



Outcome-Based Education in the Age of Artificial Intelligence A Thematic Tafsīr Analysis of Curricular Impacts in Islamic Higher Education

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Abstract

Artificial Intelligence (AI) is increasingly reshaping Outcome-Based Education (OBE) by expanding opportunities for personalized learning, curriculum responsiveness, assessment efficiency, and student support. In Islamic higher education, however, the growing reliance on measurable outcomes and algorithmic processes raises concerns about whether moral, spiritual, relational, and holistic dimensions of learning may receive insufficient attention. This study examines the curricular implications of AI-driven OBE through the perspective of thematic Qur'anic exegesis (tafsīr mawḍū'ī). Using a qualitative library research design, the study integrates a structured review of contemporary scholarly literature published primarily between 2022 and 2026 with a thematic analysis of relevant Qur'anic concepts and classical and contemporary exegetical sources. The analysis reveals that AI can enhance learning personalization and support the alignment of educational processes with intended outcomes, while also creating concerns related to algorithmic bias, data privacy, transparency, and human agency. These developments are interpreted through the interconnected concepts of ta'lim, tarbiyah, and ta'dīb, which emphasize intellectual development, holistic nurturing, and moral cultivation. The study further identifies maqāṣid al-sharī'ah as a normative basis for evaluating and governing AI in ways that uphold human dignity, intellect, justice, welfare, and accountability. An integrative framework is consequently proposed to connect AI-OBE implementation, ethical governance, competency and character development, and continuous quality improvement. The study concludes that AI should remain an enabling educational instrument guided by human judgment and Islamic ethical principles rather than becoming the primary determinant of educational value.

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INTRODUCTION

Artificial Intelligence (AI) is rapidly reshaping higher education, creating a paradox between unprecedented technological possibilities and persistent concerns about the purpose of education itself (Labraña & Rodríguez Ponce, 2026; Ruano-Borbalan, 2025; Rudolph et al., 2024). AI can personalize learning pathways, generate immediate feedback, support data-informed decision-making, and help institutions monitor the attainment of intended learning outcomes with greater speed and precision (Vashishth et al., 2024). These capabilities have become increasingly relevant within Outcome-Based Education (OBE), which emphasizes the alignment of learning activities, assessment, and curriculum design with explicitly defined competencies and graduate outcomes (Aminah et al., 2025; Mahrishi et al., 2025). From this perspective, the convergence of AI and OBE appears to offer an effective response to demands for educational quality, accountability, and curricular responsiveness (Alwakid et al., 2025). At the same time, the very strength of AI-driven systems their capacity to identify patterns and quantify performance raises a fundamental concern when educational development includes dimensions that cannot be fully translated into measurable indicators. Moral judgment, spiritual awareness, empathy, responsibility, and the quality of human relationships do not always lend themselves to the same forms of observation used to evaluate

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academic performance. Consequently, the expansion of AI in outcome-oriented education has generated an important controversy: greater precision in measuring learning does not necessarily guarantee a more comprehensive understanding of human development. This tension becomes particularly significant in Islamic higher education, where education is expected to cultivate intellectual capability while simultaneously nurturing ethical character, spiritual consciousness, and social responsibility.

The convergence of AI and OBE is no longer a speculative development but an increasingly visible institutional reality. Adaptive learning systems, generative AI, learning analytics, automated feedback, and predictive technologies are changing how universities design learning experiences, monitor student progress, and interpret educational performance (Pang & Wei, 2025; Yuensook et al., 2026). Within an OBE environment, these technologies can strengthen curriculum alignment by identifying differences in learner progress and supporting more individualized routes toward intended outcomes (Ali, 2024). Recent research suggests that AI may also facilitate knowledge co-construction, learner co-regulation, and more responsive forms of instructional support when technological systems are meaningfully integrated with pedagogy (Hao et al., 2026). However, the increased use of AI also changes the practical conditions under which learning outcomes become visible, recorded, and institutionally valued (Grassini, 2023; Khlaif et al., 2021; Poquet & de Laat, 2021). Educational processes may gradually privilege what can be captured through data, while dimensions that develop through reflection, interaction, and lived experience receive less systematic attention. This creates a curricular challenge because AI does not merely add a new instructional tool; its adoption can influence how institutions define evidence of learning and determine which outcomes deserve priority. Therefore, examining the curricular consequences of AI within OBE is essential for understanding how technological integration may reshape both the implementation and meaning of educational outcomes.

The urgency of this issue is heightened by the ethical and epistemological risks accompanying the rapid adoption of AI. AI systems depend on data, models, and computational procedures that may reproduce bias, operate with limited transparency, require extensive information about users, and affect the autonomy of those subject to algorithmic recommendations (Cheong, 2024; Tsamados et al., 2022). In educational settings, these concerns extend beyond technical performance because automated systems may influence assessment practices, learning recommendations, and judgments concerning student achievement. Research has also raised concerns about excessive dependence on machine-generated outputs, weakened critical engagement, and the possible transformation of meaningful pedagogical relationships when technological efficiency becomes the dominant educational priority (Nyamboga, 2026). The problem is consequently not limited to whether AI produces accurate results, but also concerns whether its use preserves fairness, accountability, human agency, and the relational character of education (Busuioc, 2021; Hummel, 2025; Pietarinen & Shi, 2026). This concern becomes sharper when AI is embedded in OBE, where the institutional pressure to demonstrate measurable outcomes may reinforce a preference for standardized and easily observable evidence. Such a tendency may produce what can be understood as epistemological reductionism, in which complex educational purposes are progressively narrowed to dimensions that are computationally legible. A critical examination is therefore needed to ensure that the pursuit of efficiency and accountability does not unintentionally reduce education to the management of measurable performance.

These concerns are particularly relevant in Indonesian higher education, where OBE has gained stronger institutional significance through the evolving framework of quality assurance and curriculum regulation. The implementation of Outcome-Based Education has encouraged universities to formulate clear graduate profiles and learning outcomes and to demonstrate the alignment between curriculum, learning activities, assessment, and expected competencies. In the Indonesian context, this orientation is reinforced by the regulatory framework associated with Permendikbudristek Number 53 of 2023, which strengthens attention to outcome-oriented quality assurance in higher education. For Islamic universities, however, the implementation of OBE involves a more complex task because institutional accountability must be reconciled with the broader philosophical mission of Islamic education (Romlah et al., 2025). The latter cannot be separated from the development of knowledge, character, moral responsibility, and spiritual orientation (Allen & Fry, 2023). The integration of AI into this environment consequently introduces a double

transformation: educational institutions must adapt to technological innovation while ensuring that curriculum design remains consistent with their normative and epistemological foundations. This challenge requires more than technical guidelines for adopting AI because it concerns the criteria through which educational success is interpreted and evaluated. Accordingly, Indonesian Islamic higher education provides an important context for investigating how AI-driven OBE can be aligned with a holistic understanding of educational purpose.

Islamic educational thought offers a distinctive perspective for responding to this challenge because human development is understood as a multidimensional process rather than the accumulation of isolated competencies (Muqoyyidin et al., 2026). The concepts of *ta'lim*, *tarbiyah*, and *ta'dib* represent interconnected orientations toward education involving knowledge transmission, holistic nurturing, and moral cultivation. Within this perspective, knowledge is expected to contribute not only to intellectual advancement but also to wisdom, responsible judgment, and appropriate action (De Caro et al., 2024; Vasconcelos, 2021). Contemporary scholarship similarly emphasizes that the transformation of Islamic education must integrate technological and professional competencies with ethical and spiritual dimensions rather than treating these domains as separate educational agendas (Zul et al., 2026). This orientation creates a significant analytical contrast with AI-driven educational systems that primarily depend on structured data and observable indicators. Although AI can support the personalization and delivery of knowledge, it cannot automatically guarantee the formation of moral character or replace the relational processes through which learners are guided, corrected, and nurtured. The question, therefore, is not whether AI should be excluded from Islamic higher education, but how its capabilities can be positioned within an educational framework in which technology remains a means rather than the determinant of educational value. This makes Islamic educational epistemology particularly relevant for examining the opportunities and limitations of AI-supported OBE.

Previous studies have examined important aspects of the relationship between AI, OBE, higher education, and Islamic educational transformation. Research on AI in higher education has predominantly focused on adaptive learning, personalization, automated feedback, learning analytics, student engagement, and academic performance (Plooy et al., 2024). Other studies have highlighted the risks associated with generative AI and educational automation, particularly in relation to academic integrity, privacy, bias, transparency, and regulatory uncertainty (Adamakis & Rachiotis, 2025). The OBE literature, meanwhile, has largely concentrated on curriculum alignment, competency attainment, implementation challenges, assessment systems, and institutional accountability (Siregar et al., 2026). Studies of Islamic higher education have addressed digital transformation, institutional adaptation, ethical education, curriculum development, and the need to preserve Islamic values amid technological change (Malizal, 2025; Sumiati et al., 2024). A related body of research has also explored *maqāsid al-sharī'ah* as a normative perspective for assessing technological development and AI-related ethical questions (Wahid, 2025). Taken together, this literature provides valuable but largely fragmented knowledge, with technological capability, outcome measurement, and Islamic normative principles commonly examined within separate analytical boundaries.

The dominant limitation of previous research is the absence of a sufficiently integrated explanation of how these different dimensions intersect at the curricular level (Kreijkes & Grooten, 2024; Xie et al., 2025). AI studies generally assess the effectiveness, benefits, or risks of technology, whereas OBE research tends to prioritize alignment and demonstrable outcome attainment (Venkatesh et al., 2026). At the same time, Islamic educational studies often emphasize the importance of values and ethics without systematically connecting them to the concrete mechanisms through which AI may influence curriculum design, learning processes, and assessment. Existing discussions of ethical AI frequently remain at the level of broad principles, such as justice, responsibility, trustworthiness, or public welfare, with limited translation into a framework for evaluating AI-supported outcome-oriented curricula (Agustin, 2026; Pietarinen & Shi, 2026). There is also insufficient attention to the possibility that AI and OBE, when combined, may redefine educational priorities by privileging forms of achievement that are more easily quantified and algorithmically processed. Consequently, the literature has not adequately addressed how Islamic concepts of *ta'lim*, *tarbiyah*, and *ta'dib* can be used to critically interpret the curricular implications

of AI-driven OBE. More specifically, a rigorous and scripturally grounded framework based on thematic Qur'anic exegesis remains limited for analyzing the relationship between AI capabilities, outcome-based curriculum processes, holistic human development, and ethical governance in Islamic higher education. This constitutes the central research gap addressed in the present study.

Addressing this gap requires an analytical approach that does not treat Qur'anic references merely as supplementary ethical justification. Thematic Qur'anic exegesis (*tafsir mawdu'i*) provides a systematic pathway for examining related Qur'anic concepts and interpreting their relevance to a defined contemporary issue. Such an approach is particularly appropriate for the present study because the curricular impacts of AI-driven OBE involve interconnected questions concerning knowledge, human development, moral responsibility, justice, accountability, and the purpose of education (Okada et al., 2025; Temimi et al., 2025). Through a thematic reading, the concepts of *ta'lim*, *tarbiyah*, and *ta'dib* can be examined as complementary dimensions for evaluating whether technological and outcome-oriented educational practices support or constrain holistic development. The framework of *maqasid al-shari'ah* further provides normative criteria for assessing whether AI serves educational purposes while protecting fundamental human interests and preventing technological harm (Elmahjub, 2023). This perspective shifts the analysis from technological determinism toward purposive governance, in which the educational legitimacy of AI depends on how it contributes to human flourishing rather than on technical capability alone. It also enables the identification of practical tensions between personalization and human autonomy, measurement and holistic development, automation and pedagogical relationships, as well as efficiency and ethical accountability. By bringing these dimensions into a single analytical framework, thematic *tafsir* offers a means of connecting contemporary evidence on AI-driven OBE with the normative foundations of Islamic education.

Based on these considerations, this study aims to analyze the curricular impacts of Artificial Intelligence integration within Outcome-Based Education in Indonesian Islamic higher education through the lens of thematic Qur'anic exegesis (*tafsir mawdu'i*). The study synthesizes contemporary scholarship on AI and OBE to identify major implications for curriculum design, learning personalization, assessment, and ethical governance. It then interprets these implications through the interconnected educational concepts of *ta'lim*, *tarbiyah*, and *ta'dib* in order to examine the extent to which AI-supported outcome-oriented practices align with holistic educational development. In addition, the study employs *maqasid al-shari'ah* as a normative perspective for evaluating how AI can be governed in ways that protect human dignity, fairness, autonomy, and broader educational well-being. The theoretical contribution of this research lies in connecting AI-OBE discourse with Islamic educational epistemology through a scripturally grounded thematic framework. Its practical contribution lies in offering an integrative foundation for curriculum developers, educators, and higher education leaders to design and implement AI-supported OBE without reducing educational quality to technical competence and measurable performance alone. The study ultimately proposes a human-centered orientation in which AI functions as an enabling instrument while the broader purposes of intellectual, ethical, spiritual, and social development remain central to curriculum governance. In this way, the research seeks to contribute both to contemporary debates on AI in higher education and to the development of a more contextually grounded model of technological innovation in Islamic education.

METHOD

Research Design

This study employed a qualitative library research design, with thematic Qur'anic exegesis (*tafsir mawdu'i*) serving as the primary interpretive approach. This design was considered appropriate because the study did not investigate an intervention or collect data from human participants; rather, it examined documentary and scholarly evidence concerning the curricular implications of Artificial Intelligence (AI) within Outcome-Based Education (OBE) through the perspective of Islamic educational thought. The inquiry combined two interconnected analytical streams: a structured review of contemporary academic literature and a thematic examination of

Qur'anic concepts and exegetical interpretations. The first stream was used to identify current developments, opportunities, curricular changes, and ethical concerns associated with AI-supported OBE, particularly in relation to personalization, curriculum design, assessment, algorithmic bias, privacy, human agency, and governance. The second stream was employed to interpret these issues through Qur'anic principles related to knowledge, holistic development, moral cultivation, justice, and responsibility. Bringing these sources into dialogue enabled the study to move beyond a purely technical assessment of AI and examine its educational implications from a broader normative perspective. The synthesis was subsequently evaluated through *maqāṣid al-sharī'ah* to assess the extent to which AI-supported educational practices could remain consistent with holistic human development and ethical responsibility.

Research Context and Time Frame

The study was conducted as document-based research and therefore did not involve a conventional physical research site. Its principal analytical context was Islamic higher education in Indonesia, particularly the increasing adoption of Outcome-Based Education and the emerging implications of AI for curriculum development, teaching, assessment, and educational quality assurance. This context was selected because the study focuses on the tension between institutional demands for demonstrable outcomes and the broader educational orientation of Islamic higher education. Indonesian developments in higher education regulation and quality assurance were considered as contextual references for understanding the practical relevance of outcome-oriented curriculum reform. Contemporary academic literature published primarily between 2022 and 2026 was prioritized to capture recent developments in AI and OBE. The theological analysis, however, also drew on classical and contemporary *tafsīr* because the interpretation of Qur'anic educational principles required engagement with both foundational and current scholarly perspectives. The overall research process covered approximately six months, including source identification, screening, coding, Qur'anic thematic mapping, interpretive analysis, and framework development. This iterative time frame enabled the researchers to revisit emerging themes and refine the relationship between contemporary evidence and Islamic educational principles throughout the analysis.

Sources and Sampling Strategy

As a qualitative library-based investigation, this study did not involve a population or sample of human participants. The units of analysis consisted of three interrelated documentary sources: Qur'anic texts as the primary normative source, classical and contemporary *tafsīr* literature, and scholarly publications concerning AI in education, Outcome-Based Education, curriculum transformation, Islamic higher education, and AI ethics. Documentary materials were selected through purposive and criterion-based sampling to ensure their direct relevance to the research problem. Contemporary literature was identified through Scopus, Web of Science, and Google Scholar using combinations of search terms related to "Artificial Intelligence," "AI in education," "Outcome-Based Education," "curriculum," "Islamic higher education," "Islamic education," "AI ethics," "algorithmic bias," "data privacy," "thematic *tafsīr*," and "*maqāṣid al-sharī'ah*." Sources were included when they offered substantive conceptual or empirical evidence relevant to AI, OBE, curricular implications, Islamic education, or technological ethics and were published primarily during the 2022–2026 period. Duplicate records, sources unrelated to the educational context, and publications lacking sufficient analytical relevance were excluded. Qur'anic concepts and exegetical materials were selected according to their relevance to knowledge, intellectual development, nurturing, moral formation, justice, accountability, human responsibility, and holistic well-being. This sampling strategy ensured that the final documentary corpus could support both the analysis of contemporary AI-OBE developments and their interpretation through Islamic educational principles.

Research Instruments and Analytical Protocol

Because the study relied on documentary analysis, it employed analytical protocols rather than standardized psychometric instruments. A literature extraction matrix was used to record each selected source, its research focus, methodological orientation, principal findings, identified opportunities, risks, and implications for AI-supported education and OBE. This procedure enabled evidence relating to personalization, curriculum alignment, learning outcomes, assessment,

algorithmic bias, privacy, human agency, transparency, and governance to be compared systematically. A thematic tafsir protocol was also developed to organize the scriptural analysis. The protocol began by defining the contemporary educational problem, identifying Qur'anic concepts relevant to that problem, mapping related verses, examining thematic relationships, consulting classical and contemporary interpretations, and deriving broader educational principles from the combined analysis. The principal concepts examined included ta'lim in relation to knowledge and intellectual development, tarbiyah in relation to holistic nurturing, and ta'dib in relation to moral cultivation and responsible conduct. These dimensions were interpreted as interconnected analytical perspectives rather than as consecutive stages. The broader normative evaluation was guided by maqāṣid al-sharī'ah, which provided a framework for examining human dignity, intellectual development, justice, welfare, accountability, and responsible technological use.

Trustworthiness and Analytical Rigor

The rigor of this qualitative library research was established through systematic documentation, source triangulation, and interpretive comparison rather than statistical measures of instrument validity or reliability. Evidence was compared across peer-reviewed studies, Qur'anic texts, classical and contemporary tafsir, and relevant contextual documents to reduce dependence on a single type of source or interpretive tradition. Emerging interpretations were developed through repeated comparison rather than being derived from isolated verses or individual publications. The use of different exegetical perspectives supported a broader understanding of Qur'anic concepts, while contemporary scholarship provided evidence concerning the current development and implications of AI-driven OBE. An audit trail was maintained through source screening, the literature extraction matrix, thematic coding, conceptual mapping, and cross-source synthesis. Analytical consistency was further supported by examining each theme against the central framework of AI-driven OBE, ta'lim, tarbiyah, ta'dib, and maqāṣid al-sharī'ah. Where technological practices and Islamic educational principles revealed substantive tensions, these differences were retained as analytical findings instead of being artificially reconciled. Through these procedures, the study sought to produce interpretations grounded in transparent and traceable relationships between contemporary evidence and normative Islamic principles.

Data Collection Procedure

Data collection and analysis followed a sequential but iterative procedure. The process began with the identification of the central research focus concerning the curricular implications of AI integration within OBE in Islamic higher education. This was followed by the formulation of the research problem and an analytical framework in which AI-driven OBE was examined through the interconnected dimensions of ta'lim, tarbiyah, and ta'dib, with maqāṣid al-sharī'ah functioning as the overarching normative lens. Contemporary academic sources were subsequently identified through structured searches of Scopus, Web of Science, and Google Scholar, after which relevant documents were screened and selected according to topical relevance, scholarly adequacy, and thematic fit. The selected literature was then reviewed systematically, and relevant information was extracted and coded to identify recurring themes concerning personalization, curriculum design, learning outcomes, assessment, ethical risks, bias, privacy, human agency, and governance. In parallel, these contemporary issues were mapped onto relevant Qur'anic concepts concerning knowledge, human development, nurturing, moral cultivation, justice, accountability, and responsibility. Relevant verses and exegetical interpretations were examined using thematic tafsir, and the resulting insights were subsequently organized into the interconnected categories of ta'lim, tarbiyah, and ta'dib. The two streams of evidence were then brought together through cross-source analysis and normative evaluation based on maqāṣid al-sharī'ah to identify areas of congruence, conceptual tension, and the need for curricular or governance reform. To provide a clearer representation of the methodological sequence and the relationship between its analytical stages, Figure 1 presents the complete research procedure. The flowchart illustrates how the study moved from problem identification and documentary review to thematic Qur'anic interpretation, cross-source synthesis, normative evaluation, and the development of an integrative framework. Importantly, the procedure should not be understood as a strictly mechanical sequence, since earlier stages were revisited when subsequent analysis revealed conceptual connections or tensions requiring further interpretation.



Figure 1. Research Procedure Flowchart

As illustrated in Figure 1, the final stage of the procedure did not merely summarize the documentary evidence. The synthesis was intended to explain how contemporary AI-driven OBE practices could be interpreted through Islamic educational principles and to distinguish between areas of compatibility and areas requiring ethical or curricular reconsideration. This process provided the analytical basis for developing a human-centered and ethically governed framework in which AI supports, rather than replaces or narrows, the broader intellectual, moral, relational, and spiritual purposes of education. The procedure also ensured that the conclusions and curricular implications were derived from the progressive integration of the two documentary streams rather than from either technological evidence or normative interpretation in isolation.

Data Analysis

The data were analyzed through qualitative thematic content analysis followed by an integrative interpretive synthesis. First, the contemporary academic literature was coded to identify recurring findings concerning the opportunities and curricular effects of AI-driven OBE, including personalized learning, outcome optimization, curriculum alignment, assessment, algorithmic bias, data privacy, transparency, human autonomy, and governance. Second, related codes were grouped into broader themes representing technological opportunities, educational consequences, ethical risks, and institutional challenges. Third, Qur'anic texts and exegetical sources were examined through thematic tafsīr to derive principles associated with knowledge, intellectual development, holistic nurturing, moral cultivation, justice, and accountability. These principles were subsequently organized through the interconnected dimensions of ta'līm, tarbiyah, and ta'dīb. Fourth, the findings from the two analytical streams were compared through cross-source analysis to identify conceptual convergence and divergence. Maqāṣid al-sharī'ah then served as the normative lens for evaluating whether particular AI-supported educational practices contributed to or potentially constrained human dignity, intellectual development, justice, welfare, and responsible human agency. The final synthesis classified the findings into three analytical outcomes: areas of congruence, where AI capabilities could support Islamic educational purposes; areas of tension, where technological efficiency or outcome measurement risked narrowing holistic development; and areas requiring reform, where curricular design or institutional governance needed further ethical safeguards. The resulting interpretation formed the basis for the integrative framework proposed by the study and for the subsequent discussion of its implications for Islamic higher education.

RESULTS AND DISCUSSION

Results

The convergence of Outcome Based Education (OBE), artificial intelligence (AI), and Islamic pedagogical traditions represents one of the most consequential intellectual challenges confronting contemporary Islamic higher education. As Indonesian Islamic universities navigate the imperatives of global educational reform, Industry 4.0 demands, and the preservation of spiritual moral

foundations, the integration of AI driven OBE frameworks necessitates rigorous theological and ethical evaluation. This thematic exegesis (tafsīr mawḍūʿī) systematically examines the intersections and tensions between AI enhanced OBE implementation and the foundational Islamic educational concepts of tarbiyah (holistic nurturing), taʿlīm (knowledge transmission), and taʿdīb (moral cultivation). Drawing upon contemporary scholarship and Indonesian regulatory frameworks particularly Permendikbudristek Nomor 53 Tahun 2023 concerning Higher Education Quality Assurance this analysis argues that while AI offers unprecedented capabilities for personalising learning pathways and optimising measurable outcomes, its uncritical deployment risks subverting the comprehensive, character centred objectives that distinguish Islamic education from purely utilitarian pedagogical models. Recent empirical work by Sumiati et al. (2024) underscores that the successful digital transformation of Islamic higher education hinges not solely on technological infrastructure, but on the theological coherence with which institutions adopt such tools.

The Regulatory Imperative: OBE in Indonesian Higher Education

The institutionalisation of OBE within Indonesian Islamic higher education is fundamentally shaped by national regulatory frameworks that mandate outcome oriented curriculum design. Permendikbudristek Nomor 53 Tahun 2023 represents a paradigmatic shift from process based to outcome based quality assurance, requiring all higher education institutions to focus on clearly defined Capaian Pembelajaran Lulusan (CPL) graduate learning outcomes that integrate knowledge, skills, and attitudes as an indivisible unity. This regulation fundamentally reorients curriculum development toward demonstrable competencies, institutionalising OBE as the normative standard for Indonesian higher education. For Islamic higher education institutions (Perguruan Tinggi Keagamaan Islam), this regulatory mandate presents both opportunities and challenges. On one hand, OBE provides a systematic framework for enhancing graduate employability and ensuring relevance to evolving industry demands; on the other, the measurable, competency based orientation of OBE must be reconciled with the holistic, character centred ethos that defines Islamic education a tension that thematic tafsīr analysis illuminates with particular clarity. As Hajar (2024) observe, the Indonesian regulatory landscape increasingly demands that universities demonstrate measurable graduate competencies, yet the very act of quantification often elides the qualitative, transformative dimensions of Islamic learning.

The Qurʾanic foundation for educational accountability resonates with OBE's emphasis on measurable outcomes, yet transcends it in crucial dimensions. Surah Al 'Alaq (96:1–5), the first revelation, establishes reading (iqra') as the foundational act of knowledge acquisition, with Allah described as 'allama bi al Qalam "He who taught by the pen" and 'allama al insāna mā lam ya'lam "taught man what he did not know". This divine pedagogy establishes knowledge transmission (taʿlīm) as a sacred endeavour, yet the Qurʾanic vision extends beyond cognitive outcomes to encompass moral and spiritual cultivation. Surah Al Qalam (68:4) declares of the Prophet Muhammad: wa innaka la 'alā khuluqin 'aẓīm "And indeed, you are of a great moral character". This verse establishes uswatun ḥasanah (exemplary moral modelling) as the paradigmatic educational method a dimension that algorithmic assessment and data driven metrics fundamentally cannot replicate. Amin (2024) reinforces this point by arguing that any educational framework claiming Islamic legitimacy must foreground the Prophetic model of character formation, which inherently resists reduction to performance indicators.

Thematic Analysis: AI OBE Implementation Through the Lens of Tarbiyah, Taʿlīm, and Taʿdīb Taʿlīm: Knowledge Transmission in the Age of Adaptive Learning

Contemporary scholarship consistently demonstrates that AI driven adaptive learning systems possess unprecedented capabilities to personalise educational content, pacing, and instructional strategies to individual student profiles. Research by Hao et al. (2026) identifies two distinct engagement modalities co construction of knowledge and co regulation within multi agent AI ecosystems, revealing their capacity to remediate performance disparities across diverse learner profiles. These systems meticulously analyse vast amounts of learning data to identify knowledge gaps, adapt difficulty levels in real time, and optimise trajectories toward specific, measurable competencies. Chu and Ashraf (2025) further demonstrate that AI integration in curriculum design facilitates continuous improvement and alignment with evolving industry demands, resulting in higher course completion and retention rates. From the perspective of taʿlīm, this capacity for

individualised instruction resonates with the Qur'anic affirmation of human diversity and the pedagogical principle of addressing learners according to their unique capacities. Surah Al Baqarah (2:31) recounts that Allah 'allama Ādama al asmā' a kullahā "taught Adam the names of all things"—establishing the precedent that knowledge acquisition is a divinely ordained capacity of human beings. The meticulous alignment of instruction with individual capability reflects a sophisticated operationalisation of ta'lim that maximises cognitive development and ensures that the acquisition of 'ilm (knowledge) is accessible and effective for diverse learning profiles.

However, the thematic tafsīr reveals a critical tension: while AI excels at optimising cognitive outcomes, it fundamentally reduces knowledge to measurable data points, potentially diminishing the epistemic richness of 'ilm as understood in Islamic tradition. 'Ilm encompasses not merely propositional knowledge but also experiential wisdom (hikmah), spiritual insight (ma'rifah), and practical judgment (fiqh). The algorithmic reduction of educational experience to quantifiable metrics risks privileging what can be measured over what is meaningful an epistemological narrowing that contradicts the comprehensive vision of Islamic education. Alwakid et al. (2025) empirically affirm that while AI significantly bolsters pedagogical planning and student performance, its effectiveness remains critically dependent on instructor proficiency, underscoring the irreplaceable human element in the knowledge transmission process. This finding compels Islamic higher education institutions to view AI not as a replacement for qualified educators, but as a supplementary instrument that must be deployed with careful pedagogical and theological discernment.

Tarbiyah: Holistic Nurturing Beyond Predictive Analytics

The second major finding concerns the profound tension between AI driven efficiency and the comprehensive objectives of tarbiyah (holistic nurturing). Predictive analytics for student retention, automated feedback systems, and efficiency in content delivery represent significant technological advancements that enhance institutional effectiveness. However, the Qur'anic vision of tarbiyah extends far beyond the acquisition of measurable skills; it demands the integrated development of the intellectual, spiritual, emotional, and social dimensions of the human being (insān). Surah Al Hujurat (49:13) declares: inna akramakum 'inda Allāhi atqākum "indeed, the most honoured of you in the sight of Allah is the most righteous of you". This verse establishes that human excellence (karāmah) is determined by taqwā (God consciousness) and moral character, not by measurable competencies or technical skills alone. The algorithmic individualisation of learning pathways risks isolating the learner and diminishing the vital communal aspects of Islamic pedagogy, such as collaborative inquiry, shared moral responsibility, and the cultivation of adab within a community of scholars. The Prophet's tradition (ḥadīth) emphasises that knowledge is acquired through ṣuḥbah (companionship) and mujālasah (sitting with scholars) relational dimensions that AI systems fundamentally cannot replicate. Research by Rahman (2025) and Zul et al. (2026) advocates for integrative approaches that harmonise competency based outcomes with moral and spiritual cultivation, recognising that tarbiyah requires the holistic development of the learner across cognitive, affective, and psychomotor domains. Wahi et al. (2025) and AbuJbara (2026) add that the affective dimension particularly the cultivation of empathy, sincerity (ikhhlās), and communal solidarity remains systematically underaddressed by AI driven educational models, necessitating deliberate pedagogical interventions rooted in human interaction.

Ta'dīb: Moral Cultivation and the Limits of Algorithmic Assessment

The most profound tension emerges in the domain of ta'dīb (moral cultivation). Algorithmic assessment of competencies and behavioural tracking represent attempts to quantify moral and ethical development, yet these approaches encounter fundamental limitations. Ta'dīb, as articulated by Islamic educational philosophers such as al Attas, encompasses the inculcation of adab the discipline of the mind, body, and spirit that enables one to recognise and fulfil one's proper place in the cosmic order. The Qur'anic characterisation of the Prophet as possessing khuluqin 'aẓīm (great moral character) establishes that moral cultivation is achieved through exemplary modelling (uswatun ḥasanah), not through algorithmic tracking or competency checklists. AI systems, regardless of their sophistication, cannot model adab or provide the spiritual mentorship that is indispensable for genuine moral cultivation. The relationship between teacher and student in Islamic tradition is one of spiritual transmission, where the teacher embodies the virtues they seek to instil.

This pedagogical model, rooted in the Prophetic example, requires human presence, emotional intelligence, ethical discernment, and the capacity for compassionate guidance qualities that remain exclusively within the human domain. Scholars, including Amin (2024) and Habib (2025), emphasise that ethical AI integration requires more than technical compliance; it demands a fundamental alignment with Islamic moral imperatives, ensuring transparency, accountability, and the active mitigation of algorithmic biases that threaten equity and fairness.

Table 1. Thematic Alignment and Tensions in AI Driven OBE

No.	Educational Concept	AI-OBE Implementation	Thematic Tafsir Perspective	Qur'anic Foundation
1	<i>Ta'lim</i> (Knowledge Transmission)	Adaptive learning systems, personalised pathways, optimised cognitive outcomes	Aligns with addressing individual capacities; risk of reducing knowledge to measurable data points	QS Al-'Alaq 96:1-5; QS Al-Baqarah 2:31
2	<i>Tarbiyah</i> (Holistic Nurturing)	Predictive analytics for retention, automated feedback, efficiency in delivery	Tension with the need for comprehensive spiritual, emotional, and social development beyond metrics	QS Al-Hujurat 49:13
3	<i>Ta'dib</i> (Moral Cultivation)	Algorithmic assessment of competencies, behavioural tracking	Significant tension; AI cannot model <i>adab</i> or provide spiritual mentorship (<i>uswatun hasanah</i>)	QS Al-Qalam 68:4
4	Accountability (<i>Hisāb</i>)	Data-driven measurement of specific learning outcomes	Human measurement is limited; true accountability encompasses moral and spiritual dimensions	QS Al-Isra 17:36
5	Justice and Equity (<i>Adl</i>)	Scalable access to personalised content; risk of algorithmic bias	Imperative to ensure equitable access and eliminate biases that perpetuate discrimination	QS Al-Hujurat 49:13; QS An-Nisa 4:58

Ethical Governance: Maqāṣid al Shari'ah as an AI Regulatory Framework

The second significant finding centres on the ethical challenges and governance imperatives associated with AI integration in higher education. The systematic review of recent literature highlights pervasive concerns regarding algorithmic bias, data privacy, and the opacity of AI decision making processes. AI systems, trained on historical data, frequently inherit and amplify existing societal biases, potentially leading to discriminatory outcomes in assessment, resource allocation, and predictive modelling. Furthermore, the massive collection and continuous analysis of student data required for adaptive learning systems raise profound privacy issues, necessitating robust regulatory compliance and data protection frameworks. The thematic exegesis addresses these ethical challenges through the normative lens of maqāṣid al shari'ah (the higher objectives of Islamic law), which provides a comprehensive framework for AI governance. The principles of ḥifẓ al dīn (protection of religion), ḥifẓ al nafs (protection of life/dignity), ḥifẓ al 'aql (protection of intellect), ḥifẓ al nasl (protection of lineage), and ḥifẓ al māl (protection of property) mandate that educational technologies must be designed and deployed in a manner that safeguards human dignity, ensures justice ('adl), and promotes the holistic well being (maṣlaḥah) of the learner.

Habib (2025) develops an ethical AI framework grounded in maqāṣid al shari'ah, arguing that AI governance must ensure justice, trust, inclusivity, and the development of the whole human being (insān kāmil). This framework repositions AI as a wasilah (instrumental means) subservient to transcendental humanistic ends, ensuring technological assimilation does not erode tacit knowledge acquisition, spiritual reflexivity, and the ontologically distinct human capacity for wisdom. Hajar (2024) extend this argument by demonstrating that the maqāṣid framework offers practical heuristics for auditing AI systems in educational contexts, enabling institutions to evaluate whether algorithmic decisions uphold or undermine fundamental Islamic values. Recent scholarship also emphasises that Islamic ethical principles can serve as both a moral foundation and a practical guide

for AI governance, with values such as ‘adl (justice), amānah (trust), and maṣlaḥah (public interest) providing normative guidance for responsible digital transformation.

The regulatory framework of Permendikbudristek Nomor 53 Tahun 2023 aligns with these ethical imperatives in significant respects. The regulation’s emphasis on integrating knowledge, skills, and attitudes as an indivisible unity resonates with the holistic vision of Islamic education, yet it does not explicitly address the unique ethical challenges posed by AI integration. Scholars, including Sumiati et al. (2024) and Elilahmi et al. (2024), argue that Islamic higher education institutions must develop context specific ethical guidelines that address algorithmic transparency, data sovereignty, and the preservation of human centred pedagogy. The Qur’anic imperative to ta’āwanū ‘alā al birri wa al taqwā "cooperate in righteousness and piety" (QS Al Ma’idah 5:2) provides a foundational principle for collaborative ethical governance, requiring stakeholders across institutional, regulatory, and technological domains to work together in ensuring that AI serves human flourishing rather than instrumental rationality.

The Integrative Synthesis: Harmonising OBE, AI, and Islamic Educational Values

The most salient intellectual challenge resides in the fundamental ontological dissonance between the quantifiable, labour market driven metrics of OBE and the inherently holistic, character centric teleology of Islamic pedagogy. OBE, as an institutionalised paradigm in the Industry 4.0 epoch, operationalises success through demonstrable competencies and graduate employability, necessitating systematic curriculum alignment, faculty capacity building, and continuous quality assurance mechanisms. Recent investigations, such as those conducted by Alwakid et al. (2025), underscore that AI capabilities significantly bolster OBE pedagogical planning and student performance, albeit with a critical dependency on instructor AI proficiency highlighting an urgent imperative for targeted professional development to mediate these effects. To transcend the reductive dichotomy between mechanical competency and moral cultivation, emergent scholarship advocates for a dialectical synthesis, positing integrative frameworks that harmonise outcome based accountability with spiritual depth. Specifically, the postulation of tripartite ethical constructs Digital Adab (ethico behavioural propriety), Digital Amanah (trustworthiness and accountability), and Digital Maslahah (social and collective welfare) offers a robust heuristic for recalibrating educational design. This integrative approach necessitates reimagining assessment practices, pedagogical strategies, and curricular outcomes not as mutually exclusive paradigms, but as nested elements within a transcendent educational ecosystem.

The Qur’anic concept of ‘ibādah (worship) as encompassing all human actions performed in accordance with divine guidance provides a theological foundation for this integration. When knowledge acquisition, skill development, and moral cultivation are oriented toward the fulfilment of human purpose (khilāfah) the vicegerency of humanity on earth they become acts of worship that transcend mere utilitarian calculation. Surah Al Dhāriyāt (51:56) declares: wa mā khalaqtu al jinna wa al insa illā li ya’budūn "I did not create jinn and humans except to worship Me." This verse establishes that the ultimate purpose of human existence, including education, is ‘ibādah—a comprehensive concept that integrates cognitive, spiritual, and moral dimensions. Rahman (2025) and Zul et al. (2026) further operationalise this theological insight by proposing concrete curriculum models that embed spiritual outcomes alongside professional competencies, thereby transforming OBE from a purely technical framework into a vehicle for holistic human development. Amin (2024) cautions, however, that such integration must avoid superficial tokenism; rather, it requires a fundamental reconceptualisation of learning outcomes to include affective and spiritual benchmarks that are assessed through qualitative, human judged methods alongside quantitative metrics.

Table 2. Integrative Framework for AI OBE in Islamic Higher Education

Dimension	OBE Component	AI Contribution	Islamic Integration	Regulatory Alignment
Curriculum Design	Learning outcomes (CPL)	Adaptive content delivery, real-time feedback	Alignment with <i>maqāsid al-sharī’ah</i> ; preservation of ‘ilm	Permendikbudristek No. 53/2023

Pedagogy	Student-centred learning	Personalised pathways, predictive analytics	<i>Ta'lim</i> with <i>tarbiyah</i> and <i>ta'dīb</i> integration	SN-Dikti standards
Assessment	Measurable competencies	Automated evaluation, competency tracking	Holistic <i>ḥisāb</i> encompassing moral-spiritual dimensions	Quality assurance frameworks
Ethical Governance	Quality assurance	Algorithmic transparency, bias mitigation	<i>Maqāṣid al-sharī'ah</i> : 'adl, amānah, maṣlaḥah	Institutional ethics policies
Faculty Development	Instructor competency	AI literacy and integration skills	<i>Uswatun ḥasanah</i> ; spiritual mentorship	Continuous professional development

Toward a Transcendent Educational Ecosystem

The thematic tafsīr analysis presented in this study reveals that the integration of AI driven OBE in Islamic higher education is not merely a technical or pedagogical challenge but a profound theological and ethical undertaking. The convergence of adaptive learning technologies, predictive analytics, and outcome based accountability systems offers unprecedented opportunities for enhancing educational effectiveness and graduate employability. However, these technological advancements must be critically evaluated through the normative lens of Islamic educational principles, ensuring that they serve rather than subvert the comprehensive objectives of *tarbiyah*, *ta'lim*, and *ta'dīb*. The regulatory framework of Permendikbudristek Nomor 53 Tahun 2023 provides a foundational structure for OBE implementation, yet it requires supplementation with context specific ethical guidelines that address the unique challenges of AI integration in Islamic higher education. The *maqāṣid al shari'ah* framework offers a robust normative foundation for AI governance, ensuring that technological innovation aligns with the higher objectives of Islamic law: the protection of religion, life, intellect, lineage, and property. The tripartite ethical constructs of Digital Adab, Digital Amanah, and Digital Maslahah provide practical heuristics for translating these abstract principles into concrete institutional practices.

Ultimately, the goal of Islamic higher education in the age of AI must be the cultivation of graduates who embody both professional acumen and profound moral integrity individuals equipped to navigate the ethical complexities of an AI augmented society while remaining rooted in the enduring values of Islamic intellectual tradition. This vision requires a dialectical synthesis that transcends the false dichotomy between technological efficiency and spiritual depth, recognising that the highest form of education is one that integrates cognitive excellence with moral cultivation, individual achievement with communal responsibility, and worldly competence with otherworldly aspiration. As the Qur'an declares in Surah Al Mujādilah (58:11): *yarfa'i Allāhu alladhīna āmanū minkum wa alladhīna ūtū al 'ilma darajāt* "Allah will raise those who have believed among you and those who were given knowledge, by degrees." True elevation (*darajāt*) encompasses not merely intellectual attainment but spiritual and moral excellence a comprehensive vision that must guide the integration of AI and OBE in Islamic higher education. Future research should empirically test the integrative frameworks proposed here (See Figure 1), particularly through longitudinal studies that measure both competency outcomes and character development in AI augmented Islamic educational settings.

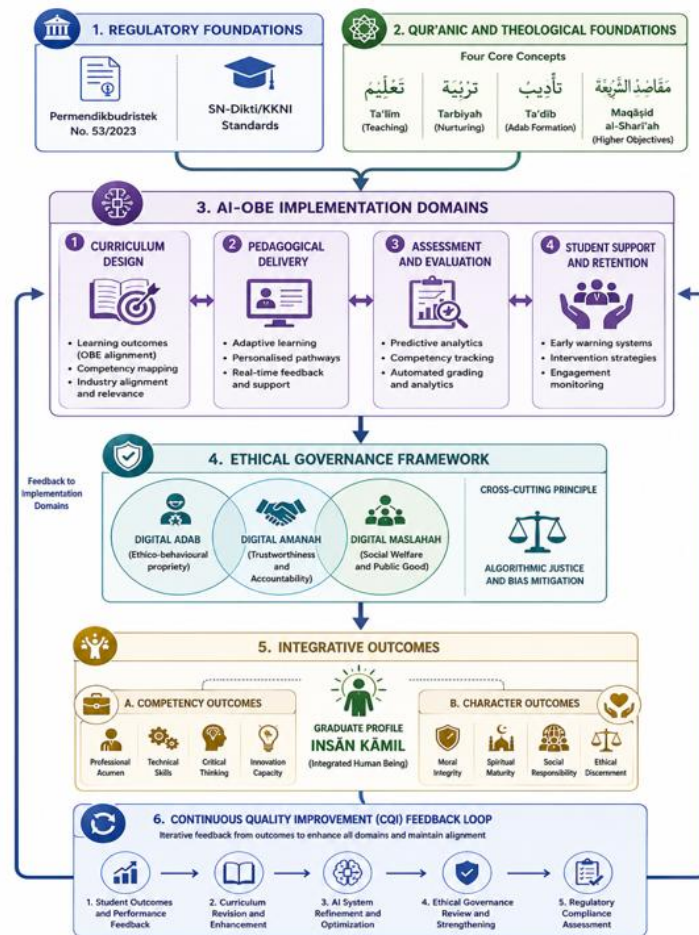


Figure 2. Integrative Framework for AI-OBE in Islamic Higher Education

Overall, Figure 2 demonstrates that the integration of AI into Outcome-Based Education (OBE) should be understood as a continuous and ethically governed process rather than a purely technological intervention. By linking regulatory standards, Islamic theological principles, AI-OBE implementation domains, ethical safeguards, integrated learning outcomes, and continuous quality improvement, the framework provides a human-centered pathway for ensuring that technological innovation supports both measurable competencies and holistic character development in Islamic higher education.

Discussion

The findings indicate that AI can strengthen Outcome-Based Education (OBE) by supporting personalized learning, adaptive content delivery, real-time feedback, and more systematic monitoring of learning outcomes. These capabilities reinforce the central logic of OBE, particularly the alignment between learning processes and intended competencies. Previous studies similarly demonstrate the potential of AI to improve academic engagement, personalized learning, and educational performance (Alwakid et al., 2025; Plooy et al., 2024; Yuensook et al., 2026). However, the present study argues that technological effectiveness alone does not determine educational value. From the perspective of ta'lim, AI should therefore function as a supporting instrument for intellectual development rather than as a substitute for human judgment in determining what constitutes meaningful knowledge.

A more critical finding concerns the risk that the combination of AI and OBE may privilege educational outcomes that are easily quantified and algorithmically processed. While measurable competencies are essential for accountability, moral judgment, wisdom, empathy, and spiritual awareness cannot be fully represented through standardized indicators. This finding extends concerns raised in previous research regarding the limitations of technology-centered assessment and excessive dependence on automated educational systems (De Caro et al., 2024; Nyamboga, 2026; Pietarinen & Shi, 2026). The study therefore identifies a potential form of epistemological

reductionism, in which what is measurable gradually becomes what is considered educationally important. Consequently, AI-driven OBE should combine quantitative evidence with qualitative and educator-mediated assessment to preserve a broader understanding of human development.

The findings further show that the concepts of *tarbiyah* and *ta'dīb* provide important theoretical boundaries for AI integration. AI can support learning processes and identify patterns in student performance, but it cannot independently replace nurturing relationships, moral guidance, and the cultivation of *adab*. This interpretation supports recent scholarship emphasizing that technological transformation in Islamic education must remain connected to ethical and spiritual purposes (Sumiati et al., 2024; Zul et al., 2026). The distinction is important because observable behavior is not necessarily equivalent to genuine character formation. Thus, the study expands existing discussions by positioning AI as a facilitator of educational processes while maintaining educators and human relationships as central agents of holistic development.

Ethical governance emerges as another major finding, particularly in relation to algorithmic bias, privacy, transparency, accountability, and human agency. The framework of *maqāṣid al-sharī'ah* strengthens the analysis by providing normative criteria for evaluating whether AI protects human dignity, intellect, justice, and welfare. This finding is consistent with broader research on accountable AI and Islamic ethical approaches to emerging technologies (Busuioc, 2021; Cheong, 2024; Elmahjub, 2023; Wahid, 2025). More importantly, the present study extends these perspectives into the curricular domain by arguing that ethics should not be treated merely as an additional layer after technology is adopted. Instead, ethical principles should shape AI-supported curriculum design, assessment, data management, and institutional decision-making from the beginning.

In the context of Indonesian Islamic higher education, this challenge becomes particularly significant because institutions must simultaneously respond to OBE-based quality assurance and preserve their broader mission of intellectual, moral, and spiritual formation. Previous research has demonstrated the importance of curriculum alignment and institutional transformation in implementing OBE (Romlah et al., 2025; Siregar et al., 2026). Nevertheless, this study suggests that strong institutional accountability does not automatically guarantee holistic educational outcomes if assessment systems prioritize only what can be formally measured. The integration of AI therefore requires a broader definition of educational success that includes competency while also recognizing ethical responsibility and character development. This contextual perspective fills an important gap by connecting technological innovation, curriculum accountability, and Islamic educational philosophy within a single analytical framework.

Overall, the proposed integrative framework represents the main conceptual contribution of this study by connecting AI-driven OBE with *ta'līm*, *tarbiyah*, *ta'dīb*, and *maqāṣid al-sharī'ah*. Rather than presenting AI and Islamic educational values as opposing paradigms, the findings demonstrate that their relationship depends on how technology is governed and positioned within the educational system. This perspective addresses the fragmentation of previous literature, in which AI, OBE, and Islamic ethics have often been examined separately (Agustin, 2026; Malizal, 2025; Venkatesh et al., 2026). The study consequently proposes that AI should remain an enabling instrument guided by human judgment, ethical accountability, and holistic educational purposes. Although the framework requires further empirical testing, it offers a new conceptual basis for ensuring that technological efficiency strengthens rather than narrows the broader mission of Islamic higher education.

CONCLUSION

This study concludes that the integration of Artificial Intelligence into Outcome-Based Education offers important opportunities for improving curriculum responsiveness, personalized learning, assessment efficiency, and student support in Islamic higher education; however, its educational value cannot be determined solely by the capacity to produce measurable outcomes. The analysis demonstrates that an excessive emphasis on algorithmically observable performance may narrow the meaning of educational achievement and marginalize relational, moral, and spiritual dimensions that are central to Islamic educational philosophy. Through the interconnected perspectives of *ta'līm*, *tarbiyah*, and *ta'dīb*, AI-driven OBE can be understood more comprehensively as a process that should

support intellectual development, holistic nurturing, and moral formation rather than merely optimizing technical competencies. The study further shows that maqāṣid al-sharī'ah provides an essential normative foundation for evaluating AI adoption by emphasizing human dignity, the protection of intellect, justice, welfare, accountability, and responsible technological use. The proposed integrative framework therefore positions AI as an enabling instrument governed by human judgment, ethical safeguards, Islamic theological principles, and continuous quality improvement. By linking regulatory foundations, AI-OBE implementation domains, ethical governance, integrated competency and character outcomes, and feedback-based evaluation, the framework offers a pathway for ensuring that technological innovation remains aligned with the broader purposes of education. Ultimately, the sustainable development of AI-supported OBE in Islamic higher education depends not simply on how advanced the technology becomes, but on whether its design, implementation, and governance continue to serve the development of competent, ethical, socially responsible, and holistically developed human beings.

AUTHOR CONTRIBUTIONS STATEMENT

Lilis Fauziah Balgis Conceptualization, methodology, data curation, formal analysis, investigation, thematic Qur'anic analysis, framework development, and writing original draft preparation. Syamsudin Ali Nasution Conceptualization, methodology, literature analysis, validation, interpretation of findings, and writing review and editing. Novi Maryani Conceptualization, contextual and regulatory analysis, validation, framework development, interpretation of findings, and writing review and editing. All authors contributed to the comparative documentary analysis and cross-source synthesis, discussed the findings and their theoretical and practical implications, revised the manuscript critically, and approved the final version for publication.

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