

Ethical Integration of Artificial Intelligence in Islamic Teacher Education: An Islamic Perspective

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ARTICLE INFO	ABSTRACT
Keywords: Artificial Intelligence, Islamic Teacher Education, AI Ethics, Islamic Educational Philosophy, Islamic Ethics, Sustainable Development Goals.	Artificial Intelligence (AI) is increasingly transforming educational systems by supporting personalized learning, intelligent assessment, and innovative teaching practices. In Islamic teacher education, however, the integration of AI presents ethical challenges concerning academic integrity, data privacy, algorithmic bias, human agency, and the preservation of Islamic educational values. Although numerous studies have explored AI in education, limited attention has been given to its ethical integration from an Islamic perspective. This study aims to examine how Islamic ethical principles can guide the responsible adoption of AI in Islamic teacher education. Using a qualitative conceptual approach based on a systematic review of relevant literature and normative analysis of Islamic educational philosophy, the study synthesizes contemporary AI ethics with core Islamic values, including <i>amanah</i> (trustworthiness), <i>'adl</i> (justice), <i>ihsan</i> (excellence), <i>maslahah</i> (public benefit), and <i>hikmah</i> (wisdom). The findings indicate that AI should function as an educational support tool that enhances teaching and learning while preserving the central role of teachers as moral educators. An Islamic perspective emphasizes that technological innovation must be guided by ethical responsibility, transparency, fairness, accountability, and the broader objectives of <i>Maqāṣid al-Shari'ah</i>. This perspective provides practical guidance for teacher educators, curriculum developers, and policymakers in designing AI-integrated teacher education programs that are both technologically innovative and ethically grounded. The study contributes to the growing field of AI in education by offering an Islamic ethical perspective that bridges contemporary technological advancements with Islamic educational philosophy, thereby supporting the implementation of Sustainable Development Goal 4 on quality education.
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INTRODUCTION

The emergence of Artificial Intelligence (AI) has fundamentally transformed contemporary society, reshaping economic systems, healthcare, governance, and particularly education. Over the last decade, AI has evolved from a specialized computational technology into an essential component of everyday educational practice. The rapid development of generative AI applications including ChatGPT, Gemini, Microsoft Copilot, Claude, and other large language models has significantly altered the ways educators design instructional materials, facilitate learning, evaluate student performance, and conduct academic research. Rather than functioning solely as information retrieval tools, these technologies increasingly serve as collaborative partners capable of generating lesson plans, designing assessments, producing educational content, and providing personalized learning experiences. This transformation marks a paradigm shift in educational practice, where learning is no longer confined to interactions between teachers and students but increasingly involves intelligent technological systems that influence teaching, learning, and assessment processes¹.

The growing influence of AI in education has attracted considerable attention from international organizations. UNESCO recognizes that generative AI possesses enormous potential to enhance educational quality, widen access to learning opportunities, and support personalized instruction. At the same time, UNESCO emphasizes that AI adoption must remain human-centred and ethically governed. The organization warns that the rapid expansion of generative AI has outpaced the development of educational regulations in many countries, creating significant concerns regarding data privacy, transparency, algorithmic bias, intellectual property, and educational equity. Consequently, UNESCO encourages governments and educational institutions to formulate comprehensive policies that ensure AI serves educational objectives without undermining human dignity, learner autonomy, or ethical responsibility².

Recognizing the changing educational landscape, UNESCO introduced the AI Competency Framework for Teachers in 2024, identifying the knowledge, skills, and values educators require to effectively integrate AI into professional practice. The framework moves beyond technical proficiency by emphasizing ethical reasoning, human agency, pedagogical innovation, and sustainable educational development. It proposes fifteen competencies across five dimensions: human-centred mindset, AI ethics, AI foundations and applications, AI pedagogy, and AI for professional learning, highlighting that teachers must not merely become AI users but responsible educational leaders capable of critically evaluating AI-generated information and safeguarding learners' interests. This framework reflects an important shift in educational policy, positioning teachers as ethical decision-makers in AI-enhanced learning environments rather than passive adopters of emerging technologies³.

The integration of AI into education also reflects broader transformations associated with Education 5.0, which emphasizes collaboration between human intelligence and intelligent technologies to foster creativity, critical thinking, and lifelong learning. Within this paradigm, AI has demonstrated considerable potential to support adaptive learning systems,

¹ UNESCO, *Guidance for Generative AI in Education and Research* (Paris: UNESCO, 2023).

² UNESCO, *Guidance for Generative AI in Education and Research* (Paris: UNESCO, 2023).

³ UNESCO, *AI Competency Framework for Teachers* (Paris: UNESCO, 2024)

automate administrative tasks, generate instructional resources, and provide timely feedback to learners. Educational institutions increasingly employ AI to improve learning analytics, personalize instruction, and enhance educational accessibility for diverse learner populations. Nevertheless, technological advancement alone cannot guarantee educational quality. The effectiveness of AI depends largely on educators' ability to integrate these technologies responsibly while maintaining pedagogical integrity and human-centred values. Recent scholarship therefore argues that successful AI implementation requires a balanced relationship between technological innovation and professional judgment, ensuring that AI complements rather than replaces teachers' educational roles ⁴.

Despite these promising developments, the rapid diffusion of generative AI has generated profound ethical questions within educational contexts. Concerns regarding academic integrity, misinformation, algorithmic bias, unequal access, copyright infringement, and excessive dependence on AI technologies have become central issues in educational policy and research. The capacity of generative AI to produce persuasive yet inaccurate information presents substantial challenges for teaching and assessment, particularly when learners rely on AI-generated outputs without critical evaluation. Furthermore, algorithmic decision-making processes often lack transparency, making it difficult for educators to explain, justify, or evaluate AI-generated recommendations. These ethical concerns suggest that AI integration cannot be understood merely as a technological innovation but must also be examined as a moral and educational issue requiring clear ethical principles and governance mechanisms ⁵.

These challenges become even more significant within teacher education, where future educators are expected not only to master digital technologies but also to cultivate professional ethics, critical judgment, and moral responsibility. Teacher education institutions therefore occupy a strategic position in preparing educators who are capable of utilizing AI while simultaneously protecting educational values, promoting human agency, and ensuring equitable learning opportunities. The question is no longer whether AI should be integrated into teacher education, but rather how such integration can occur responsibly, ethically, and consistently with the broader purposes of education. Addressing this question is particularly important for institutions of Islamic teacher education, where educational objectives extend beyond cognitive achievement to encompass spiritual development, moral character, and social responsibility. It is within this context that an Islamic ethical perspective offers a valuable lens for examining the responsible integration of AI in teacher education.

The integration of Artificial Intelligence (AI) into teacher education represents one of the most significant transformations in contemporary educational systems. Beyond supporting instructional efficiency, AI has redefined the competencies expected of future teachers, requiring them to possess not only pedagogical knowledge and digital literacy but also ethical reasoning and critical judgment in the use of intelligent technologies⁶. The rapid

⁴ Thomas B. Frøsig and Margarida Romero, "Teacher Agency in the Age of Generative AI: Towards a Framework of Hybrid Intelligence for Learning Design," 2024.

⁵ Cecilia Ka Yuk Chan, "A Comprehensive AI Policy Education Framework for University Teaching and Learning," 2023.

⁶ UNESCO, *AI Competency Framework for Teachers* (Paris: UNESCO, 2024), 7–15.

emergence of generative AI has enabled pre-service teachers to design lesson plans, generate instructional materials, develop authentic assessments, provide personalized feedback, and analyze students' learning progress with greater efficiency. Consequently, teacher education institutions are increasingly challenged to redesign their curricula to prepare prospective teachers who are capable of integrating AI responsibly while maintaining professional autonomy and pedagogical integrity⁷.

Recent educational discourse suggests that AI competence should no longer be understood merely as technological proficiency. Rather, it encompasses the capacity to critically evaluate AI-generated information, recognize algorithmic limitations, mitigate misinformation, and make pedagogically sound decisions in technology-enhanced learning environments. UNESCO's *AI Competency Framework for Teachers* identifies fifteen competencies organized into five dimensions, namely human-centred mindset, AI ethics, AI foundations and applications, AI pedagogy, and AI for professional learning. The framework emphasizes that teachers must remain the primary decision-makers in educational practice, ensuring that AI complements rather than replaces human intelligence and professional judgment⁸. Such a perspective reinforces the notion that AI should function as an educational partner rather than an autonomous authority within the learning process.

Despite these opportunities, the growing adoption of AI has generated substantial ethical concerns in educational contexts. Among the most frequently discussed issues are academic integrity, algorithmic bias, data privacy, copyright infringement, misinformation, and excessive dependence on AI-generated content. The availability of generative AI has fundamentally altered traditional approaches to teaching and assessment, creating uncertainty regarding authorship, originality, and authentic student learning. Scholars have therefore argued that educational institutions should move beyond prohibition-oriented policies and instead establish ethical governance frameworks that promote transparency, accountability, and responsible AI use within teaching and learning activities⁹. This perspective reflects an important shift from viewing AI as a threat to considering it as a pedagogical resource that requires appropriate ethical regulation.

Within teacher education, these ethical issues become particularly significant because future teachers will shape how AI is adopted in schools and classrooms. Their professional decisions will influence students' understanding of responsible technology use, academic honesty, and digital citizenship. Consequently, teacher education programs bear the responsibility of preparing educators who can balance technological innovation with ethical accountability. As noted in recent policy research, effective AI integration requires not only institutional regulations but also continuous professional development that enables educators to critically evaluate AI outputs, recognize their limitations, and make informed pedagogical decisions based on educational objectives rather than technological convenience¹⁰.

⁷ UNESCO, *Guidance for Generative AI in Education and Research* (Paris: UNESCO, 2023), 17–30.

⁸ UNESCO, *AI Competency Framework for Teachers* (Paris: UNESCO, 2024), 21–36.

⁹ Mike Perkins, Leon Furze, Jasper Roe, and Jason MacVaugh, “The AI Assessment Scale (AIAS): A Framework for Ethical Integration of Generative AI in Educational Assessment,” 2023.

¹⁰ Cecilia Ka Yuk Chan, “A Comprehensive AI Policy Education Framework for University Teaching and Learning,” 2023.

The ethical dimension becomes even more profound in the context of Islamic teacher education. Unlike conventional teacher preparation, Islamic teacher education is grounded in a holistic educational philosophy that seeks to develop intellectual competence alongside spiritual maturity, moral character (*akblaq*), and social responsibility. Teachers are expected to function not merely as transmitters of knowledge (*mu'allim*), but also as educators (*murabbi*) and character builders (*mu'addib*) who guide learners toward ethical and spiritual excellence. Consequently, technological innovation should strengthen rather than diminish these educational purposes. AI may enhance instructional effectiveness and administrative efficiency, but it cannot replace the human responsibility of cultivating values, wisdom, compassion, and moral leadership that constitute the essence of Islamic education.

From an Islamic perspective, ethical decision-making is guided by universal principles embedded within Islamic educational philosophy. Values such as *amanah* (trustworthiness), *'adl* (justice), *ihsan* (excellence), *hikmah* (wisdom), and *maslahah* (public benefit) provide a normative framework for evaluating the opportunities and risks associated with AI implementation. These principles encourage educators to ensure transparency, fairness, accountability, and social benefit while preventing technological misuse that may harm learners or compromise educational integrity. Therefore, AI should not merely be assessed according to its technical performance but also according to its ability to support the broader objectives of Islamic education and the realization of *Maqāṣid al-Shari'ah* in educational practice.

Although scholarly interest in AI has increased substantially, existing studies remain fragmented. Most investigations focus on AI literacy, technological adoption, digital transformation, or ethical governance from secular educational perspectives. Other studies discuss Islamic education in relation to digital learning without explicitly addressing AI ethics. Very few studies have integrated contemporary AI ethics with Islamic educational philosophy, particularly within the context of Islamic teacher education. This gap indicates the need for a comprehensive ethical perspective capable of connecting advances in AI technology with the normative principles of Islamic education. Addressing this gap constitutes the primary contribution of the present study.

Although the body of literature on Artificial Intelligence (AI) in education has expanded rapidly during the past decade, existing studies have largely concentrated on technological innovation, instructional effectiveness, and institutional readiness for AI adoption. Research has demonstrated the potential of AI to support adaptive learning, intelligent tutoring systems, automated assessment, learning analytics, and personalized instruction. At the same time, scholars have increasingly emphasized the ethical implications of AI, including algorithmic bias, transparency, accountability, data privacy, academic integrity, and responsible governance. Despite these important contributions, the dominant discourse remains largely grounded in secular educational policy and technological governance, with relatively limited attention devoted to ethical frameworks derived from

religious or culturally embedded educational philosophies¹¹.

Within Islamic education, scholarly attention to AI has also increased in response to the rapid digital transformation occurring in educational institutions. Existing studies generally discuss the use of AI to improve learning effectiveness, facilitate Qur'anic studies, enhance online learning environments, and strengthen digital literacy among students and teachers. These studies recognize that AI offers substantial opportunities for improving educational accessibility and instructional quality. Nevertheless, they also acknowledge significant risks, including misinformation, excessive technological dependence, diminished interpersonal interaction, and the potential erosion of ethical and spiritual values that constitute the foundation of Islamic education. Consequently, AI is widely regarded as a supportive educational tool rather than a substitute for teachers' intellectual, moral, and spiritual responsibilities¹².

Recent international policy frameworks further reinforce the importance of integrating ethical considerations into AI implementation. UNESCO's *Guidance for Generative AI in Education and Research* advocates a human-centred approach to AI governance by emphasizing data protection, transparency, equity, accountability, and age-appropriate implementation. Similarly, the *AI Competency Framework for Teachers* identifies ethical competence as one of the five core dimensions that teachers must develop to effectively integrate AI into educational practice. Rather than focusing exclusively on technological proficiency, UNESCO emphasizes that teachers should become critical users, ethical decision-makers, and responsible innovators capable of balancing technological advancement with educational values and human agency¹³.

Despite these developments, important gaps remain within the current literature. First, most studies addressing AI ethics adopt universal or secular ethical frameworks based on technological governance, legal compliance, or institutional policy. Comparatively few studies explore how Islamic ethical philosophy may contribute to responsible AI implementation within educational settings. This omission is particularly significant considering that Islamic education is fundamentally value-oriented and places ethical development at the centre of educational practice¹⁴.

Second, although research concerning AI in Islamic education continues to grow, the majority of existing studies focuses on students, digital learning environments, curriculum innovation, or educational technology adoption. Limited attention has been given to Islamic teacher education, despite its strategic role in preparing future educators who will determine how AI is implemented within schools, universities, and broader educational systems. Teacher education differs fundamentally from general educational practice because it seeks not only to develop pedagogical competence but also to cultivate professional identity, ethical

¹¹ UNESCO, *Guidance for Generative AI in Education and Research* (Paris: UNESCO, 2023). ; Cecilia Ka Yuk Chan, "A Comprehensive AI Policy Education Framework for University Teaching and Learning," *arXiv* (2023).

¹² UNESCO, *Guidance for Generative AI in Education and Research* (Paris: UNESCO, 2023). ; UNESCO, *AI Competency Framework for Teachers* (Paris: UNESCO, 2024).

¹³ UNESCO, *Guidance for Generative AI in Education and Research* (Paris: UNESCO, 2023). ; UNESCO, *AI Competency Framework for Teachers* (Paris: UNESCO, 2024).

¹⁴ UNESCO, *Guidance for Generative AI in Education and Research* (Paris: UNESCO, 2023). ; UNESCO, *AI Competency Framework for Teachers* (Paris: UNESCO, 2024).

leadership, and moral responsibility among future teachers.¹⁵

Third, current studies rarely provide a comprehensive conceptual synthesis between contemporary AI ethics and the normative foundations of Islamic educational philosophy. Discussions concerning Islamic values frequently mention concepts such as *amanah*, *'adl*, or *maqāṣid al-sharī'ah* independently, yet few studies explain how these principles can collectively function as an integrated ethical perspective for guiding AI adoption in Islamic teacher education. Consequently, educational institutions lack a coherent conceptual foundation capable of supporting policy formulation, curriculum development, and professional standards for responsible AI implementation. This conceptual fragmentation highlights the need for a more systematic ethical perspective that bridges technological innovation with Islamic educational philosophy¹⁶.

Responding to these research gaps, the present study positions Islamic ethical philosophy as the primary analytical lens for examining the integration of Artificial Intelligence in Islamic teacher education. Unlike previous studies that predominantly emphasize technological capability or digital literacy, this research argues that AI implementation should be evaluated through ethical principles that shape educational purposes, professional conduct, and social responsibility. Specifically, the study synthesizes contemporary discussions on AI ethics with the Islamic principles of *amanah* (trustworthiness), *'adl* (justice), *ihsan* (excellence), *hikmah* (wisdom), *maslahah* (public benefit), and the objectives of *maqāṣid al-sharī'ah*. Through this synthesis, the study seeks to develop an Islamic ethical perspective that supports responsible, human-centred, and value-oriented AI integration in teacher education while contributing to the achievement of Sustainable Development Goal 4 on quality education¹⁷.

RESEARCH METHOD

This study employed a qualitative research approach using a Systematic Literature Review (SLR) to synthesize existing evidence concerning the ethical integration of Artificial Intelligence (AI) in Islamic teacher education. The review was conducted following the Preferred Reporting Items for Systematic Reviews guidelines to ensure transparency, methodological rigor, and reproducibility throughout the review process. Rather than generating statistical evidence through meta-analysis, this study adopted a conceptual synthesis to identify, evaluate, and integrate existing knowledge into an Islamic ethical perspective for responsible AI implementation in teacher education¹⁸. PRISMA 2020 recommends a structured workflow comprising identification, screening, eligibility assessment, and inclusion of relevant studies, allowing researchers to report literature selection systematically.

¹⁵ UNESCO, *Guidance for Generative AI in Education and Research* (Paris: UNESCO, 2023). ; UNESCO, *AI Competency Framework for Teachers* (Paris: UNESCO, 2024).

¹⁶ UNESCO, *Guidance for Generative AI in Education and Research* (Paris: UNESCO, 2023). ; UNESCO, *AI Competency Framework for Teachers* (Paris: UNESCO, 2024).

¹⁷ UNESCO, *Guidance for Generative AI in Education and Research* (Paris: UNESCO, 2023).

¹⁸ Matthew J. Page et al., *The PRISMA 2020 Statement: An Updated Guideline for Reporting Systematic Reviews*, *BMJ* 372 (2021): n71.

The conceptual orientation of this study was selected because the existing body of knowledge regarding AI ethics and Islamic teacher education remains fragmented across educational technology, AI governance, Islamic educational philosophy, and teacher professional development. Consequently, a systematic synthesis is considered more appropriate than empirical field investigation to establish a comprehensive theoretical perspective.

RESULT AND DISCUSSION

Artificial Intelligence in Teacher Education: Transforming Professional Competencies

The rapid advancement of Artificial Intelligence (AI), particularly generative AI, has fundamentally transformed the landscape of teacher education. AI is no longer perceived merely as an educational technology that supports classroom instruction; rather, it has become an integral component of teacher professional development, curriculum innovation, instructional design, assessment, and educational decision-making. The emergence of large language models, intelligent tutoring systems, learning analytics, and adaptive educational technologies has altered the traditional teacher–student relationship into a more complex teacher–AI–student ecosystem, in which teachers remain central but increasingly collaborate with intelligent technologies to facilitate meaningful learning experiences. UNESCO describes this transformation as requiring a fundamental redefinition of teachers' professional competencies and responsibilities in the AI era¹⁹.

Consequently, contemporary teacher education programs are expected to prepare prospective teachers who possess not only pedagogical, professional, social, and personal competencies but also AI literacy, digital ethics, and critical technological awareness. Rather than replacing teachers, AI has shifted teachers' roles from information providers to learning designers, facilitators, mentors, and ethical decision-makers. This transformation requires teacher education institutions to redesign curricula that enable future educators to understand the capabilities, limitations, risks, and ethical implications of AI while maintaining human agency in educational practice. UNESCO emphasizes that teachers must retain responsibility for pedagogical decisions and should not delegate professional judgment entirely to AI systems²⁰.

Recent international discussions increasingly emphasize that AI competence extends beyond operational skills. The AI Competency Framework for Teachers published by UNESCO in 2024 identifies fifteen competencies grouped into five interrelated domains: human-centred mindset, ethics of AI, AI foundations and applications, AI pedagogy, and AI for professional learning. These competencies are organized into three developmental stages: Acquire, Deepen, and Create illustrating that teachers should progressively move from basic AI literacy toward the capacity to innovate responsibly within AI-enhanced educational environments. Importantly, the framework positions ethics as a core competency rather than

¹⁹ UNESCO, *AI Competency Framework for Teachers* (Paris: UNESCO, 2024).

²⁰ UNESCO, *AI Competency Framework for Teachers*, chap. 2, "A Human-Centred Approach,"

an additional consideration, reflecting the growing recognition that effective AI integration depends as much on ethical judgment as on technological capability.

The increasing use of generative AI has also reshaped instructional planning within teacher education. Pre-service teachers now employ AI to generate lesson plans, construct assessment rubrics, prepare instructional materials, simulate classroom scenarios, summarize academic literature, and provide personalized feedback. These applications substantially reduce administrative workload while allowing teachers to allocate more time to higher-order pedagogical activities such as mentoring, classroom interaction, reflective practice, and individualized student support. Nevertheless, excessive dependence on AI-generated content may diminish teachers' creativity, critical thinking, and instructional originality if AI outputs are accepted uncritically. Therefore, teacher education should cultivate reflective practitioners who can evaluate AI-generated information rather than merely consume it²¹.

Another important implication of AI integration concerns teacher agency. Although AI can significantly improve efficiency, it may simultaneously influence teachers' autonomy in curriculum planning and instructional decision-making. Frøsig and Romero argue that AI should function within a hybrid intelligence paradigm in which human intelligence and artificial intelligence complement one another rather than compete. In this model, teachers remain the ultimate pedagogical authorities responsible for interpreting AI recommendations, adapting instructional strategies to local contexts, and ensuring that educational decisions reflect learners' developmental needs rather than algorithmic optimization. This perspective aligns closely with UNESCO's human-centred approach, which emphasizes that AI should strengthen rather than weaken teachers' professional agency.²²

The ethical dimension of AI competence has consequently become indispensable within teacher education. Teachers are increasingly expected to recognize algorithmic bias, evaluate the credibility of AI-generated information, protect learners' personal data, prevent academic misconduct, and promote responsible AI use among students. Ethical competence therefore functions not merely as regulatory compliance but as a professional disposition that guides educational decision-making in technology-rich environments. The literature consistently suggests that teacher preparation programs should integrate ethical reflection throughout pedagogical training instead of treating AI ethics as an isolated topic. Such integration enables future educators to balance innovation with responsibility, ensuring that AI contributes positively to educational quality and learner development²³.

For Islamic teacher education, these developments present both opportunities and challenges. On one hand, AI can facilitate curriculum development, improve instructional effectiveness, expand access to educational resources, and support lifelong professional learning. On the other hand, AI raises important questions concerning the preservation of Islamic educational values, moral formation, and the teacher's role as *murabbi*, *mu'allim*, and

²¹ Matthew Nyaaba, "Transforming Teacher Education in Developing Countries: The Role of Generative AI in Bridging Theory and Practice," 2024.

²² Thomas B. Frøsig and Margarida Romero, "Teacher Agency in the Age of Generative AI: Towards a Framework of Hybrid Intelligence for Learning Design," 2024

²³ Kaska Porayska-Pomsta, Wayne Holmes, and Selena Nemorin, *The Ethics of AI in Education*, 2024.

mu'addib. Unlike purely technical conceptions of teacher competence, Islamic teacher education seeks to develop educators who integrate knowledge with ethical responsibility, spirituality, and character formation. Consequently, AI competence within Islamic education cannot be reduced to technical literacy alone but must also encompass Islamic ethical principles that guide responsible technological practice. This observation provides the foundation for the subsequent discussion on ethical challenges and the development of an Islamic ethical framework for AI integration in teacher education.

Ethical Challenges of Artificial Intelligence in Teacher Education

The rapid integration of Artificial Intelligence (AI) into teacher education has generated significant ethical concerns that extend beyond technological adoption. Although AI offers substantial opportunities for improving instructional quality, assessment, and professional development, its implementation simultaneously introduces complex ethical dilemmas involving academic integrity, algorithmic bias, transparency, accountability, data privacy, copyright, and the preservation of human agency. These challenges demonstrate that AI is not merely a technological innovation but also a socio-technical system whose educational value depends largely on the ethical principles governing its use. UNESCO therefore emphasizes that AI should always be implemented through a human-centred approach, ensuring that technological advancement strengthens rather than diminishes the role of teachers and learners.

One of the most widely discussed ethical issues concerns academic integrity. The emergence of generative AI has fundamentally altered traditional concepts of authorship, originality, and intellectual responsibility. Students increasingly employ AI to generate essays, summarize literature, solve assignments, and even produce complete research reports with minimal human intervention. While these capabilities may enhance learning when used appropriately, they also create opportunities for plagiarism, contract cheating, and excessive dependence on AI-generated content. Recent studies argue that the principal challenge is no longer detecting AI-generated work but redefining authentic learning and academic honesty within AI-supported educational environments. Consequently, educational institutions are encouraged to replace prohibition-oriented policies with comprehensive ethical frameworks that promote transparency, disclosure of AI use, and critical engagement with AI-generated content²⁴.

A second ethical concern relates to algorithmic bias and fairness. AI systems learn from large datasets that frequently reflect existing social, cultural, linguistic, or economic inequalities. Consequently, AI-generated recommendations, automated grading systems, and predictive learning analytics may unintentionally reproduce discrimination against particular groups of learners. UNESCO warns that biased algorithms may negatively affect learners on the basis of gender, socioeconomic background, language, disability, ethnicity, or geographical location, thereby undermining educational equity and human rights. Because

²⁴ Ali Ateeq et al., "Artificial Intelligence in Education: Implications for Academic Integrity and the Shift toward Holistic Assessment," *Frontiers in Education* 9 (2024); Zaira Navarrete-Cazales, Juan Crescenciano Cruz-Victoria, and Héctor M. Manzanilla-Granados, "Autoría e Integridad Académica ante la Inteligencia Artificial Generativa en Educación Superior," *Revista Educación Superior y Sociedad* 37, no. 2 (2025).

teacher education prepares future educators responsible for ensuring fair learning opportunities, prospective teachers must develop the competence to recognize, evaluate, and mitigate algorithmic bias before incorporating AI into classroom practice.

Closely related to fairness is the issue of transparency and explainability. Many contemporary AI systems, particularly those based on deep learning, operate as "black boxes" whose internal decision-making processes remain difficult to interpret. This lack of explainability creates significant ethical concerns because teachers may find it difficult to justify AI-generated recommendations regarding assessment, student performance, or instructional interventions. Educational decisions require professional accountability, and therefore teachers cannot rely solely on algorithmic outputs without understanding the reasoning behind them. UNESCO consequently argues that human oversight should remain an essential component of all AI-supported educational decision-making processes, ensuring that teachers retain ultimate responsibility for pedagogical judgments.

Another major ethical challenge concerns privacy and data governance. AI applications require extensive learner data to personalize instruction, monitor learning behaviour, and generate predictive analyses. While data-driven education may improve learning outcomes, it simultaneously raises concerns regarding informed consent, data ownership, surveillance, cybersecurity, and unauthorized commercial exploitation of educational data. Learners often have limited understanding of how their personal information is collected, processed, stored, or shared by AI platforms. UNESCO therefore recommends that educational institutions establish robust governance mechanisms to ensure responsible data management, transparency, and protection of learners' fundamental rights throughout AI implementation.⁵

The rapid expansion of generative AI has also intensified debates surrounding teacher autonomy and professional agency. Although AI can automate lesson planning, assessment, feedback generation, and administrative tasks, excessive reliance on AI may gradually reduce teachers' independent professional judgment. Teacher education should therefore prepare future educators to use AI as a decision-support tool rather than as an autonomous instructional authority. UNESCO's AI Competency Framework for Teachers explicitly positions teachers as ethical leaders who critically evaluate AI outputs and make final pedagogical decisions based on learners' developmental needs rather than algorithmic efficiency. This perspective reinforces the principle that AI should augment, not replace, teachers' professional expertise.

Beyond these technical concerns, AI also raises broader philosophical questions concerning the purpose of education. Education is not limited to knowledge transmission but also encompasses character formation, moral reasoning, empathy, critical thinking, and social interaction. AI may efficiently generate information and automate routine tasks, yet it cannot fully replicate the interpersonal relationships, ethical deliberation, and emotional intelligence that characterize meaningful educational experiences. Scholars therefore argue that responsible AI implementation should preserve the human dimensions of education while leveraging technological innovation to enhance not substitute teachers' pedagogical and

ethical roles²⁵.

Within the context of Islamic teacher education, these ethical challenges acquire additional significance because Islamic education is fundamentally value-oriented. Teachers are expected not only to facilitate cognitive development but also to cultivate *akhlak*, spiritual awareness, and social responsibility. Consequently, the ethical evaluation of AI cannot be based solely on technological efficiency or institutional policy. Instead, AI implementation should be examined through the normative framework of Islamic educational philosophy, where technological innovation is acceptable only insofar as it supports justice (*'adl*), trustworthiness (*amanah*), excellence (*ihsan*), wisdom (*hikmah*), and public benefit (*maslahah*). From this perspective, the ethical challenges identified above are not merely technical problems requiring regulatory solutions but moral questions concerning the responsible relationship between technology, humanity, and education. This observation provides the conceptual bridge toward the following discussion on Islamic educational philosophy and its contribution to responsible AI integration.

Islamic Educational Philosophy: A Foundation for Ethical AI Integration

The ethical integration of Artificial Intelligence (AI) into Islamic teacher education cannot be understood solely through technological or pedagogical perspectives. Instead, it requires a philosophical foundation that defines the nature, purpose, and objectives of education itself. Within Islamic educational thought, education is fundamentally concerned with the holistic development of human beings (*insān*) through the harmonious cultivation of intellectual, spiritual, moral, and social dimensions. Knowledge is therefore not regarded as value-neutral information but as a trust (*amanah*) bestowed by Allah that should lead individuals toward wisdom (*hikmah*), justice (*'adl*), and righteous action. Consequently, any educational technology including AI must ultimately serve these higher educational purposes rather than merely improving efficiency or productivity²⁶.

One of the most influential contemporary Muslim philosophers of education, Syed Muhammad Naquib al-Attas, argues that the central purpose of Islamic education is the formation of the good and civilized human being (*al-insān al-ṣāliḥ*). According to Al-Attas, the ultimate educational objective is not simply the production of skilled workers or knowledgeable individuals but the cultivation of persons who possess *adab*, namely the ability to recognize and place everything in its proper order according to divine guidance. He therefore proposes that the most appropriate concept of Islamic education is *ta'dīb*, rather than merely *tarbiyah* or *ta'lim*, because *ta'dīb* integrates knowledge, ethics, discipline, justice, and wisdom into a unified educational process²⁷.

The concept of *ta'dīb* has profound implications for contemporary AI integration. Artificial Intelligence may facilitate access to information and automate numerous educational activities, yet AI cannot cultivate *adab* independently. Moral judgment, ethical

²⁵ Kaska Porayska-Pomsta, Wayne Holmes, and Selena Nemorin, *The Ethics of AI in Education* (2024)

²⁶ Syed Muhammad Naquib al-Attas, *The Concept of Education in Islam: A Framework for an Islamic Philosophy of Education* (Kuala Lumpur: Ta'dib International, edisi modern; karya asli dipresentasikan pada Second World Conference on Muslim Education, 1980)

²⁷ Syed Muhammad Naquib al-Attas, *Islam and Secularism* (Kuala Lumpur: ISTAC, 1993)

responsibility, compassion, and spiritual awareness remain uniquely human capacities that require interaction between teachers and learners. Consequently, Islamic teacher education should regard AI as an educational instrument that supports the realization of *ta'dib* rather than replacing the educator's responsibility for moral formation. In this respect, technology should remain subordinate to educational philosophy rather than determining educational purposes. This interpretation is widely recognized in contemporary discussions concerning Al-Attas' educational philosophy²⁸.

Closely related to *ta'dib* is Al-Attas' critique of the secularization of knowledge. In *Islam and Secularism*, he argues that modern education has increasingly separated scientific knowledge from ethical and spiritual values, producing intellectual advancement without corresponding moral development. Such separation creates what he describes as the "loss of adab," a condition in which knowledge is no longer directed toward truth, justice, and human flourishing. AI development illustrates this concern. While AI systems demonstrate remarkable computational capability, their deployment without ethical guidance may reinforce bias, misinformation, surveillance, and technological dependence. Therefore, from Al-Attas' perspective, the primary challenge is not the existence of AI itself but the absence of an educational worldview capable of directing technological innovation toward ethical and civilizational objectives²⁹.

Islamic educational philosophy also emphasizes that knowledge originates from Allah and should ultimately contribute to the realization of justice and human well-being. This epistemological orientation differs fundamentally from purely utilitarian approaches to educational technology that evaluate innovation primarily according to efficiency, productivity, or economic value. Instead, Islamic education considers knowledge inseparable from responsibility. Teachers therefore function not merely as instructors but also as *murabbi* (educators), *mu'allim* (transmitters of knowledge), and *mu'addib* (cultivators of character). These complementary roles indicate that teaching involves ethical leadership as much as intellectual instruction. AI may strengthen teachers' professional capabilities, but it cannot assume their responsibility for nurturing moral consciousness and spiritual development. Contemporary scholarship on Al-Attas consistently identifies this holistic conception of education as one of the defining characteristics of Islamic educational philosophy³⁰.

The relevance of Islamic educational philosophy becomes even more apparent when examined alongside current international discussions concerning human-centred AI. UNESCO emphasizes that AI should enhance human agency rather than replace it. Interestingly, this principle closely parallels Al-Attas' insistence that education must preserve the dignity of human beings as morally responsible agents. Both perspectives reject technological determinism and instead position human judgment, ethical reasoning, and responsibility at the centre of educational practice. Nevertheless, Islamic philosophy extends this position further by grounding human dignity within a theological framework in which

²⁸ Muhammad Kosim, Martin Kustati, and Murkilim, "Syed Muhammad Naquib Al-Attas' Ideas on the Islamization of Knowledge and Its Relevance with Islamic Education in Indonesia," *MIQOT: Jurnal Ilmu-ilmu Keislaman* 44, no. 2 (2020).

²⁹ Syed Muhammad Naquib al-Attas, *Islam and Secularism*.

³⁰ Eka Puspitasari and Anaas Tri Ridlo Dina Yuliana, "Syed Muhammad Naquib al-Attas' Concept of Islamizing Science and Its Relevance to Islamic Education," *Al-Misbah: Jurnal Islamic Studies* 10, no. 2.

knowledge, morality, and accountability are ultimately oriented toward Allah. Consequently, AI implementation should not merely comply with institutional regulations but should also reflect the ethical commitments embedded within the Islamic worldview.

These philosophical foundations provide an important bridge toward the ethical principles discussed in the following section. If Islamic education seeks to cultivate individuals characterized by **adab**, justice, wisdom, responsibility, and public benefit, then AI integration should likewise be evaluated according to these normative principles. Accordingly, concepts such as amanah, 'adl, ihsan, hikmah, maslahah, and maqāṣid al-sharī'ah become essential criteria for determining whether AI contributes to or undermines the objectives of Islamic teacher education. Rather than treating AI ethics as a collection of technical regulations, Islamic educational philosophy invites a broader understanding in which technological innovation is integrated into a comprehensive moral vision of education and human development.

Islamic Ethical Perspective on Artificial Intelligence

The ethical challenges associated with Artificial Intelligence (AI) in teacher education cannot be addressed solely through technical regulations or institutional governance. While contemporary AI ethics emphasizes principles such as transparency, accountability, fairness, privacy, and human oversight, Islamic ethics provides a broader normative framework that integrates technological innovation with moral responsibility, spiritual values, and the higher objectives of human development. From an Islamic perspective, AI should not merely function as an efficient educational tool but should contribute to the realization of justice, human dignity, and the holistic development of learners.

Unlike secular ethical frameworks that are often grounded in legal compliance or professional standards, Islamic ethics is rooted in the relationship between human beings, society, and God. Every human action, including the design and use of technology, is understood as a form of moral responsibility (*taklif*) for which individuals are accountable. Consequently, the ethical evaluation of AI extends beyond questions of technical performance and encompasses intentions, consequences, and conformity with the objectives of Islamic law (*maqāṣid al-sharī'ah*).

One of the foundational principles is amanah (trustworthiness). In Islamic thought, knowledge and authority are trusts that must be exercised responsibly. Applied to AI, *amanah* requires teachers, researchers, educational institutions, and technology developers to use AI honestly, transparently, and responsibly. AI-generated content should not be presented as independent human work, learner data must be protected, and algorithmic outputs should be critically evaluated before being incorporated into teaching or assessment. Thus, *amanah* transforms AI from a productivity tool into a trust that carries ethical obligations.

A second principle is 'adl (justice). Justice occupies a central position in Islamic ethics and requires fairness in decision-making, equal treatment, and protection from discrimination. In AI-supported education, this principle demands careful attention to algorithmic bias, unequal access to digital technologies, and discriminatory outcomes that may disadvantage particular learners or communities. Teachers therefore have an ethical obligation to ensure that AI-assisted instructional decisions remain equitable and do not

reinforce existing educational inequalities. Rather than accepting AI recommendations uncritically, educators should evaluate whether those recommendations uphold educational justice.

The principle of *ihsan* (excellence and benevolence) complements justice by encouraging individuals to pursue the highest standards of professional and moral conduct. Within teacher education, *ihsan* suggests that AI should be employed to improve learning quality, strengthen reflective teaching, provide timely feedback, and enhance educational inclusion. However, educational excellence cannot be measured solely through efficiency or technological sophistication. Genuine excellence also includes compassion, empathy, integrity, and commitment to learners' intellectual and moral growth. Accordingly, AI should support teachers in achieving educational excellence without diminishing the human dimensions of teaching.

Another essential principle is *hikmah* (wisdom). Islamic philosophy distinguishes wisdom from the mere possession of information. While AI is capable of processing enormous quantities of data and generating sophisticated outputs, wisdom requires contextual judgment, ethical reflection, and consideration of long-term consequences. Educational decisions often involve complex human realities that cannot be reduced to algorithmic optimization. Consequently, AI should function as an advisory instrument rather than an autonomous decision-maker. Teachers remain responsible for interpreting AI-generated recommendations within the social, cultural, and moral context of their students.

Closely related to wisdom is the principle of *maslahah* (public benefit). Islamic jurisprudence recognizes that technological innovation is acceptable when it promotes genuine human welfare and prevents harm. In educational contexts, AI should therefore be evaluated according to its contribution to educational quality, accessibility, inclusion, and the well-being of learners and society. Technologies that improve learning opportunities, reduce educational disparities, and strengthen teacher capacity are consistent with the pursuit of *maslahah*. Conversely, applications that increase surveillance, commercial exploitation, misinformation, or educational inequality should be critically reassessed because they conflict with the public interest.

These ethical principles are ultimately integrated within the comprehensive framework of *maqāṣid al-sharīʿah*, which seeks to protect religion (*ḥifẓ al-dīn*), life (*ḥifẓ al-nafs*), intellect (*ḥifẓ al-ʿaql*), lineage (*ḥifẓ al-nasl*), and property (*ḥifẓ al-māl*). Contemporary scholars have further expanded the application of *maqāṣid* to emerging issues in science, technology, governance, and education. From this perspective, AI should not be evaluated only according to technical capability but according to whether it supports these higher objectives.

Applied to teacher education, *ḥifẓ al-ʿaql* requires AI to strengthen critical thinking rather than encourage intellectual dependency. *Ḥifẓ al-dīn* emphasizes that technological innovation should not undermine moral or spiritual values. *Ḥifẓ al-nafs* requires educational technologies to protect learners from psychological harm, manipulation, or excessive surveillance. *Ḥifẓ al-māl* demands responsible governance of digital resources and intellectual property, while *ḥifẓ al-nasl* supports educational environments that contribute to the ethical

development of future generations.

The integration of these principles demonstrates that Islamic ethics offers more than a set of religious values added to existing AI governance. Instead, it provides a coherent moral philosophy that links technological innovation with human dignity, social justice, and educational responsibility. AI therefore becomes ethically acceptable not because it is technologically advanced, but because its development and implementation remain consistent with the moral objectives of Islamic education.

This perspective also complements contemporary international approaches to human-centred AI. Both approaches reject technological determinism and emphasize that human judgment must remain central to educational decision-making. However, Islamic ethics contributes an additional dimension by grounding responsibility in accountability before God, thereby extending ethical reflection beyond institutional compliance toward moral and spiritual responsibility. This distinctive perspective provides the theoretical basis for constructing an Islamic Ethical AI Integration Framework, which is proposed in the following section as the principal conceptual contribution of this study.

Islamic Ethical AI Integration Framework (IEAIF): A Conceptual Model for Islamic Teacher Education

The preceding discussions have demonstrated that contemporary AI ethics and Islamic educational philosophy share a common concern regarding the responsible use of technology in education. Nevertheless, existing AI governance frameworks are generally developed from secular, legal, or institutional perspectives and provide limited guidance concerning the moral and spiritual dimensions that characterize Islamic education. Conversely, Islamic educational philosophy offers a rich ethical tradition but has yet to be systematically translated into operational principles for AI implementation within teacher education. This study therefore proposes the Islamic Ethical AI Integration Framework (IEAIF) as a conceptual model that synthesizes responsible AI principles with Islamic ethical values.

The IEAIF is founded on the assumption that Artificial Intelligence should function as an instrument that supports, rather than determines, educational decision-making. Teachers remain the principal moral and pedagogical agents, while AI serves as an assistive technology that enhances learning, assessment, curriculum development, and professional practice. Consequently, ethical responsibility remains with human educators, who must evaluate AI-generated outputs through both professional standards and Islamic ethical principles.

Unlike technology-centred models that emphasize computational efficiency, the proposed framework adopts a human-centred and value-oriented approach. Educational technology is viewed as a means (*wasilah*) rather than an end (*ghayah*). AI is therefore considered ethically acceptable only when its implementation contributes to the realization of educational objectives consistent with Islamic values and the holistic development of learners.

The proposed framework consists of three interconnected layers.

1. Responsible AI Principles

The first layer comprises the internationally recognized principles of responsible AI that have emerged from educational policy and AI governance. These include transparency, accountability, fairness, privacy and data protection, human oversight, and beneficence. These principles provide the minimum ethical standards required for trustworthy AI implementation in educational settings. They ensure that AI systems operate transparently, minimize discrimination, protect learner data, and support informed pedagogical decision-making. However, these principles primarily regulate technological processes and institutional governance. They provide limited guidance concerning the broader educational purpose of technology or the moral formation of teachers and learners.

2. Islamic Ethical Principles

The second layer introduces six interconnected ethical principles derived from Islamic educational philosophy.

Amanah (Trustworthiness) Teachers, educational institutions, and AI developers are entrusted with the responsible use of knowledge and technology. AI should therefore be employed honestly, transparently, and with full accountability for its educational consequences. **‘Adl (Justice)** Educational AI must promote fairness by minimizing algorithmic bias, ensuring equitable access to educational opportunities, and preventing discrimination in assessment, admissions, or learning support. **Ihsan (Excellence)** AI should enhance the quality of teaching and learning while encouraging creativity, reflective practice, and continuous professional improvement rather than replacing meaningful educational interaction. **Hikmah (Wisdom)** Teachers should critically evaluate AI-generated recommendations before implementation. Human wisdom remains essential because educational decisions require contextual understanding, empathy, and ethical reflection that cannot be fully replicated by AI. **Maslahah (Public Benefit)** Technological innovation should generate genuine educational benefits for learners, institutions, and society while minimizing potential harms such as misinformation, surveillance, and technological dependency. **Maqāṣid al-Sharī‘ah** The implementation of AI should contribute to safeguarding religion, intellect, life, lineage, and property while promoting sustainable educational development. These objectives function as overarching ethical criteria for evaluating AI applications. Together, these six principles transform AI ethics from a compliance-oriented approach into a comprehensive moral framework rooted in Islamic educational philosophy.

3. Educational Outcomes

The third layer represents the expected outcomes of ethically integrated AI implementation. Rather than measuring success solely through technological performance, the framework proposes that AI integration should produce multiple educational outcomes, including:

- a. enhanced teacher professionalism;
- b. responsible digital citizenship;
- c. ethical AI literacy;

- d. equitable learning opportunities;
- e. strengthened learner well-being;
- f. improved educational quality;
- g. sustainable educational innovation;
- h. preservation of Islamic moral values.

These outcomes demonstrate that AI contributes not only to instructional efficiency but also to character development and institutional transformation.

CONCLUSION

The integration of Artificial Intelligence (AI) into teacher education presents both significant opportunities and complex ethical challenges. While AI enhances instructional innovation, personalized learning, assessment, and professional development, it also raises critical concerns regarding academic integrity, algorithmic bias, transparency, privacy, and teacher agency. This study argues that these challenges cannot be adequately addressed through technological governance alone. Instead, AI implementation in Islamic teacher education should be guided by a comprehensive ethical framework rooted in Islamic educational philosophy. By synthesizing the concepts of *ta'dib*, *adab*, *amanah*, *'adl*, *ihsan*, *hikmah*, *maslahah*, and *maqāṣid al-shari'ah*, this study demonstrates that AI can serve as a valuable educational tool when aligned with the moral and educational objectives of Islam.

The primary contribution of this study is the development of the Islamic Ethical AI Integration Framework (IEAIF), which integrates internationally recognized Responsible AI principles with Islamic ethical values to guide AI adoption in teacher education. The framework emphasizes that AI should support, rather than replace, teachers' professional judgment and ethical responsibility. Theoretically, this study bridges the gap between AI ethics and Islamic educational philosophy by offering a value-based conceptual model for responsible AI implementation. Practically, the framework provides guidance for curriculum developers, teacher education institutions, policymakers, and educational technology developers in designing AI-supported learning environments that are ethical, inclusive, transparent, and aligned with the objectives of Sustainable Development Goal 4 (Quality Education).

Despite these contributions, this study is limited by its conceptual nature and reliance on a systematic synthesis of existing literature without empirical validation. Future research should therefore examine the applicability of the proposed framework in Islamic teacher education institutions through qualitative, quantitative, or mixed-methods approaches. Comparative studies across different educational contexts are also recommended to evaluate the adaptability of the framework in diverse cultural and institutional settings. By integrating technological innovation with Islamic ethical principles, the proposed IEAIF provides a foundation for promoting responsible, human-centred, and sustainable AI implementation in teacher education while contributing to the broader discourse on ethical educational transformation.

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