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Conceptualizing Ethical AI Competence in Higher Education: An Islamic Epistemological Framework for Responsible Artificial Intelligence Utilization

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ABSTRACT

The rapid integration of artificial intelligence (AI) in higher education has created an urgent need for competence frameworks that extend beyond technical proficiency to include ethical responsibility and moral awareness. Existing AI competence models largely emphasize digital literacy, algorithmic understanding, and operational skills, often overlooking the ethical and philosophical foundations necessary for responsible technology use. This conceptual paper proposes an Islamic epistemological framework for ethical AI competence in higher education by integrating ethical AI theory, competence theory, and Islamic philosophy of knowledge. Drawing on key concepts such as 'ilm (knowledge), adab (ethical conduct), amanah (trust), and maqasid al-shariah (higher objectives of Islamic law), the study reconceptualizes AI competence as a multidimensional construct consisting of technical-operational, ethical-reflective, and spiritual-epistemological dimensions. The proposed framework emphasizes that responsible AI utilization emerges when technological capability is guided by ethical reasoning and spiritual accountability. By offering a culturally grounded and value-based perspective, this study contributes to theoretical discussions on responsible AI and supports the development of ethically informed higher education in the age of intelligent technologies.

1. Introduction

The rapid advancement of artificial intelligence (AI) technologies has significantly transformed the landscape of higher education, influencing teaching, learning, research and institutional governance. Universities around the globe are increasingly integrating AI-driven systems such as intelligent tutoring platforms, automated assessment tools, predictive analytics, and generative AI applications to enhance educational efficiency and innovation [25][51][48]. While these

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developments offer substantial opportunities for improving learning outcomes and academic productivity, AI also raise critical concerns regarding ethical responsibility, academic integrity, human agency and the moral implications of technology utilization [13][18]. As a result, the concept of AI competence has emerged as a crucial construct in higher education, referring not only to the ability to utilize AI tools effectively but also to the capacity to understand, evaluate and utilize AI in a responsible and ethically informed manner [37].

Present-day debates on AI competence in higher education are principally grounded in digital literacy, technological skills and professional readiness frameworks. Numerous studies conceptualize AI competence as part of broader digital competence models, focusing on cognitive skills, technical knowledge and problem-solving abilities required for operating AI-based systems [40]. These approaches are evident in contemporary educational technology research, which emphasizes data literacy, algorithmic awareness, and computational thinking as key components of AI readiness among students and educators [43][39]. Although such perspectives are valuable, AI tend to reflect predominantly secular and technocentric paradigms that prioritize efficiency, innovation, and performance, often without sufficient attention to ethical worldview, moral responsibility, and cultural context [38][47]. Consequently, the ethical dimension of AI competence remains underdeveloped, particularly in non-Western epistemological traditions.

In recent years, scholars have increasingly emphasized the importance of ethical AI and responsible AI utilization in education. The growing influence of AI has led to concerns about bias, privacy, surveillance, academic dishonesty, and the potential erosion of human judgment in decision-making processes [1]. These issues have prompted calls for integrating ethical reasoning, critical reflection, and value-based decision-making into AI education [20]. However, most existing ethical frameworks are derived from Western philosophical traditions such as utilitarianism, deontology, and human-centered design, which may not fully capture the moral and spiritual dimensions emphasized in other knowledge systems [7][15]. As higher education becomes increasingly globalized and culturally diverse, there is a need for alternative epistemological perspectives that can contribute to a more holistic understanding of ethical AI competence.

Islamic epistemology provides a rich philosophical foundation for addressing the ethical challenges associated with artificial intelligence. In the Islamic intellectual tradition, knowledge (*'ilm*) is not merely a tool for technical mastery [28] but a trust (*amanah*) [33] that must be guided by moral responsibility (*akhlaq*) [41] and aligned with the higher objectives of human well-being as articulated in *maqasid al-shariah* [3][26]. These principles emphasize that knowledge and technology should serve the preservation of faith, life, intellect, lineage, and property, thereby ensuring that human development remains balanced between material progress and moral integrity [19]. From this perspective, competence in AI cannot be limited to technical proficiency; rather, it must include ethical intention, accountability, and awareness of the broader consequences of technological action. Such a view offers a comprehensive framework for understanding responsible AI utilization in educational settings and aligns with recent calls for culturally responsive and value-based approaches to technology ethics [24].

Despite the growing interest in AI ethics, limited research has explored how Islamic epistemological principles can inform the conceptualization of AI competence in higher education. Most existing studies focus on policy guidelines, technical training, or general ethical discussions without developing a coherent theoretical model that integrates moral philosophy, educational competence, and artificial intelligence [18][51]. This gap is particularly significant in Muslim-majority contexts, where higher education institutions increasingly adopt advanced technologies while simultaneously seeking to preserve ethical and spiritual values within their educational missions [45].

The absence of a culturally grounded framework may result in the uncritical adoption of AI systems that prioritize efficiency over ethical accountability.

Therefore, this conceptual paper aims to reconceptualize AI competence in higher education by developing an Islamic epistemological framework for ethical and responsible artificial intelligence utilization. By synthesizing literature from AI education, higher education studies, ethics of technology, and Islamic philosophy of knowledge, the paper proposes a holistic model in which technical skills, ethical reasoning, and spiritual awareness are integrated as core components of AI competence. The framework seeks to contribute to the ongoing discourse on responsible AI by offering a value-guided perspective that emphasizes human dignity, social justice, and moral accountability in the use of intelligent technologies. In doing so, the study advances theoretical understanding of AI competence and provides a foundation for future research, curriculum development, and policy formulation aimed at ensuring that the integration of artificial intelligence in higher education remains aligned with ethical principles and the broader purpose of human flourishing [43][44].

2. Literature Review

2.1 Artificial Intelligence in Higher Education

Artificial intelligence (AI) has become one of the most influential technological forces shaping contemporary higher education. Universities worldwide are increasingly adopting AI-driven applications such as intelligent tutoring systems, adaptive learning platforms, automated grading tools, and predictive analytics to improve teaching efficiency, personalize learning, and enhance institutional decision-making [18][51]. These technologies enable the processing of large volumes of educational data and allow institutions to provide individualized learning experiences that were previously difficult to achieve through conventional instructional approaches [25][49]. As AI continues to evolve, higher education institutions are expected not only to utilize AI tools but also to prepare students and educators to understand and manage the ethical, social, and pedagogical implications of such technologies. Despite the potential benefits, the increasing presence of AI in higher education has generated concerns regarding academic integrity, privacy, surveillance, and the replacement of human judgment with automated decision-making systems [38][47][48]. These concerns highlight the need for a more comprehensive understanding of competence in AI utilization, one that extends beyond technical proficiency to include ethical awareness and responsible decision-making. Consequently, the concept of AI competence has gained attention as an essential component of digital readiness in higher education.

2.2 AI Competence, Digital Competence, and AI Literacy

The concept of competence in digital and artificial intelligence contexts has been widely discussed within educational technology research. Digital competence frameworks such as the European Digital Competence Framework (DigComp) define competence as a combination of knowledge, skills, and attitudes required to use digital technologies effectively, safely, and responsibly [17]. Building upon these models, researchers have introduced the concept of AI literacy and AI competence, emphasizing the ability to understand AI concepts, evaluate algorithmic outcomes and interact critically with intelligent systems [23][30]. Ng et al. (2021) proposed that AI literacy should include technical knowledge, ethical awareness and the ability to assess the societal impact of artificial intelligence [30]. Similarly, UNESCO (2025) highlighted that future-ready education requires learners to develop competencies related to data understanding, algorithmic thinking and

ethical utilization of digital technologies [44]. These frameworks demonstrate a gradual shift from purely technical definitions of competence toward more holistic models that incorporate critical thinking and ethical responsibility. However, most existing competence frameworks are grounded in secular educational paradigms that emphasize cognitive and technical performance. While these approaches are useful for preparing students for technological environments, they often overlook the role of moral values, cultural context, and philosophical worldview in shaping responsible utilization of technology [38][12]. As a result, current AI competence models may be insufficient for addressing ethical challenges in diverse educational contexts, particularly in societies where knowledge is closely connected with religious and moral traditions.

2.3 Ethical AI and Responsible Utilization of Technology

The rapid development of AI has led to increased global attention on ethical artificial intelligence and responsible innovation. Ethical AI refers to the design, development and utilization of AI systems in ways that respect human rights, fairness, accountability and transparency [13][32]. International organizations such as UNESCO (2022) and the European Commission (2019) have emphasized that education systems must prepare learners to utilize AI responsibly and to understand the ethical implications of algorithmic decision-making [43][11]. Scholars have argued that ethical competence should be considered a core component of digital and AI literacy, particularly in educational settings where future professionals are trained [20][2]. Ethical concerns in AI include issues such as algorithmic bias, misuse of data, overreliance on automation and the potential loss of human autonomy [7]. In higher education, such concerns are exclusively pertinent due to the increasing utilization of AI for assessment, academic writing and research support. Human-centered AI has been proposed as an approach that places human well-being, dignity and social responsibility at the center of technological development [13]. This perspective aligns with educational values that emphasize the role of universities in developing not only skilled graduates but also morally responsible individuals [22]. Nevertheless, most existing ethical AI frameworks are derived from Western philosophical traditions such as utilitarianism, deontology and virtue ethics, which may not fully represent the moral perspectives of other cultural and religious traditions [46]. This limitation suggests the demand for alternative ethical frameworks that contribute to a more inclusive understanding of responsible AI competence.

2.4 Cultural and Religious Perspectives in AI Ethics

Recent research has highlighted the importance of incorporating cultural and religious perspectives into discussions of technology ethics. As AI becomes a global phenomenon, ethical frameworks based solely on Western philosophy may not adequately address the values and beliefs of diverse societies [6]. Scholars have argued that ethical decision-making in technology should be informed by local traditions, social norms and spiritual principles in order to ensure that technological progress remains aligned with human well-being [7]. In educational contexts, culturally responsive approaches to technology utilization have been shown to improve both acceptance and responsible behavior among students [44]. Integrating ethical perspectives rooted in cultural and religious traditions can provide a more comprehensive understanding of responsibility, accountability, and the purpose of knowledge [34]. This is particularly relevant in Muslim-majority countries, where education is often viewed not only as a means of acquiring skills but also as a process of moral and spiritual development [31].

2.5 Islamic Epistemology and the Ethics of Knowledge

Islamic epistemology offers a holistic understanding of knowledge that integrates intellectual, moral and spiritual dimensions. In the Islamic tradition, knowledge (*'ilm*) is considered a trust (*amanah*) that must be cast-off for the benefit of humanity and in accordance with divine guidance [3]. Education is therefore not limited to the acquisition of technical skills but involves the cultivation of ethical character (*akhlaq*) and responsibility toward society [16]. The concept of *maqasid al-shariah*, or the higher objectives of Islamic law, provides a framework for evaluating human actions based on their contribution to the preservation of faith, life, intellect, lineage and property [26]. These principles offer a valuable ethical foundation for guiding the development and utilization of modern technologies, including AI [19]. From this perspective, competence in AI should include not only the ability to operate technological systems but also the moral awareness necessary to ensure that technology serves human well-being. Several scholars have argued that integrating Islamic philosophy with contemporary education provide a balanced approach that combines scientific progress with ethical responsibility [9]. However, limited research has applied Islamic epistemological principles to the concept of AI competence in higher education. Most existing studies on AI ethics focus on policy guidelines or technical training without developing a comprehensive theoretical model grounded in religious or moral philosophy [4].

2.6 Research Gap

The review of literature indicates that while AI competence, ethical AI and responsible utilization of technology have received increasing attention, existing frameworks remain largely technocentric and culturally limited. There is a lack of theoretical models that integrate ethical responsibility, educational competence and Islamic epistemological principles in the context of higher education. This gap suggests the need for a conceptual framework that reconceptualizes AI competence as a holistic construct encompassing technical skills, ethical awareness and spiritual responsibility. Therefore, this paper proposes an Islamic epistemological framework for ethical AI competence in higher education, aiming to contribute to the development of responsible AI utilization that aligns technological advancement with moral and human values.

3. Theoretical Foundation

3.1 Ethical Artificial Intelligence as a Conceptual Basis

The rapid integration of AI into higher education has intensified the need for strong ethical foundations guiding its development and utilization. Ethical AI refers to the design and implementation of AI systems in ways that respect human dignity, fairness, accountability, and social responsibility [13][4]. In academic environments, AI technologies are increasingly utilized for teaching, assessment, research assistance and administrative decision-making, raising concerns regarding academic integrity, data privacy, bias and overreliance on automated systems [18][24]. These challenges demonstrate that competence in AI must extend beyond technical skills to include ethical awareness and responsible judgment. Floridi et al. (2018) and Kotzanikolaou et al. (2026) proposed that ethical AI should be guided by principles such as beneficence, non-maleficence, justice, autonomy and explicability [13][21]. Similarly, UNESCO (2022) emphasized that education systems must cultivate ethical responsibility alongside digital competence in order to prepare learners for AI-driven societies [43]. Ethical competence therefore becomes an essential component of AI competence, particularly in higher education where students are expected to become future

professionals and decision-makers. However, most existing ethical frameworks are rooted in Western philosophical traditions, including utilitarianism and deontology [46]. While these approaches provide valuable guidance, it may not fully reflect the moral perspectives of diverse cultural and religious communities. This limitation suggests the need for alternative epistemological foundations that offer a more holistic understanding of responsible AI utilization.

3.2 Human-Centered AI and Responsible Innovation

Human-centered AI has emerged as a dominant theoretical approach in contemporary discussions of responsible artificial intelligence. This perspective emphasizes that technological development should prioritize human well-being, social justice and ethical accountability rather than merely efficiency or productivity [13][7][12]. In the context of higher education, human-centered AI aligns with the traditional role of universities as institutions responsible for developing individuals who are not only knowledgeable but also morally responsible. Responsible innovation theory further supports this perspective by arguing that technological progress must consider long-term social consequences and cultural values [42]. According to this view, competence in AI should include the ability to critically evaluate the ethical implications of technology utilization. Ng et al. (2021) and Hammada and Foli (2024) suggested that AI competence must involve not only understanding algorithms and data but also the ability to assess their impact on society [30][17]. UNESCO (2025) similarly highlighted that future-ready education should integrate ethical reasoning, digital literacy and social responsibility [44]. Despite these developments, most of competence frameworks remain primarily technocentric, focusing on operational skills rather than moral responsibility [38][29]. This imbalance may lead to the uncritical adoption of AI systems without sufficient consideration of ethical consequences. Therefore, a broader theoretical foundation is needed, one that integrates competence theory with moral philosophy and cultural values.

3.3 Competence Theory in Higher Education

Competence theory provides an important foundation for understanding AI competence in educational contexts. Competence is commonly defined as the integration of knowledge, skills, attitudes and values required for effective performance in complex situations [35]. In higher education, competence-based approaches emphasize not only cognitive ability but also ethical judgment, responsibility and reflective thinking [10]. Digital competence frameworks such as DigComp [5] and AI literacy models [23][30] have expanded the concept of competence to include understanding of algorithms, data ethics and responsible utilization of technology. These frameworks indicate a shift from purely technical definitions toward more holistic models that incorporate ethical and social dimensions. UNESCO (2025) further stressed that competence in the age of AI must support sustainable development and human well-being [44]. However, most competence models are developed within secular educational paradigms. They rarely address the role of spiritual values, moral intention, or religious worldview in shaping responsible behavior. In many societies, including Muslim-majority contexts, education is not only about acquiring skills but also about developing character and moral responsibility [50]. Therefore, AI competence should be understood within a broader epistemological framework that integrates intellectual, ethical and spiritual dimensions of knowledge.

3.4 Islamic Epistemology and the Ethics of Knowledge

Islamic epistemology offers a holistic understanding of knowledge that integrates cognitive, moral, and spiritual elements. In the Islamic intellectual tradition, knowledge (*'ilm*) is considered a trust (*amanah*) that must be used for the benefit of humanity and in accordance with divine guidance [3]. Unlike secular conceptions of knowledge that often separate facts from values, Islamic epistemology views knowledge as inseparable from ethics and responsibility [16]. Al-Attas (1993) emphasized that the purpose of education is to produce a balanced individual who possesses both intellectual competence and moral character [3]. Desfita et al. (2024) and Mulyani et al. (2025) similarly argued that knowledge in Islam must lead to righteous action and social benefit [9][28]. This perspective implies that competence in artificial intelligence cannot be limited to technical proficiency but must also include ethical awareness and accountability. Another important concept in Islamic epistemology is *adab*, which refers to proper conduct and recognition of the correct place of things within the order of creation [27]. In educational contexts, *adab* represents the integration of knowledge with moral discipline [50]. Applying this concept to AI competence suggests that the utilization of AI must be guided by ethical intention and awareness of its consequences. The principle of *amanah* further strengthens the ethical dimension of knowledge [50]. Humans are considered trustees responsible for using knowledge and resources in ways that promote justice and prevent harm [4]. From this perspective, AI is not merely a technological tool but a responsibility that must be managed with moral care.

3.5 Maqasid al-Shariah as a Framework for Ethical AI Utilization

The concept of *maqasid al-shariah* provides a systematic ethical framework within Islamic philosophy. *Maqasid al-shariah* refers to the higher objectives of Islamic law, which aim to preserve faith, life, intellect, lineage and property [19]. These objectives offer a comprehensive guide for evaluating human actions, including the development and use of modern technologies. Applying the *maqasid* framework to AI suggests that technology should be utilized in ways that protect human dignity, promote knowledge, and prevent harm. For example, AI systems in education should enhance intellectual development without compromising academic integrity, privacy, or moral values. This perspective aligns with contemporary discussions on responsible AI, which emphasize fairness, accountability and social benefit [13]. Integrating *maqasid al-shariah* with competence theory allows AI competence to be understood as a multidimensional construct that includes technical skills, ethical reasoning and spiritual responsibility. Such an approach provides a culturally grounded framework for responsible AI utilization in higher education.

3.6 Toward an Islamic Epistemological Framework of Ethical AI Competence

Based on the theoretical perspectives discussed above, AI competence in higher education should be reconceptualized as a holistic construct that integrates technical knowledge, ethical awareness and moral responsibility. Ethical AI theory highlights the importance of accountability and fairness, competence theory emphasizes the integration of knowledge, skills, and values and Islamic epistemology provides a moral framework that connects knowledge with responsibility. By combining these perspectives, this paper proposes that ethical AI competence should include three core dimensions: technical competence, ethical competence and spiritual-epistemological awareness. Such a framework supports responsible artificial intelligence utilization that aligns

technological advancement with human dignity, social justice, and moral accountability. This theoretical foundation provides the basis for the conceptual model developed in the next section.

4. Conceptual Framework Development

4.1 Reconceptualizing AI Competence in Higher Education

The increasing integration of AI in higher education requires a reconceptualization of competence that extends beyond technical proficiency toward ethical and value-guided utilization. Existing frameworks of digital competence and AI literacy primarily emphasize cognitive skills, operational knowledge and technological readiness [30][8]. While these components are essential, it is insufficient for addressing the complex ethical challenges associated with AI, particularly in educational environments where technology directly influences knowledge production, academic integrity and human development [18][7]. Human-centered AI theory suggests that competence in the age of intelligent technologies must include the ability to evaluate the social and moral consequences of technological decisions [13][36]. Similarly, responsible innovation frameworks emphasize that technological competence should incorporate ethical reflection, accountability, and awareness of long-term impact [14]. These perspectives indicate that AI competence should not be limited to technical knowledge but must also include ethical judgment and value-based decision-making. However, most existing models of AI competence are grounded in secular educational paradigms that do not fully consider the role of spiritual values and moral worldview in shaping responsible behavior. In many educational traditions, including Islamic education, knowledge is closely connected with ethical responsibility and the purpose of human development [3]. Therefore, a more comprehensive framework of AI competence must integrate cognitive, ethical, and spiritual dimensions.

4.2 Core Dimensions of Ethical AI Competence

Based on the theoretical foundations discussed, this paper proposes that ethical AI competence in higher education consists of three interrelated dimensions consisting Technical-Operational Competence; Ethical-Reflective Competence; and Spiritual-Epistemological Competence. These dimensions are derived from competence theory, ethical AI principles and Islamic epistemology which forming a holistic framework for responsible utilization of AI.

4.2.1 Technical-Operational Competence

Technical competence refers to the knowledge and skills required to understand, use, and evaluate artificial intelligence systems. This includes digital literacy, data awareness, algorithmic understanding, and the ability to interact effectively with AI tools [23][30]. In higher education, technical competence enables students and educators to utilize AI for learning, research and academic tasks. Digital competence frameworks such as DigComp define competence as the ability to utilize digital technologies safely, critically, and creatively [17]. In the context of AI, this includes understanding how AI systems function, recognizing their limitations and utilizing AI responsibly. However, technical competence alone cannot ensure ethical utilization, as individuals may possess advanced technological skills without adequate moral awareness. Therefore, technical competence must be integrated with ethical and epistemological dimensions in order to support responsible AI utilization.

4.2.2 Ethical-Reflective Competence

Ethical competence refers to the ability to evaluate the moral implications of AI and to make responsible decisions regarding its utilization. Ethical AI frameworks emphasize principles such as fairness, accountability, transparency, and respect for human dignity [13]. In higher education, ethical competence is particularly important due to the increasing utilization of AI in academic writing, assessment and research. UNESCO (2022) stressed that learners must develop the capacity to utilize AI in ways that promote social good and avoid harm [43]. Similarly, Coeckelbergh (2020) argued that ethical competence requires critical reflection on the impact of technology on individuals and society [7]. In educational contexts, this includes understanding issues such as plagiarism, data privacy, bias and the misuse of automated systems. Ethical competence also involves the ability to regulate one's actions according to moral principles. From the perspective of responsible innovation, competence must include awareness of consequences and commitment to ethical standards [5]. Without ethical competence, technological ability may lead to irresponsible or harmful utilization of AI.

4.2.3 Spiritual-Epistemological Competence

The third dimension proposed in this framework is spiritual-epistemological competence, derived from Islamic epistemology. In the Islamic tradition, knowledge is inseparable from moral responsibility and spiritual awareness [3]. Education aims to develop individuals who are intellectually capable, ethically responsible and spiritually conscious. The concept of 'ilm emphasizes that knowledge must be guided by truth and used for the benefit of humanity. The principle of amanah defines knowledge as a trust that must not be misused [9][28]. Similarly, the concept of adab highlights the importance of proper conduct and recognition of moral limits in the use of knowledge [27]. The framework of maqasid al-shariah provides further guidance by defining the objectives of human action as the preservation of faith, life, intellect, lineage, and property [26]. Applying this framework to artificial intelligence implies that AI should be utilized in ways that protect human dignity, support intellectual growth, and prevent harm. Spiritual-epistemological competence therefore refers to the awareness that utilization of technology must be guided by moral intention, accountability and higher ethical purpose. This dimension distinguishes the proposed framework from existing AI competence models, which rarely include spiritual or philosophical foundations.

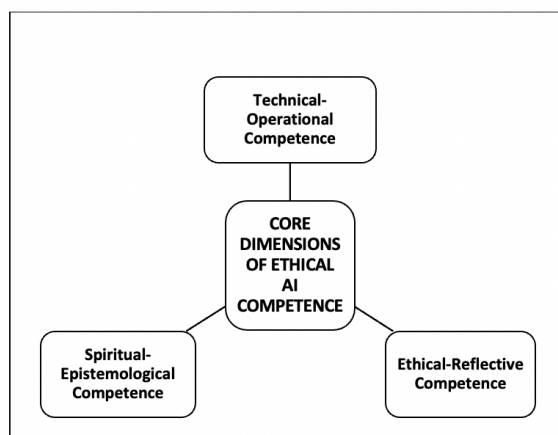


Fig. 1. Core Dimensions of Ethical AI Competence

4.3 Integration of the Three Dimensions

The proposed framework conceptualizes ethical AI competence as an integrated construct consisting of technical, ethical and spiritual dimensions that function in a mutually reinforcing manner rather than as separate components. Technical competence enables individuals to effectively utilize AI tools, ethical competence guides responsible and accountable decision-making, and spiritual-epistemological competence provides a deeper moral orientation that shapes values and intentions. When technical competence exists without ethical awareness, AI might be misused; when ethical competence exists without technical knowledge, responsible utilization cannot be fully implemented; and when ethical principles are not grounded in spiritual awareness, moral commitment might remain superficial. Therefore, responsible AI utilization in higher education requires a balanced integration of all three dimensions. This holistic model is consistent with human-centered AI theory, competence theory and Islamic epistemology, as well as offers a comprehensive conceptual framework for understanding ethical AI competence in the context of higher education.

4.4 Proposed Conceptual Model

Based on the synthesis of theoretical foundations, this study proposes a conceptual model of Ethical AI Competence in Higher Education consisting of three interrelated dimensions: the technical-operational dimension, the ethical-reflective dimension, and the spiritual-epistemological dimension, with responsible AI utilization as the expected outcome. The model assumes that responsible utilization of AI in higher education can only be achieved when technological skills are guided by ethical reasoning and grounded in moral and epistemological awareness. In this framework, technical competence ensures effective and accurate utilization of AI tools, ethical competence directs responsible judgment and accountability, while spiritual-epistemological competence provides deeper moral orientation based on philosophical and religious values. The integration of these dimensions produces a balanced form of AI competence that aligns with human-centered AI principles. This framework contributes to the literature by proposing a culturally grounded and philosophically informed model of AI competence, addressing the limitations of existing technocentric approaches that emphasize skills without moral guidance. The conceptual model is illustrated in Figure 2, which demonstrates the integration of Islamic epistemology, ethical AI principles, and competence theory in shaping responsible AI utilization in higher education.

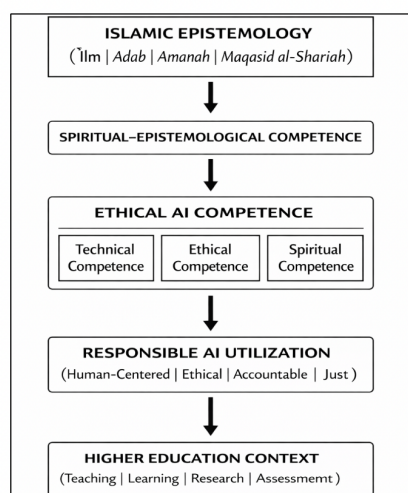


Fig. 2. Conceptual Framework of Ethical AI Competence in Higher Education Based on Islamic Epistemology

Figure 2 shows the conceptual framework illustrating ethical AI competence in higher education grounded in Islamic epistemology. The model integrates technical competence, ethical competence and spiritual-epistemological competence to support responsible AI utilization aligned with human-centered and morally guided educational practice.

5. Implications for Higher Education, Policy and Practice

The proposed Islamic epistemological framework of ethical AI competence has significant implications for higher education in curriculum design, institutional policy, and responsible technology use. As AI becomes integrated into teaching, learning, and research, universities must ensure its application aligns with ethical principles and moral responsibility beyond technical proficiency. Curriculum development should integrate ethical and epistemological elements, including 'ilm, adab and amanah, to produce graduates who are both competent and morally responsible. At the institutional level, policies guided by fairness, accountability, and maqasid al-shariah might prevent misuse and protect human dignity. The framework also promotes human-centered AI practices and contributes to global discussions by offering a culturally grounded, value-based approach to ethical AI education.

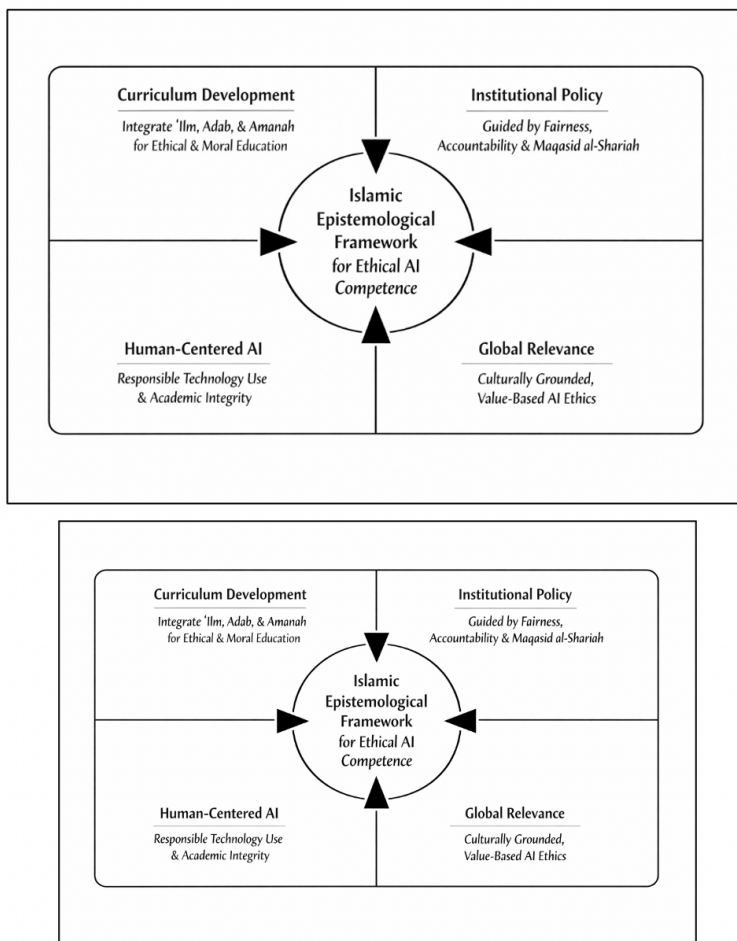


Fig. 3. Implications for Higher Education, Policy and Practice

6. Contributions to Theory

This conceptual paper contributes to AI competence theory in higher education by integrating ethical AI theory, competence theory, and Islamic epistemology into a unified framework. Unlike technocentric models focused on technical skills, the proposed model defines AI competence as a multidimensional construct consisting of technical, ethical, and spiritual-epistemological dimensions. By incorporating the concepts of *ilm*, *adab*, *amanah* and *maqasid al-shariah*, the framework introduces a culturally grounded moral perspective to AI ethics. The study also advances educational theory by linking competence with ethical purpose and accountability and contributes to responsible innovation literature by emphasizing social impact and values. Overall, the framework offers a holistic foundation for responsible artificial intelligence utilization in higher education.

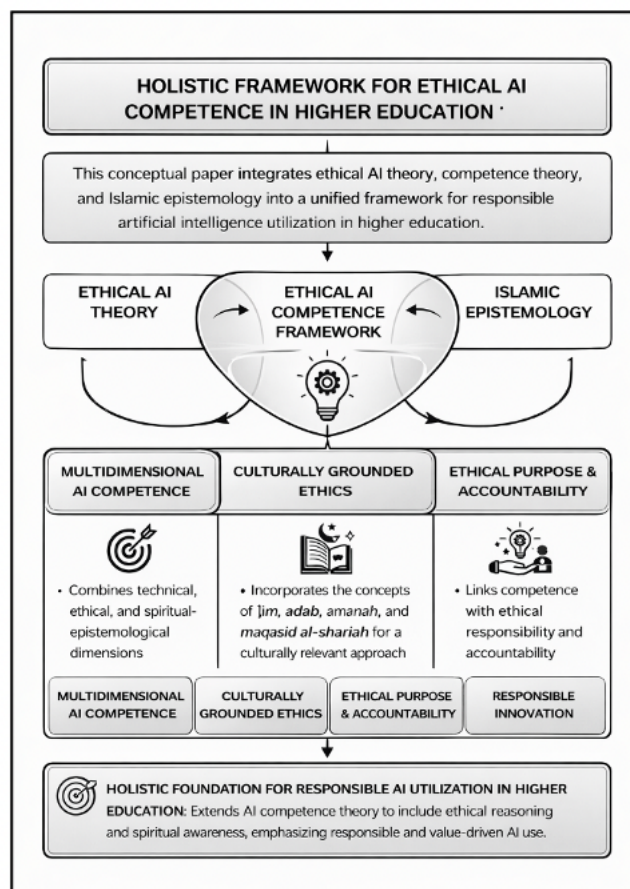


Fig. 4. Contributions to Theory

7. Future Research Directions

Further research is needed to validate the proposed Islamic epistemological framework of ethical AI competence through empirical and interdisciplinary studies. Future work should examine the dimensions of technical-operational, ethical-reflective and spiritual-epistemological competence using quantitative, mixed-method and experimental designs. Studies should also examine curriculum implementation, cross-cultural applicability besides the role of Islamic concepts such as *ilm*, *adab*, *amanah* and *maqasid al-shariah* in guiding responsible utilization of AI. Comparative and policy-focused research can help develop ethical guidelines for higher education institutions.

Interdisciplinary collaboration across education, philosophy, AI and religious studies is essential to ensure that AI integration remains aligned with human dignity, moral accountability and socially responsible innovation.

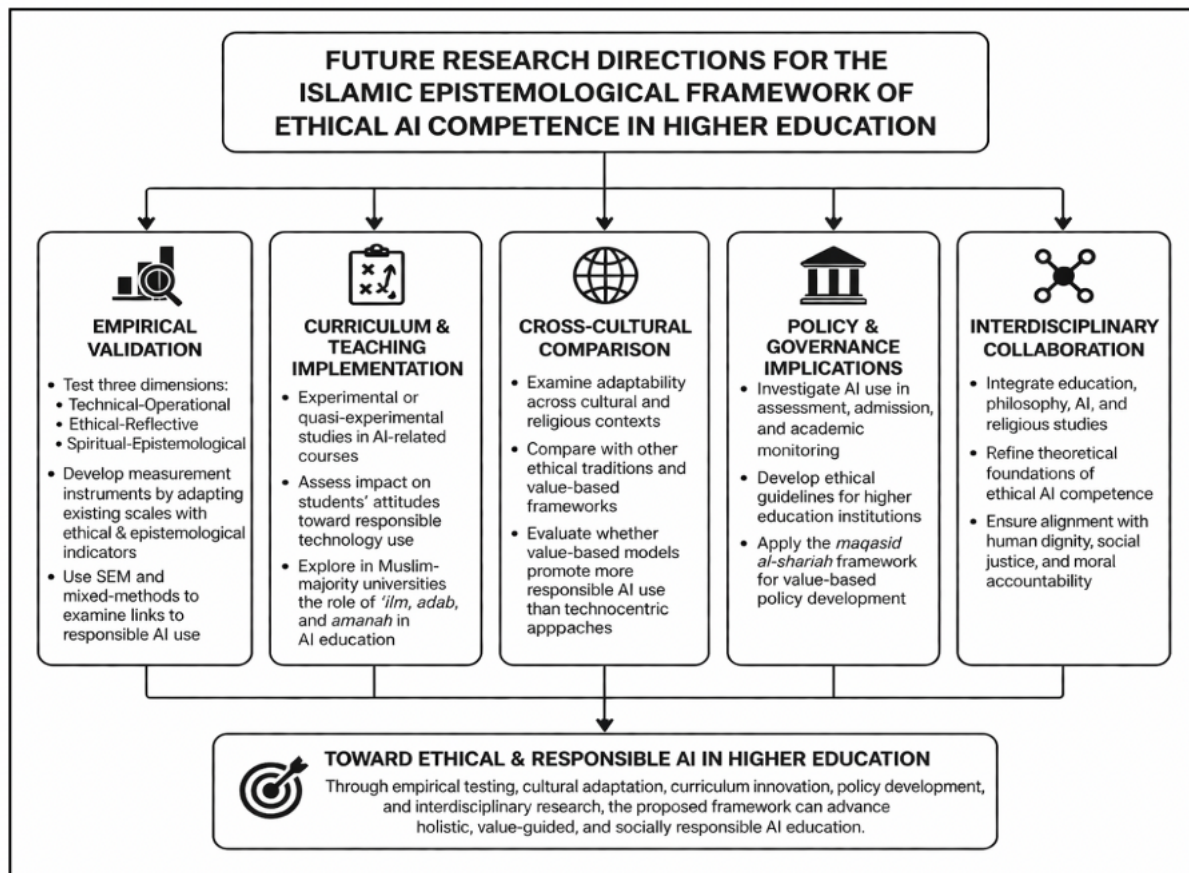


Fig. 5. Future Research Directions

8. Conclusion

The rapid integration of AI in higher education requires competence frameworks that extend beyond technical skills to include ethical responsibility and moral awareness. Existing AI competence models often emphasize digital literacy and operational ability while overlooking philosophical and ethical foundations. This conceptual paper proposes an Islamic epistemological framework that integrates ethical AI principles, competence theory and Islamic philosophy of knowledge. The framework defines AI competence as a multidimensional construct consisting of technical, ethical and spiritual-epistemological dimensions. Responsible AI utilization is achieved when technological skills are guided by moral intention, accountability, and awareness of the purpose of knowledge. This holistic model offers a culturally responsive approach that supports ethical responsibility, human dignity, and balanced technological advancement in higher education.

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