

The Impact Of Using AI As An Alternative Solution Search: Reconstructing The Ontology Of 'Thinking Humans' In Islamic Education

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Abstract

The use of generative artificial intelligence (AI) as a primary reference for finding solutions is changing how people think and raises ontological questions for Islamic education. This study analyzes the impact of using AI as an alternative for finding solutions on thinking practices, reconstructs the ontology of the "thinking human" within an Islamic education framework, and formulates its implications for educational practice. The study employs a qualitative approach with a library research design. Data were gathered through documentation of primary and secondary sources and analyzed using thematic analysis and conceptual framework analysis. The review shows that AI use is associated with cognitive offloading, the risk of an illusion of competence, and challenges to integrity and ethics, while the Islamic education literature points to a tension between AI-driven personalization and the scholarly authority of teachers. The reconstruction is formulated along five dimensions: the nature of thinking, the position of the human being, responsibility, scholarly authority, and the role of AI. The human being is affirmed as a knowledge-seeking subject accountable for their knowledge, while AI is positioned as an auxiliary tool whose outputs must be verified. The study proposes adab-based AI literacy as an

3285



operational pathway for this reconstruction. As the findings are conceptual, they require empirical testing in Islamic educational institutions.

Keywords: Artificial Intelligence; Ontology Of The Thinking Human; Islamic Education; Cognitive Offloading; Adab

INTRODUCTION

The advent of generative artificial intelligence (AI) like ChatGPT has transformed the way humans approach problems. Previously, finding solutions meant exploring multiple sources, comparing perspectives, and deciding for themselves which made the most sense. Now, many people simply ask a question and receive a well-formulated answer. Dwivedi et al. (2023) demonstrate that this technology, capable of producing human-like text, presents both significant opportunities and ethical and legal challenges, and experts remain divided on whether its use should be restricted. In education, Kasneci et al. (2023) emphasize that large language models offer potential for learning but require careful consideration of their various challenges. Adeshola and Adepoju (2024) provide a similar mapping of the opportunities and challenges of ChatGPT in education, and Farrokhnia et al. (2024) analyze ChatGPT's strengths, weaknesses, opportunities, and threats to educational practice and research. Bond et al.'s (2024) systematic meta-review of AI studies in higher education even calls for increased attention to ethics, collaboration, and methodological rigor.

Concerns about the cognitive impact of search technology use are not new. Sparrow et al. (2011) showed that when people believe information is readily accessible, they tend to remember less about its content and more about where it can be found, thus making the internet function as an external or transactive memory. More recent evidence suggests a deeper issue. Gerlich (2025), using surveys and interviews with 666 participants, found a negative relationship between the frequency of use of AI tools and critical thinking skills. This relationship was mediated by *cognitive offloading*, and younger participants appeared more dependent and scored lower on critical thinking. Bastani et al. (2025), in a field experiment on middle school mathematics learning, found that AI-based tutoring improved performance during practice, but students who relied on it performed lower when access to the AI was removed. These findings indicate a decline in skill acquisition, although design safeguards that provide hints rather than direct answers can mitigate this effect. Taken together, these findings suggest that the issue of



AI as a solution-finding alternative goes beyond efficiency. What has shifted is the relationship between humans and their own thinking processes.

On the other hand, the discourse that has developed so far has largely focused on ethical and governance frameworks. Akgun and Greenhow (2022) discuss the ethical challenges of AI in primary and secondary education, Airaj (2024) examines ethical AI for teaching and learning in higher education, and Moya et al. (2024) examines academic integrity related to AI in the higher education context through a rapid scoping review. At the principle level, Floridi et al. (2018) formulate an ethical framework for a good AI society, and Floridi and Cows (2019) consolidate these principles into five principles, including *explicability*, which encompasses understandability, and accountability. These frameworks are important, but they primarily address the question of how AI should be used. The more fundamental question of who the human mind is when much of their thinking is outsourced to machines remains largely unaddressed.

In the context of Islamic education, this question is increasingly pressing. Achruh et al. (2024), through interviews with academics at Indonesian Islamic universities, uncovered the tension between the potential for personalized learning by AI and traditional Islamic pedagogical methods that place teachers at the center. They emphasized the need for a balanced and culturally sensitive approach to maintain the integrity of Islamic teachings. Elmahjub (2023), on the ethical level, offers the idea of a pluralistic ethical benchmark for AI from an Islamic ethical perspective. However, the Islamic educational tradition has a much richer understanding of human beings than simply complying with norms for technology use. Humans are viewed as rational beings, endowed with natural instincts, and burdened with the responsibility to seek and practice knowledge. Thinking here is not merely a cognitive operation to produce answers, but rather a meaningful activity linked to etiquette, scientific authority, and moral-spiritual accountability. When AI becomes the primary reference in finding solutions, a subtle ontological shift occurs. Humans, who were originally subjects undergoing thought processes, risk becoming questioners who receive finished output. This shift needs to be critically read and reconstructed within the framework of Islamic education.

Based on this description, a gap in the research is apparent: the reviewed literature is still dominated by issues of efficiency, cognitive impact, and ethics of use, while ontological studies of the "thinking human" in Islamic education in the AI era are still limited. Therefore, this article aims to analyze the impact of the use of AI as an alternative solution to the practice of thinking, reconstruct the ontology of the "thinking human" within the framework of Islamic education, and



formulate its implications for the development of Islamic education that maintains the role of reason, manners, and scientific authority amidst technological advances

MEHTOD

This study uses a qualitative approach with a library research approach, a study that utilizes literature as the primary data source and does not involve field data collection. This design choice aligns with the nature of the problem being studied. Reconstructing the ontology of "thinking humans" is not a matter that can be measured through surveys or experiments, but rather a conceptual issue that requires reading, comparing, and synthesizing ideas from various sources. Snyder (2019) emphasizes that a literature review can serve as a legitimate research methodology, particularly an integrative review that aims to combine perspectives from various fields to produce a new theoretical framework, provided the process is carried out transparently and systematically, not ad hoc.

Research data was collected through documentation techniques. Bowen (2009) describes document analysis as a systematic procedure for reviewing and evaluating printed and electronic documents, in which data is analyzed and interpreted to gain meaning and understanding. Data sources are divided into two groups. Primary sources consist of normative and conceptual references to Islamic education that discuss the nature of humankind, reason, and thought processes, such as the Qur'an, hadith, and the works of classical and contemporary Muslim thinkers. Secondary sources consist of reputable journal articles, books, and scientific reports on the use of AI in education, its cognitive impact, AI ethics, and the integration of AI in Islamic education. Secondary sources were searched through scientific databases and academic search engines using a combination of keywords in Indonesian, English, and Arabic. Inclusion criteria included relevance to the theme, publication quality (published in a credible journal or publisher and having a DOI or verifiable bibliographic identity), and recency. Sources whose origins could not be traced were excluded from the analysis.

Data analysis was conducted in two complementary stages. The first stage was thematic analysis to identify, analyze, and report patterns or themes in the data (Braun & Clarke, 2006). This stage was used to map the impact of using AI as an alternative solution-finding tool on thinking practices, from initial coding, grouping into themes, to reviewing and naming themes. The second stage was conceptual framework analysis, which involved building a network of interconnected concepts through an interpretive process of qualitative data (Jabareen, 2009).



This stage was used to synthesize thematic findings with ontological concepts of humankind in Islamic education, resulting in an ontological reconstruction of the "thinking human" as the conceptual output of the research. This reconstruction included affirming the position of humans as thinking subjects, the limits of AI's role as a tool, and its implications for Islamic education.

Data validity is maintained through trustworthiness criteria *in* qualitative research, namely credibility, transferability, dependability, and certainty (Nowell et al., 2017). Credibility is sought through source triangulation, namely comparing findings from different literatures, in line with Bowen's (2009) recommendation to seek convergence and corroboration from various sources.

RESULT & DISSCUSIOM

The literature review yielded two sets of findings. The first group is a mapping of the impact of using AI as an alternative solution-finding tool on thinking practices, summarized in Table 1. The second group is a reconstruction of the ontology of "thinking humans" within the framework of Islamic education, summarized in Table 2. Because this research is library-based, the findings are understood as the result of a conceptual synthesis of the literature, not as new causal evidence.

Table 1. Mapping the impact of using AI as an alternative solution search

Theme	Findings in the literature	Source
Opportunities for efficiency and personalization	Generative AI generates text quickly and supports learning and educators' work, but brings ethical and legal challenges.	Dwivedi et al. (2023); Kasneci et al. (2023); Adeshola & Adepoju (2024); Farrokhnia et al. (2024)
Cognitive load shifting	Information access expectations shift memory from content to source location. Frequency of AI use is negatively correlated with critical thinking, mediated by <i>cognitive offloading</i> .	Sparrow et al. (2011); Gerlich (2025)
The illusion of competence	Performance improves while the AI is available but declines when	Bastani et al. (2025)



	access is revoked. Designing a safety net with hints, rather than direct answers, mitigates this effect.	
Academic integrity and authenticity	Concerns have been raised about the authenticity of the work and violations of academic integrity.	Moya et al. (2024); Dwivedi et al. (2023)
Ethics and governance	The ethical principles of AI include <i>beneficence, non-maleficence, autonomy, justice,</i> and <i>explicability</i> . Ethical challenges are discussed for both school and higher education levels.	Floridi & Cowls (2019); Floridi et al. (2018); Akgun & Greenhow (2022); Airaj (2024); Bond et al. (2024)
Tensions with Islamic pedagogy	AI personalization challenges the central role of teachers in Islamic pedagogy. A balanced, culturally sensitive approach, along with pluralistic ethical standards, is required.	Achruh et al. (2024); Elmahjub (2023)

Table 1 shows that the literature oscillates between two poles. On the one hand, generative AI is seen as offering opportunities for efficiency and personalization (Adeshola & Adepoju, 2024; Farrokhnia et al., 2024; Kasneci et al., 2023). On the other hand, these same studies are consistently accompanied by notes on ethical, legal, and pedagogical challenges (Dwivedi et al., 2023). Bond et al.'s (2024) meta-review reinforces this picture by calling for increased attention to ethics, collaboration, and methodological rigor in AI studies in higher education. This means that the recurring question in the literature is not whether AI is useful, but rather what happens to learners when AI becomes the first point of reference for solutions.

The answer to this question is evident in the themes of cognitive offloading and the illusion of competence. Sparrow et al. (2011) showed that when people anticipate future access



to information, memory for the content decreases while memory for the source location increases. Another component of this series of studies, the priming effect *when* people encounter difficult questions, has not found conclusive support in replication attempts (Hesselmann, 2020). Therefore, Sparrow et al.'s findings are more appropriately read as conceptual underpinnings of transactive memory than definitive causal evidence. Evidence more closely aligned with generative AI comes from Gerlich (2025), who found a negative relationship between frequency of AI use and critical thinking skills through the mediation of *cognitive offloading*. The survey and interview design in that study suggested a correlation, so the causal direction remains to be tested. Bastani et al. (2025) provide stronger experimental evidence. Students assisted by AI performed well during training but declined when access was withdrawn, indicating a lack of mastery of the skills. These same findings suggest that the impact is not inherent to the AI itself. Designing safeguards that provide hints instead of answers can mitigate this, and this means that the form of human-AI relationship can be designed.

From this, the shifts depicted in the literature can be read ontologically. The three studies above demonstrate a deeper shift than the decline of specific skills, namely a shift in how humans position themselves in the thinking process. When answers are readily available, humans tend to shift from being subjects undergoing the process to receiving the output. Existing ethical frameworks, such as Floridi and Cowls' (2019) five principles and the AI4People framework (Floridi et al., 2018), address the question of how AI should be used, and the principles of *autonomy* and *explicability* within them address human control and accountability. However, the question of who the thinking human is remains unanswered. It is at this point that the Islamic educational tradition has a unique contribution, as summarized in Table 2.

Table 2. Reconstruction of the ontology of "thinking man" in Islamic education

Ontological dimension	The trend when AI becomes the main reference	Reconstruction in Islamic education	Pedagogical implications
The nature of thinking	Thinking is reduced to obtaining ready-made answers.	Thinking as meaningful contemplation and reflection (QS. Ā li ' Imr ā n [3]: 190 – 191).	The task demands reasoning and reflection before AI is consulted.



Human position	The output receiver or passive questioner.	Knowledge seeking subjects who are blessed with the ability to know (QS. al-Baqarah [2]: 31; QS. al- ‘ Alaq [96]: 1 – 5).	Students formulate their own problems and guess the answers.
Responsibility	Blurred responsibilities between user and system.	Personal responsibility for hearing, sight, and heart (QS. al-Isr ā’ [17]: 36), in line with the principle of accountability (Floridi & Cows, 2019).	Obligations for verification and disclosure of AI use.
Scientific authority	Algorithmic authority without scientific accountability.	Scientific authority and the central role of teachers (Achruh et al., 2024).	AI is placed under the guidance of a teacher, not a substitute.
The Role of AI	The ultimate solution.	The tools (wasilah) are tested and subject to value (Elmahjub, 2023).	Safety design that encourages thinking efforts (Bastani et al., 2025).

Table 2 shows that the reconstruction is carried out on five dimensions. First, thinking in the Islamic tradition is not simply a cognitive operation to produce answers. It is associated with contemplation on creation as is characteristic of *ul ū al-alb ā b* (QS. Ā li ‘ Imr ā n [3]: 190-191). Therefore, instant answers from AI cannot replace the process of reflection that gives meaning to knowledge. Second, the position of humans is emphasized as subjects. Humans are taught the names of everything (QS. al-Baqarah [2]: 31) and are commanded to read and be taught with the pen that which they do not yet know (QS. al- ‘ Alaq [96]: 1-5). These two references position humans as parties who actively seek and receive knowledge, not parties who wait for results. Third, the dimension of responsibility stems from the warning that humans should not follow what they do not know, because the hearing, sight, and heart are all held accountable (QS. al-Isr



ā' [17]: 36). This meaning aligns with the principle of *explicability*, which encompasses accountability within the AI ethics framework (Floridi & Cows, 2019). The difference is that in Islamic education, accountability is rooted in moral-spiritual responsibility, not merely regulatory compliance.

The final two dimensions concern the relationship with the teacher and with the technology itself. Achruh et al. (2024) point out that Islamic pedagogy places the teacher at the center, so personalization by AI needs to be reconciled with the relational authority of science. Within a reconstructive framework, AI becomes a tool whose output is tested and assessed according to Islamic values, in line with the notion of pluralist ethical benchmarks in Islamic ethics (Elmahjub, 2023). Safeguard designs such as those tested by Bastani et al. (2025) provide practical embodiment to this idea, as AI is designed to guide the effort of thinking, not replace it. Thus, the reconstructed ontology of the "thinking human" means that humans remain the subjects seeking knowledge, responsible for their knowledge and relying on legitimate scientific authority, while AI is positioned as a tool.

The implications for Islamic education are threefold. At the curriculum level, learning needs to include assignments that require reasoning and value reflection before students consult with AI. At the pedagogical level, teachers act as mentors, accustoming students to verifying AI output and honestly disclosing its use. At the policy level, Islamic educational institutions need to formulate governance that integrates ethical AI principles with Islamic values. The limitations of this study should be noted. Most of the empirical literature reviewed comes from non-Islamic general education contexts, and some findings are correlational. Therefore, the validity of this reconstruction needs further testing through empirical research in Islamic educational institutions.

Cognitive Offloading: Between Expanding and Replacing Thinking

The first issue that needs to be clarified is whether relying on AI to find solutions is the same as using a thinking tool in general. Risko and Gilbert (2016) define *cognitive offloading* as the use of physical actions to alter the information processing demands of a task, thereby reducing cognitive load. This behavior is already very common, such as setting reminders on a mobile phone, and their study suggests that offloading has cognitive consequences that deserve examination, not just its benefits. From a philosophy of mind perspective, Clark and Chalmers (1998), using the concept of *the extended mind*, assert that cognitive processes can extend to



external devices that are reliably integrated into thinking activities. This view can be used to defend AI as part of the human thinking system. However, there is a crucial difference between a record that stores the owner's ideas and generative AI that produces new ideas at the user's request. In the former case, the subject remains the source of content and the evaluator. In the latter, the subject can shift to being the recipient of content. Therefore, the ontological question is not whether the tool is used, but rather who defines the problem, evaluates the output, and bears the consequences. More recent reviews of human interactions with generative AI reinforce this concern at the level of system design. Tankelevitch et al. (2024) showed that using generative AI demands heavy metacognitive work—self-monitoring, belief adjustment, and task solving—making users who are not metacognitively trained vulnerable to relinquishing that monitoring to the system itself. Experimental findings by Fan et al. (2025) showed that learners who repeatedly received generative AI support were more likely to experience *metacognitive laziness*, a tendency to relinquish responsibility for monitoring and evaluating their learning to the system, even though their motivation to learn was no different from the other group. This pattern is consistent with the results of Goh et al. (2025), who developed and validated a scale of dependence on generative AI and found that dependence correlated with reduced cognitive initiative and increased anxiety when access to AI was unavailable.

However, not all forms of cognitive offloading are equal. Grinschgl and Neubauer (2022) note that technology-based cognitive support can expand human thinking capacity as long as the user remains actively engaged in assessing and integrating its output, in line with Clark and Chalmers's *extended mind notion*. This distinction is formalized by Zhu et al. (2026), who distinguish *dependent offloading*—the handover of core thought processes to AI—from *autonomous offloading*, the use of AI as a scaffold that maintains the user's cognitive autonomy. Their three-wave survey study found that *dependent offloading* was associated with a diversion of cognitive agency and decreased intrinsic motivation, while *autonomous offloading* was associated with improved independent judgment. This autonomous-dependent distinction reaffirms the ontological question posed earlier: not whether or not AI is used, but rather whether the subject remains in control of their own thought processes.

Epistemic Limitations of AI and Claims about “Thinking”

The shift from subject to recipient is made more risky by the nature of AI output itself. Bender et al. (2021) caution that very large language models operate on linguistic patterns



derived from their training data, so fluent output should not be taken as a sign of understanding. Ji et al. (2023) in their survey show that deep learning-based natural language generation is prone to producing text that is not supported by input or reality (hallucinations), so system performance and user expectations often align. When the two are read together, it appears that AI "solutions" are always provisional until verified, and verification can only be performed by humans who are still thinking.

Thus, outsourcing the entire thinking process to AI disempowers users and removes the sole quality control of AI output. This argument reinforces the position that AI is best positioned as a generator of suggestions, not an arbiter of truth.

This epistemic issue doesn't stop at the individual level. Doshi and Hauser (2024), using an online experiment on short story writing, found that access to ideas from generative AI increased individual creativity ratings, but at the same time made the resulting works increasingly similar, thus decreasing collective diversity. These findings demonstrate that AI "solutions" not only risk being factually incorrect, as demonstrated by Ji et al. (2023), but also risk standardizing the way users think because they are based on the same statistical patterns. If this phenomenon is left without individual verification and reflection, the search for solutions through AI has the potential to narrow, rather than expand, the realm of thought that should be the domain of human responsibility as knowledge seekers.

Human Ontology, Manners, and Scientific Authority in Islamic Education

In the Islamic educational tradition, proper placement has a strong conceptual foundation. Al-Attas views education as *ta'dīb*, that is, the cultivation of *adab* (good manners), and Ahmed (2018) examines it as an "indigenous" educational philosophy born from the struggle with the influence of Western thought. Ahmed (2025) explains that within this framework, a person is educated if he understands the significance of knowledge for his existence in every situation. *Adab* is understood as the ability to recognize the proper place of something within a system. This understanding is consistent with work showing that spiritual intelligence underpins metacognitive development in Islamic education philosophy (Syafii & Azhari, 2026b), and with efforts to rethink contemporary Qur'anic epistemology through neurotheology, double consciousness, and non-Arabcentric hadith traditions (Syafii et al., 2026d). It is also consistent with the grounding of Islamic education in local wisdom (Syafii & Azhari, 2026a) and with the intellectual landscape of Islamic religious education curriculum development in ASEAN (Anilon et



al., 2026a). When this principle is applied to technology, adab for AI means placing it in a proportional position, namely as a tool subject to the goals and values of its user.

Consequently, Islamic education is not enough to provide rules of use. It needs to shape human dispositions capable of weighing when to think for themselves, when to ask for help, and how to evaluate the results. Such dispositions rest on self-regulation and self-motivation, which have been examined as predictors of students' learning achievement (Anilon et al., 2026b), and on autonomy and lifelong learning as part of psychological well-being (Rahamatullah et al., 2026). They also depend on educators, whose self-efficacy shapes student engagement (Umam et al., 2026) and whose pedagogical content knowledge and religious self-concept relate to academic achievement (Azhari & Alaldaya, 2026). Independence and productivity can be cultivated through life skills education (Azhari et al., 2026), the quality of curricular transitions relates to students' religiosity and morality (Somantri et al., 2026), and the choice of learning method affects cognitive development (Syafii et al., 2026c). Sahin (2018) emphasizes that the study of Islamic education requires a clear academic and conceptual framework, including in formulating underlying principles. This is relevant for the reconstruction of the ontology of the "thinking human," as discussions about AI should not stop at technical aspects. Stimpson and Calvert (2021), who formulated basic principles of education from the text of the Quran, provide the basis that such formulations can be derived from the source of revelation itself. Ahmed (2025) also offers a network of Islamic educational concepts that educators can use to reconstruct education more authentically. All three demonstrate that the ontological reconstruction in this article does not arise from a vacuum but is embedded within the ongoing effort to build an Islamic educational philosophy that addresses the contemporary context.

Recent studies on Islamic education have begun to translate this adab framework more operationally into the context of AI. Anwar and Umam (2025) examine AI-Attas' epistemological response to the contemporary crisis in Islamic education and assert that an adab-based pedagogical reconstruction demands a repositioning of scientific authority, not merely a technical adaptation to new technologies. Similarly, Faizul et al. (2026) formulate the construct of Islamic AI Literacy in six operational dimensions, including AI boundary literacy, critical prompting, digital tabayyun, academic integrity, and scholarly authority literacy, all of which are based on the principles of adab, amanah, 'adl, and maqāṣid al-sharī'ah. This framework emphasizes that adab toward AI is not merely a matter of usage etiquette, but rather an epistemic disposition that guides when and how AI output should be accepted. The need for such a disposition in digital life



is also visible in evidence that digital literacy education is related to doomscrolling behavior among senior high school students (Nurussalma et al., 2026). The same principles of amanah and 'adl have been examined in Islamic social finance, for example in the mediation of sustainable economic empowerment in the relationship between philanthropy and muzakki trust (Bustami et al., 2026), in the links among productive zakāh, service quality, and beneficiary welfare (Toni & Syafii, 2026), in the socio-economic quality of life of disabled persons (Toni et al., 2026), in the impact of productive zakat on mustahik empowerment (Toni et al., 2026), and in the relation between financialization, productive investment, and ecological sustainability (Syafii et al., 2026).

The urgency of such a framework is evident in the empirical findings of Ismail et al. (2025), who demonstrated the risk of plagiarism among Islamic education students due to the use of ChatGPT without a verification tool like Scite, an indication that the issue of academic integrity is rooted in the weak habit of tabayyun or clarification of knowledge sources. This habit of verification parallels the discipline of systematic evidence synthesis (Ibragimov et al., 2026), the caution against single-cause explanations in complex phenomena (Sugianto et al., 2026), and the reliance on professional judgment in fields such as clinical diagnosis, where a case must be read by a trained practitioner (Lutfi et al., 2026). Al Ihram and Raodah (2025) recommend the reconstruction of digital ethics based on Islamic education as a response to this problem, emphasizing that Islamic values need to be translated into practical guidelines for the use of technology, not merely normative principles that stand apart from everyday learning practices. Thus, the reconstruction of the ontology of the "thinking human" proposed in this article finds its counterpart in contemporary efforts to build AI literacy based on adab, while also emphasizing that scientific authority in Islamic education cannot be replaced by the fluency of machine output, no matter how convincing that output may appear.

Manners-Based AI Literacy as a Path to Reconstruction

The practical implications of this reconstruction can be formulated through AI literacy. Ng et al. (2021), based on a review of thirty articles, proposed four aspects of AI literacy: knowing and understanding, using and applying, evaluating and creating, and ethical issues. These four aspects can be enriched with Islamic educational values. The understanding aspect relates to recognizing the nature and limits of AI. The use aspect relates to etiquette in positioning it. The evaluation aspect relates to the principle of *tabayyun*, which is carefully examining information before accepting it (QS. al- Hujurāt [49]: 6). The ethical aspect relates to trustworthiness and



accountability for the knowledge used (QS. al-Isrā' [17]: 36). In this way, AI literacy is not only about technical skills, but also the development of the character of knowledge seekers who remain subject to their own thinking processes. The role of teachers is crucial here as guides who model the etiquette of asking and verifying, so that AI does not replace the scientific relationships that characterize Islamic education.

CONCLUSION

This study concludes that the use of AI as an alternative solution-finding tool not only changes learning efficiency but also the way humans position themselves in the thinking process. The literature shows that easy access to answers can encourage cognitive shifts and decrease skill acquisition when support is removed. This impact is not inherent to the technology itself, as safeguards designed to guide thought effort can mitigate it. Therefore, the question that education needs to address is not simply whether AI is permissible, but rather how the relationship between humans and AI is shaped.

From an Islamic educational perspective, the ontological reconstruction of the "thinking human" is formulated in five dimensions. Thinking is understood as a meaningful activity related to contemplation, not merely seeking answers. Humans are emphasized as subjects seeking knowledge, not recipients of output. Responsibility for knowledge remains vested in the individual, scientific authority and the role of the teacher are maintained, and AI is positioned as a tool whose output is tested. The limitations of AI, which can produce fluent but erroneous text, reinforce the irreplaceability of verification by a thinking human. The principle of *adab*, as the ability to place something in its proper place, serves as the foundation for the value of that placement.

The implication is that Islamic education needs to develop an *adab*-based AI literacy that encompasses an understanding of the nature and limits of AI, ethical use, critical evaluation (*tabayyun*), and ethical accountability. Teachers act as mentors who accustom students to formulate their own problems, verify AI output, and honestly disclose its use. Institutions need to formulate governance that integrates AI ethical principles with Islamic values. As a literature review, these findings are conceptual and have not been tested in practice. Further research is recommended in the form of qualitative empirical studies on the use of AI by Islamic boarding school students, university students, and teachers, as well as learning design experiments that test whether *adab*-based mentoring maintains the quality of thinking



REFERENCES

- Achruh, A., Rapi, M., Rusdi, M., & Idris, R. (2024). Challenges and opportunities of artificial intelligence adoption in Islamic education in Indonesian higher education institutions. *International Journal of Learning, Teaching and Educational Research*, 23 (11), 423–443. <https://doi.org/10.26803/ijlter.23.11.22>
- Adeshola, I., & Adepoju, A. P. (2024). The opportunities and challenges of ChatGPT in education. *Interactive Learning Environments*, 32 (10), 6159–6172. <https://doi.org/10.1080/10494820.2023.2253858>
- Ahmed, F. (2018). An exploration of Naquib Al-Attas' theory of Islamic education as "ta'dib" as an "indigenous" educational philosophy. *Educational Philosophy and Theory*, 50 (8), 786–794. <https://doi.org/10.1080/00131857.2016.1247685>
- Ahmed, F. (2025). Rethinking contemporary schooling in Muslim contexts: An Islamic conceptual framework for reconstructing K-12 education. *Educational Philosophy and Theory*, 57 (2), 152–165. <https://doi.org/10.1080/00131857.2024.2411325>
- Airaj, M. (2024). Ethical artificial intelligence for teaching-learning in higher education. *Education and Information Technologies*, 29 (13), 17145–17167. <https://doi.org/10.1007/s10639-024-12545-x>
- Akgun, S., & Greenhow, C. (2022). Artificial intelligence in education: Addressing ethical challenges in K-12 settings. *AI and Ethics*, 2 (3), 431–440. <https://doi.org/10.1007/s43681-021-00096-7>
- Al Ihram, N., & Raodah, A. (2025). Reconstruction of digital ethics based on Islamic education in the era of artificial intelligence. *Al-Ilmiya: Journal of Islamic Education*, 2 (1), 185–194. <https://doi.org/10.65118/alim.v2i1.43>
- Anilon, B. J., Abidin, A. T. Z., & Syafii, M. H. (2026a). Mapping the intellectual landscape of Islamic religious education curriculum development in ASEAN: A VOSviewer bibliometric analysis. *Hierophany: Journal of Islamic Religious Education*, 1(2), 101–120.
- Anilon, B. J., Abidin, A. T. Z., Syafii, M. H., & Purnomo, H. (2026b). Kecerdasan emosional sebagai prediktor prestasi belajar siswa SMA: Kajian sistematis terhadap dimensi pengaturan dan motivasi diri. *Al Irfan: Jurnal Ilmu Pendidikan dan Penelitian*, 2(1), 93–102.
- Anwar, S., & Umam, H. (2025). Globalization and the crisis in Islamic education: Al-Attas' epistemological response and the reconstruction of adab-based pedagogy. *Yaqzhan*



Journal: Analysis of Philosophy, Religion and Humanity, 11 (1), 135–149.

<https://doi.org/10.24235/jy.v11i1.21161>

Azhari, H., & Alaldaya, R. (2026). Pedagogical content knowledge, religious self-concept, and academic achievement: Mediation of intrinsic religious orientation. *Journal in Teaching and Education Area*, 3(1), 35–51.

Azhari, H., Syafii, M. H., & Alaldaya, R. (2026). Evaluation of the implementation of life skills education in increasing the independence and productivity of students. *Pendekar: Jurnal Pendidikan Berkarakter*, 9(1), 1–12.

Bastani, H., Bastani, O., Sungu, A., Ge, H., Kabakçı, Ö., & Mariman, R. (2025). Generative AI without guardrails can harm learning: Evidence from high school mathematics. *Proceedings of the National Academy of Sciences*, 122 (26), e2422633122.

<https://doi.org/10.1073/pnas.2422633122>

Bender, E.M., Gebru, T., McMillan-Major, A., & Shmitchell, S. (2021). On the dangers of stochastic parrots: Can language models be too big? *Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency (FAccT '21)*, 610–623.

<https://doi.org/10.1145/3442188.3445922>

Bond, M., Khosravi, H., De Laat, M., Bergdahl, N., Negrea, V., Oxley, E., Pham, P., Chong, S. W., & Siemens, G. (2024). A meta systematic review of artificial intelligence in higher education: A call for increased ethics, collaboration, and rigour. *International Journal of Educational Technology in Higher Education*, 21 (1), 4. <https://doi.org/10.1186/s41239-023-00436-z>

Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*, 9 (2), 27–40. <https://doi.org/10.3316/QRJ0902027>

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3 (2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>

Bustami, B., Toni, H., Syafii, M. H., & Azhari, H. (2026). Islamic philanthropy and muzakki trust: Mediation of sustainable economic empowerment in Sungai Penuh. *Review of Islamic Social Finance and Entrepreneurship*, 5(11), 110–119.

Clark, A., & Chalmers, D. (1998). The extended mind. *Analysis*, 58 (1), 7–19. <https://doi.org/10.1093/analyses/58.1.7>

Doshi, A. R., & Hauser, O. P. (2024). Generative AI enhances individual creativity but reduces the collective diversity of novel content. *Science Advances*, 10 (28), Article eadn5290. <https://doi.org/10.1126/sciadv.adn5290>



- Dwivedi, YK, Kshetri, N., Hughes, L., Slade, EL, Jeyaraj, A., Kar, AK, Baabdullah, AM, Koohang, A., Raghavan, V., Ahuja, M., Albanna, H., Albashrawi, MA, Al-Busaidi, AS, Balakrishnan, J., Barlette, Y., Basu, S., Bose, I., Brooks, L., Buhalis, D., ... Wright, R. (2023). "So what if ChatGPT wrote it?" Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy. *International Journal of Information Management*, 71, Article 102642. <https://doi.org/10.1016/j.ijinfomgt.2023.102642>
- Elmahjub, E. (2023). Artificial intelligence (AI) in Islamic ethics: Towards pluralist ethical benchmarking for AI. *Philosophy & Technology*, 36 (4), 73. <https://doi.org/10.1007/s13347-023-00668-x>
- Faizul, MFA, Mukmin, T., Fauzi, M., & Isnaini, M. (2026). Construction of Islamic AI literacy dimensions for the development of Islamic religious education curriculum. *Scientific Periodical of Education*, 6 (2), 467–480. <https://doi.org/10.51214/bip.v6i2.2225>
- Fan, Y., Tang, L., Le, H., Shen, K., Tan, S., Zhao, Y., Shen, Y., Li, X., & Gašević, D. (2025). Beware of metacognitive laziness: Effects of generative artificial intelligence on learning motivation, processes, and performance. *British Journal of Educational Technology*, 56 (2), 489–530. <https://doi.org/10.1111/bjet.13544>
- Farrokhnia, M., Banihashem, S. K., Noroozi, O., & Wals, A. (2024). A SWOT analysis of ChatGPT: Implications for educational practice and research. *Innovations in Education and Teaching International*, 61 (3), 460–474. <https://doi.org/10.1080/14703297.2023.2195846>
- Floridi, L., & Cowls, J. (2019). A unified framework of five principles for AI in society. *Harvard Data Science Review*, 1 (1). <https://doi.org/10.1162/99608f92.8cd550d1>
- Floridi, L., Cowls, J., Beltrametti, M., Chatila, R., Chazerand, P., Dignum, V., Luetge, C., Madelin, R., Pagallo, U., Rossi, F., Schafer, B., Valcke, P., & Vayena, E. (2018). AI4People—An ethical framework for a good AI society: Opportunities, risks, principles, and recommendations. *Minds and Machines*, 28 (4), 689–707. <https://doi.org/10.1007/s11023-018-9482-5>
- Gerlich, M. (2025). AI tools in society: Impacts on cognitive offloading and the future of critical thinking. *Societies*, 15 (1), 6. <https://doi.org/10.3390/soc15010006>
- Goh, AYH, Hartanto, A., & Majeed, N.M. (2025). Generative artificial intelligence dependency: Scale development, validation, and its motivational, behavioral, and psychological correlates. *Computers in Human Behavior Reports*, 20, Article 100845. <https://doi.org/10.1016/j.chbr.2025.100845>



- Grinschgl, S., & Neubauer, A. C. (2022). Supporting cognition with modern technology: Distributed cognition today and in an AI-enhanced future. *Frontiers in Artificial Intelligence*, 5, Article 908261. <https://doi.org/10.3389/frai.2022.908261>
- Hesselmann, G. (2020). No conclusive evidence that difficult general knowledge questions cause a "Google Stroop effect": A replication study. *PeerJ*, 8, e10325. <https://doi.org/10.7717/peerj.10325>
- Ibragimov, S., Nurhabibah, S., Syafii, M. H., & Lutfi, D. O. A. (2026). Prevalence, correlates, and public health implications of mental disorders in Uzbekistan and Indonesia: A systematic review. *Epidemiology and Society Health Review*, 8(2), 179–195.
- Ismail, I., Suja'i, S., & Hasanah, S. (2025). Assessing artificial intelligence plagiarism risk: ChatGPT vs Scite among Islamic education students. *Ta'dib*, 28 (2). <https://doi.org/10.31958/jt.v28i2.16117>
- Jabareen, Y. (2009). Building a conceptual framework: Philosophy, definitions, and procedures. *International Journal of Qualitative Methods*, 8 (4), 49–62. <https://doi.org/10.1177/160940690900800406>
- Ji, Z., Lee, N., Frieske, R., Yu, T., Su, D., Xu, Y., Ishii, E., Bang, Y. J., Madotto, A., & Fung, P. (2023). Survey of hallucinations in natural language generation. *ACM Computing Surveys*, 55 (12), Article 248, 1–38. <https://doi.org/10.1145/3571730>
- Kasneci, E., Sessler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., Gasser, U., Groh, G., Günemann, S., Hüllermeier, E., Krusche, S., Kutyniok, G., Michaeli, T., Nerdel, C., Pfeffer, J., Poquet, O., Sailer, M., Schmidt, A., Seidel, T., ... Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences*, 103, 102274. <https://doi.org/10.1016/j.lindif.2023.102274>
- Lutfi, D. O. A., Wibowo, R. T. G., Amsriza, F. R., & Syafii, M. H. (2026). Acute abdominal pain as a manifestation of acute appendicitis in a 15-year-old adolescent: A case report. *Journal of Health and Therapy*, 5(2), 31–38.
- Moya, B., Eaton, S., Pethrick, H., Hayden, A., Brennan, R., Wiens, J., & McDermott, B. (2024). Academic integrity and artificial intelligence in higher education (HE) contexts: A rapid scoping review. *Canadian Perspectives on Academic Integrity*, 7 (3). <https://doi.org/10.55016/ojs/cpai.v7i3.78123>



- Ng, DTK, Leung, JKL, Chu, SKW, & Qiao, M.S. (2021). Conceptualizing AI literacy: An exploratory review. *Computers and Education: Artificial Intelligence*, 2, 100041. <https://doi.org/10.1016/j.caeai.2021.100041>
- Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, 16 (1), 1–13. <https://doi.org/10.1177/1609406917733847>
- Nurussalma, N. B., Alwis, A., Yusuf, M., & Syafii, M. H. (2026). The relationship between digital literacy education and doomscrolling behavior among senior high school students: A cross-sectional study. *International Journal of Education, Vocational and Social Science*, 5(3).
- Rahamatullah, A. S., Febrianto, F., Baiatun, S., Marini, & Syafii, M. H. (2026). Psychological well-being among older adults living alone: An educational psychology perspective on self-acceptance, autonomy, and lifelong learning in late adulthood. *International Journal of Education, Vocational and Social Science*, 5(3).
- Risko, E.F., & Gilbert, S.J. (2016). Cognitive offloading. *Trends in Cognitive Sciences*, 20 (9), 676–688. <https://doi.org/10.1016/j.tics.2016.07.002>
- Sahin, A. (2018). Critical issues in Islamic education studies: Rethinking Islamic and Western liberal secular values of education. *Religions*, 9 (11), 335. <https://doi.org/10.3390/rel9110335>
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104, 333–339. <https://doi.org/10.1016/j.jbusres.2019.07.039>
- Somantri, A., Syafii, M. H., Amirudin, A., Alaldaya, R., & Azhari, H. (2026). Correlation of curricular transition quality with the religiosity and morality index of university students. *IJECA (International Journal of Education and Curriculum Application)*, 9(1).
- Sparrow, B., Liu, J., & Wegner, D. M. (2011). Google effects on memory: Cognitive consequences of having information at our fingertips. *Science*, 333 (6043), 776–778. <https://doi.org/10.1126/science.1207745>
- Stimpson, B., & Calvert, I. (2021). Qur'anic educational philosophy: Foundational principles of education in Islam's holiest text. *Religions*, 12 (2), 82. <https://doi.org/10.3390/rel12020082>



- Sugianto, L. O., Nurhabibah, S., Toni, H., Syafii, H., Dzakiyyah Az, S., et al. (2026). A configurational causation in post-Arab Spring political economy: Regime transition modes and economic liberalization in the Middle East (2011–2024). *JPW (Jurnal Politik Walisongo)*, 8(1), 43–81.
- Syafii, M. H., & Azhari, H. (2026a). Development of a local wisdom-based Islamic cultural history learning in Islamic junior high schools. *Kalam Al Gazali: Education and Islamic Studies Journal*, 3(1), 63–80.
- Syafii, M. H., & Azhari, H. (2026b). Spiritual intelligence and metacognitive development in Islamic education philosophy. *Hierophany: Journal of Islamic Religious Education*, 1(1), 61–79.
- Syafii, M. H., Azhari, H., & Alaldaya, R. (2026c). Comparative study of conventional and Montessori learning methods on the cognitive development of preschool children. *Journal of Early Childhood Education Perspectives*, 2(1), 53–64.
- Syafii, M. H., Azhari, H., Alaldaya, R., & Amirudin, A. (2026d). Rethinking contemporary Qur'anic epistemology: Neurotheology, double consciousness, and non-Arabcentric hadith traditions. *Al-Karim: International Journal of Quranic and Islamic Studies*, 4(1), 1–20.
- Syafii, M. H., Zahrah, S. D. A., Azhari, H., & Alaldaya, R. (2026e). Financialization, productive investment, and ecological sustainability through an Islamic economics lens in the G20 development. *Indonesian Journal of Islamic Economics Research*, 8(1), 103–128.
- Tankelevitch, L., Kewenig, V., Simkute, A., Scott, A.E., Sarkar, A., Sellen, A., & Rintel, S. (2024). The metacognitive demands and opportunities of generative AI. In *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems* (Article 680, 24 pp.). ACM. <https://doi.org/10.1145/3613904.3642902>
- Toni, H., & Syafii, M. H. (2026). Productive zakāh, service quality, and the welfare of zakāh beneficiary via economic empowerment in Indonesia. *Journal of King Abdulaziz University: Islamic Economics*, 39(2), 57–71.
- Toni, H., Alghazali, R. D., & Syafii, M. H. (2026a). Explanatory research on zakat model for enhancing disabled persons' socio-economic quality of life. *Journal of Islamic Economics and Finance Studies*, 7(1), 190–211.
- Toni, H., Syafii, M. H., Bustami, B., Azhari, H., & Alaldaya, R. (2026b). Evaluating socio-economic impacts of productive zakat on mustahik empowerment: A propensity score matching analysis. *Management of Zakat and Waqf Journal (MAZAWA)*, 8(1), 1–23.



- Umam, A. K., Nurussalma, N. B., Alghzali, R. D., Alwis, A., & Syafii, M. H. (2026). Teacher self-efficacy and student engagement learning: A cross-sectional study in Indonesian secondary schools. *International Journal of Education, Vocational and Social Science*, 5(3).
- Zhu, Q., Li, X., Dong, Y., Chang, P., & Fan, M. (2026). Not all cognitive offloading is equal: Distinguishing dependent and autonomous offloading to generative AI. *Frontiers in Psychology*, 17, Article 1878629. <https://doi.org/10.3389/fpsyg.2026.1878629>

