion* 14, no. 1 (December 2025). https://doi.org/10.4103/jehp.jehp_1318_24.

[30] Wang, Yiyin, Tiancheng Zhang, Le Yao, and Paul Seedhouse. "A Scoping Review of Empirical Studies on Generative Artificial Intelligence in Language

accuracy, while adaptive repetition systems can identify frequently mistaken verses and automatically increase practice frequency for those sections.

This integration has direct implications for learning effectiveness and reflects a shift in understanding the epistemic relationship between reading and memorization. In Qur'anic memorization contexts, learners can engage in independent practice by reciting memorized verses, while AI systems provide corrections and detect errors in both recitation and sequence.[31] In this perspective, *qira'ah* is no longer a separate preliminary stage but an ontological process of meaning actualization that epistemologically shapes memorization structures in memory. Consequently, reading and memorization become integrated within a unified learning cycle, where meaning serves as the foundation of retention.[32] Moreover, AI's ability to analyze error patterns enables personalized learning, allowing each learner to receive interventions aligned with their cognitive structure and learning experience.

However, these findings also emphasize that AI cannot replace the role of teachers in Qur'anic learning, as the process involves not only cognitive dimensions but also axiological aspects related to values, ethics, and the internalization of meaning.[33] Within the philosophy of education, teachers function not merely as knowledge transmitters but as guides in shaping learners' understanding and character. Therefore, AI should be positioned as a supportive system that strengthens the epistemic relationship between *qira'ah* and memorization, rather than as

---

Education." *Innovation in Language Learning and Teaching*, June 5, 2025, 1–28. https://doi.org/10.1080/17501229.2025.2509759.

[31] Yulherniwati, Nadilla C. Putri, Humaira, Dwiny Meidelfi, and Rasyidah. "Implementing Machine Learning in Students Qur'an Memorization Prediction." *2022 5th International Seminar on Research of Information Technology and Intelligent Systems (ISRITI)*, December 8, 2022, 362–68. https://doi.org/10.1109/ISRITI56927.2022.10052808.

[32] Muhammad Dhiya' Syaifullah, Kamal Yusuf, and Sovia Fahraini. "Aristotelian Rhetoric and Arabic Balāghah in Teaching Arabic as a Foreign Language: A Conceptual Comparative Study." *Alibbaa': Jurnal Pendidikan Bahasa Arab* 7, no. 1 (January 2026): 40–58. https://doi.org/10.19105/ajpba.v7i1.22504.

[33] A. Gazali, Nihayatur Rahmah, Roychan Yasin, Muhammad Ridwan, and Alya Raihana Sari. "Arabic for Specific Purposes in Islamic Higher Education: Systemic Learning Challenges among Non-Pesantren Students." *Alibbaa': Jurnal Pendidikan Bahasa Arab* 7, no. 1 (February 2026): 370–91. https://doi.org/10.19105/ajpba.v7i1.23592.

a substitute for human roles.[34] Maintaining a balance between technology and pedagogical approaches is essential to ensure that Qur'anic learning remains oriented toward meaning-making rather than mere technical efficiency.

Despite successfully constructing a conceptual framework integrating *maharah qira'ah*, Qur'anic memorization, and AI-assisted learning within a philosophy of science perspective, this study has several limitations. As a conceptual study based on literature review, its findings have not yet been empirically validated in real educational contexts. Additionally, the literature is largely drawn from general studies in language learning and cognition, which may not fully represent the specific practices of Qur'anic memorization. Furthermore, the discussion of AI remains conceptual and has not yet addressed detailed technical or operational system design.

Moreover, this study has not comprehensively examined the affective and spiritual dimensions that play a crucial role in Qur'anic memorization. Therefore, future research is recommended to empirically test the proposed framework in real learning environments, develop more practical AI-based systems tailored to the integration of *qira'ah* and memorization, and incorporate cognitive, affective, and spiritual dimensions into a more holistic approach to Qur'anic learning.

Conclusion

This study concludes that *maharah qira'ah* and Qur'anic memorization have an epistemic and inseparable relationship in the construction of text-based knowledge. Addressing the first research question, *maharah qira'ah* can be conceptualized within the philosophy of science as an ontological process of meaning actualization, an epistemological mechanism of knowledge construction through encoding, storage, and retrieval, and an axiological means of enhancing memorization quality in terms of accuracy, retention, and efficiency. Thus, Qur'anic memorization cannot be understood merely as a mechanical activity based on repetition, but as the outcome of a structured meaning-making process through reading. Addressing the second research question, AI-assisted learning can be positioned as a

[34] Achruh, Achruh, Muhammad Rapi, Muhammad Rusdi, and Ridwan Idris. "Challenges and Opportunities of Artificial Intelligence Adoption in Islamic Education in Indonesian Higher Education Institutions." *International Journal of Learning, Teaching and Educational Research* 23, no. 11 (November 2024): 423–43. https://doi.org/10.26803/ijlter.23.11.22.

complementary approach that supports the integration of *qira'ah* and memorization through real-time feedback, adaptive learning systems, and personalized instruction, thereby strengthening the internalization of the text without altering the fundamental nature of the learning process.

However, this study is limited by its conceptual nature and the lack of empirical validation in real-world learning contexts. Additionally, the discussion of AI remains at a conceptual level and does not yet extend to operational system design, while the affective and spiritual dimensions of memorization have not been thoroughly explored. Therefore, future research is recommended to empirically test this framework in Qur'anic learning environments, develop AI systems specifically designed for integrating reading and memorization, and expand the analysis to include cognitive, affective, and spiritual dimensions in a more comprehensive manner.

REFERENCES

Abou-Elsaad, Tamer, Rawhia Ali, and Haidy Abd El-Hamid. "Assessment of Arabic Phonological Awareness and Its Relation to Word Reading Ability." *Logopedics Phoniatrics Vocology* 41, no. 4 (October 2016): 174–80. https://doi.org/10.3109/14015439.2015.1088062.

Achruh, Achruh, Muhammad Rapi, Muhammad Rusdi, and Ridwan Idris. "Challenges and Opportunities of Artificial Intelligence Adoption in Islamic Education in Indonesian Higher Education Institutions." *International Journal of Learning, Teaching and Educational Research* 23, no. 11 (November 2024): 423–43. https://doi.org/10.26803/ijlter.23.11.22.

Adler, Rachel M., Jorge R. Valdés Kroff, and Jared M. Novick. "Does Integrating a Code-Switch during Comprehension Engage Cognitive Control?" *Journal of Experimental Psychology: Learning, Memory, and Cognition* 46, no. 4 (April 2020): 741–59. https://doi.org/10.1037/xlm0000755.

Aflisia, Noza, Hendrianto, and Kasmantoni. "Teaching Balaghah for the Purpose of Appreciation of Al-Quran Language." *Lughawiyyat: Jurnal Pendidikan Bahasa dan Sastra Arab* 4, no. 2 (June 2022): 156–72. https://doi.org/10.38073/lughawiyyat.v4i2.537.

Ayyad, Essam. "Re-Evaluating Early Memorization of the Qurʾān in Medieval Muslim Cultures." *Religions* 13, no. 2 (February 2022): 179. https://doi.org/10.3390/rel13020179.

Aziz, Mustafa Amen, and Hourakhsh Ahmad Nia. "The Effect of Cognitive Semiotics on the Interpretation of Urban Space Configuration." In *Proceedings of ICCAUA 2021*, 260–74. 2021. https://doi.org/10.38027/ICCAUA2021227n9.

Baddeley, Alan. "Working Memory and Language: An Overview." *Journal of Communication Disorders* 36, no. 3 (May 2003): 189–208. https://doi.org/10.1016/S0021-9924(03)00019-4.

Buchanan, Rachel Anne, Daniella Jasmin Forster, Samuel Douglas, Sonal Nakar, Helen J. Boon, Treesa Heath, Paul Heyward, et al. "Philosophy of Education in a New Key: Exploring New Ways of Teaching and Doing Ethics in Education in the 21st Century." *Educational Philosophy and Theory* 54, no. 8 (July 2022): 1178–97. https://doi.org/10.1080/00131857.2021.1880387.

Corral, Daniel, and Shana K. Carpenter. "Effects of Retrieval Practice on Retention and Application of Complex Educational Concepts."

Learning and Instruction 100 (December 2025): 102219. https://doi.org/10.1016/j.learninstruc.2025.102219.

Craik, Fergus I. M., and Robert S. Lockhart. "Levels of Processing: A Framework for Memory Research." *Journal of Verbal Learning and Verbal Behavior* 11, no. 6 (December 1972): 671–84. https://doi.org/10.1016/S0022-5371(72)80001-X.

Dermayani, Nur Zakiah Harahap, and Fatma Yulia. "Contribution of Maharah Qira'ah Learning in Memorizing the Qur'an." *International Journal of Arabic Language Teaching* 7, no. 1 (June 2025): 176–92. https://doi.org/10.32332/ijalt.v7i01.10767.

Divekar, Rahul R., et al. "Foreign Language Acquisition via Artificial Intelligence and Extended Reality: Design and Evaluation." *Computer Assisted Language Learning* 35, no. 9 (December 2022): 2332–60. https://doi.org/10.1080/09588221.2021.1879162.

Jalalkamali, Elnaz, et al. "Comparison of the Effectiveness of Two Teaching Methods on Long-Term Memory." *Journal of Education and Health Promotion* 14, no. 1 (2025). https://doi.org/10.4103/jehp.jehp_1318_24.

Karpicke, Jeffrey D., and Janell R. Blunt. "Retrieval Practice Produces More Learning than Elaborative Studying." *Science* 331, no. 6018 (February 2011): 772–75. https://doi.org/10.1126/science.1199327.

Khuluq, Muchsinul, and Nurul Imamah. "Enhancing Arabic Reading Skills." *Journal of Arabic Language Learning and Teaching* 2, no. 1 (March 2024): 33–58. https://doi.org/10.23971/jallt.v2i1.157.

Latipah, Eva. "Motives, Self-Regulation, and Spiritual Experiences of Hafizh." *International Journal of Instruction* 15, no. 1 (January 2022): 653–72. https://doi.org/10.29333/iji.2022.15137a.

MIDHWAH, Ali al, and Mohammad T. Alhawary. "Arabic Diacritics and Their Role in Reading." *The Modern Language Journal* 104, no. 2 (June 2020): 418–38. https://doi.org/10.1111/modl.12642.

Nation, Kate. "Children's Reading Difficulties and Language." *Australian Journal of Learning Difficulties* 24, no. 1 (January 2019): 47–73. https://doi.org/10.1080/19404158.2019.1609272.

Naufal, Ahmad Ghani, Yeti Dahliana, and Arif Prasetyo. "The Role of the Tarteel Application in Maintaining Qur'an Memorization." *Al-Wijdān Journal of Islamic Education Studies* 9, no. 4 (2024): 666–80. https://doi.org/10.58788/alwijdn.v9i4.5640.

OECD. *Artificial Intelligence in Society*. Paris: OECD Publishing, 2019. https://doi.org/10.1787/eedfee77-en.

Perfetti, Charles, and Joseph Stafura. "Word Knowledge in a Theory of Reading Comprehension." *Scientific Studies of Reading* 18, no. 1 (January 2014): 22–37. https://doi.org/10.1080/10888438.2013.827687.

Roelle, Julian, and Tobias Richter. "Maintaining the Outcomes of Meaningful Learning." *Learning and Instruction* 102 (April 2026): 102277. https://doi.org/10.1016/j.learninstruc.2025.102277.

Schmid, Hans-Jörg. *The Dynamics of the Linguistic System*. Oxford: Oxford University Press, 2020. https://doi.org/10.1093/oso/9780198814771.001.0001.

Slamet, Sri. "The Effect of Memorizing Qur'an on Cognitive Intelligence." *Humanities & Social Sciences Reviews* 7, no. 3 (2019): 571–75. https://doi.org/10.18510/hssr.2019.7384.

Suri, Nursukma, and Muaz Tanjung. "Metaphor and Symbolism in the Language of the Quran." *Pharos Journal of Theology* (2024). https://doi.org/10.46222/pharosjot.106.3.

Wang, Yiyin, et al. "Generative Artificial Intelligence in Language Education." *Innovation in Language Learning and Teaching* (2025). https://doi.org/10.1080/17501229.2025.2509759.

Zawacki-Richter, Olaf, et al. "Systematic Review of AI in Higher Education." *International Journal of Educational Technology in Higher Education* 16, no. 1 (2019): 39. https://doi.org/10.1186/s41239-019-0171-0.

Zembylas, Michalinos. "The Affective Dimension of Epistemic Injustice." *Educational Theory* 72, no. 6 (December 2022): 703–25. https://doi.org/10.1111/edth.12554.