Published by :
https://www.ijert.org/
An International Peer-Reviewed Journal

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 15 Issue 06 , June - 2026

AI-Generated Content and Responsible AI Use in Higher Education: The Roles of Ethical Awareness and IT Governance

Collins Owusu Boateng[1], Albert Armah[2]

1. Department of Information Technology, Ghana Telecom University College, Accra, Ghana
2. Department of Information Technology, Amaniampong Senior High School, Mampong-Ashanti, Ghana

Abstract - The rapid proliferation of artificial intelligence (AI)-generated content tools, most notably large language models such as ChatGPT, has introduced both transformative opportunities and complex ethical challenges for higher education institutions (HEIs). While these tools offer considerable potential for enhancing teaching, learning, and research productivity, their uncritical or unregulated adoption raises pressing concerns about academic integrity, epistemic responsibility, and institutional accountability. This paper examines the dual mechanisms through which responsible AI use can be cultivated in higher education: ethical awareness among students and faculty, and robust IT governance frameworks at the institutional level. Drawing on a narrative review of existing literature and established theoretical frameworks, including the Responsible AI principles advocated by UNESCO (2021) and IT governance models derived from COBIT and ISO/IEC 38500, this study proposes a conceptual model that situates ethical awareness and IT governance as complementary yet distinct drivers of responsible AI integration. The findings suggest that while individual ethical awareness serves as a necessary cognitive and moral foundation, it is insufficient without structural reinforcement through institutional IT governance policies and oversight mechanisms. Conversely, IT governance without cultivated ethical awareness among end users may yield compliance without genuine responsibility. Implications for policymakers, institutional leaders, and educators are discussed, with particular emphasis on the need for context-sensitive, adaptive governance strategies that keep pace with the evolving AI landscape in academic settings.

Keywords: artificial intelligence in education; AI-generated content; responsible AI; ethical awareness; IT governance; higher education; academic integrity

INTRODUCTION

The emergence of generative artificial intelligence as a mainstream tool has fundamentally altered the informational and pedagogical landscape of higher education. Since the public release of ChatGPT in late 2022, followed by a cascade of competing large language models and multimodal AI systems, universities and colleges worldwide have found themselves confronted with a technological disruption that did not afford the luxury of gradual adaptation. Students began submitting AI-generated essays. Researchers started using AI tools to draft manuscripts. Faculty members faced assessment practices rendered obsolete almost overnight (Cotton et al., 2023; Kasneci et al., 2023). The pace and scale of this shift exposed significant gaps in the preparedness of higher education institutions to govern, guide, and ethically integrate AI tools into their ecosystems.

The challenge is not simply technical — it is deeply ethical. When a student uses an AI tool to complete an assignment without disclosure, the question that arises is not merely whether the action constitutes academic misconduct under existing policy. It is whether that student understands the epistemological and moral dimensions of what they have done (Chan, 2023). Similarly, when a university deploys AI-powered platforms for student analytics or academic monitoring, the question extends beyond data protection compliance to encompass issues of algorithmic fairness, transparency, and the dignity of those being surveilled (Selwyn, 2019; Nguyen et al., 2023). These questions resist purely technical or procedural resolution. They demand ethical literacy.

At the same time, individual ethical awareness, however well developed, cannot alone guarantee responsible AI use at institutional scale. Universities are complex socio-technical organisations whose behaviours are shaped by policies, incentive structures, resource allocations, and governance architectures. Without institutional frameworks that assign decision-making authority, establish oversight mechanisms, and embed AI ethics into operational practice, even the most ethically informed individuals operate within systems that may inadvertently enable or normalise irresponsible AI use (Weill & Ross, 2004; De Haes & Van Grembergen, 2009). This is where IT governance becomes essential, not as a bureaucratic constraint but as a structural enabler of responsible innovation.

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 15 Issue 06 , June - 2026

This paper proceeds from the position that responsible AI use in higher education requires a dual-level approach: cultivating ethical awareness at the individual level and establishing robust IT governance at the institutional level. These two dimensions are conceptually distinct yet practically interdependent. Specifically, this paper aims to: (1) review the existing literature on AI-generated content and its implications for higher education; (2) examine the role of ethical awareness in shaping responsible AI use among students and educators; (3) analyse how IT governance frameworks can support and institutionalise responsible AI practice; and (4) propose a conceptual model that integrates both dimensions as co-constitutive elements of a responsible AI ecosystem in higher education.

The paper is organised as follows. Section 2 provides a comprehensive review of the relevant literature, organised around three thematic areas. Section 3 outlines the theoretical framework underpinning the proposed conceptual model. Section 4 presents the discussion, exploring the practical and policy implications of the model. Section 5 concludes with a summary of key findings and directions for future research.

LITERATURE REVIEW

AI-Generated Content in Higher Education

The integration of AI technologies in education is not a new phenomenon. Researchers have tracked the adoption of intelligent tutoring systems, adaptive learning platforms, and automated feedback tools for several decades (Luckin et al., 2016; Zawacki-Richter et al., 2019). However, the arrival of conversational AI tools capable of generating coherent, contextually appropriate academic text has marked a qualitative shift in the nature of human-AI interaction in educational contexts. Earlier AI applications were largely invisible to students, operating in the background of learning management systems or providing structured feedback within defined parameters. Generative AI, by contrast, places significant and largely unconstrained creative and analytical capability directly in the hands of learners and educators (Baidoo-Anu & Owusu Ansah, 2023).

The educational implications of this shift are profound and multifaceted. On one hand, the literature documents a growing body of evidence suggesting that generative AI tools can meaningfully support learning when used appropriately. Kasneci et al. (2023) identify several promising applications, including personalised content generation, formative feedback, language support for non-native speakers, and the scaffolding of complex reasoning tasks. Lim et al. (2023) argue that generative AI, when thoughtfully integrated, has the potential to democratise access to high-quality educational support, particularly in resource-constrained environments. Similarly, Baidoo-Anu and Owusu Ansah (2023) contend that tools such as ChatGPT can serve as interactive tutoring companions, capable of responding to students' queries at any time and adapting explanations to individual needs.

On the other hand, the same literature is replete with cautionary observations. The ease with which generative AI tools can produce plausible academic writing has intensified concerns about academic integrity, with Cotton et al. (2023) documenting widespread student use of ChatGPT for assignment completion across disciplines and institutional contexts. Beyond integrity concerns, researchers have raised epistemological questions about the nature of learning when the cognitive effort of writing, traditionally understood as a vehicle for deep thinking, is delegated to an algorithm (Dwivedi et al., 2023). There is also the matter of accuracy: large language models are known to generate confident-sounding but factually incorrect information, a tendency that poses particular risks in research and scholarly contexts (Tlili et al., 2023).

The challenge for higher education institutions, then, is neither to uncritically embrace nor wholesale reject AI-generated content, but to develop the institutional capacity to navigate this complexity with nuance, intentionality, and ethical grounding (Miao et al., 2021; Pedro et al., 2019). That developmental work requires both the cultivation of ethical awareness at the individual level and the establishment of governance infrastructure at the institutional level, the two central arguments of this paper.

Ethical Awareness and Responsible AI Use

The concept of ethical awareness, as it pertains to AI, refers to an individual's capacity to recognise, interpret, and respond to the moral dimensions of AI-mediated actions and outcomes (Nguyen et al., 2023). This capacity is distinct from mere knowledge of rules or policies; it encompasses a deeper, reflexive engagement with questions of fairness, transparency, autonomy, and harm that arise in specific contexts of AI use. Jones (1991), in his influential model of moral intensity, established that ethical decision-making is not simply a function of knowing what is right, but of perceiving the moral salience of a situation, a perception that is shaped by individual cognition, social context, and the nature of the issue at stake.

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 15 Issue 06 , June - 2026

In the context of AI use in higher education, ethical awareness encompasses several dimensions. The first concerns academic integrity, the recognition that delegating intellectual work to an AI system without disclosure violates the epistemic contract between learners and institutions (Chan, 2023). The second concerns data ethics, the awareness that AI systems used in educational settings collect, process, and act on personal data in ways that can meaningfully affect student welfare and privacy (Akgun & Greenhow, 2022). The third concerns algorithmic fairness, the understanding that AI systems may encode or amplify existing biases, producing outcomes that disadvantage certain groups of students on the basis of race, gender, socioeconomic status, or other characteristics (Floridi et al., 2020; Mittelstadt et al., 2016).

Jobin et al. (2019), in their landmark analysis of over 80 AI ethics guidelines published globally, identified a set of recurring principles across these documents: transparency, justice and fairness, non-maleficence, responsibility, and privacy. These principles, they argued, represent a nascent but meaningful global consensus on what ethical AI use should look like. UNESCO's Recommendation on the Ethics of Artificial Intelligence (2021) built on this consensus, articulating a comprehensive framework that positions human dignity and environmental sustainability as overarching values within which all AI development and use should be situated.

For higher education, translating these broad principles into actionable ethical awareness requires deliberate curricular and pedagogical investment. Holmes et al. (2022) argue that AI literacy, which includes not only technical understanding but critical ethical reasoning, should be embedded across disciplines rather than confined to computer science or information systems programmes. This view is echoed by Nguyen et al. (2023), who propose a set of domain-specific ethical principles for AI in education, including the principle of human agency, which holds that AI should augment rather than supplant human judgment in teaching and learning processes.

Despite growing scholarly attention to these issues, empirical research suggests that ethical awareness of AI remains uneven among both students and faculty in higher education. Studies conducted across diverse national contexts have found that many students use AI tools without fully considering the ethical implications of their use, often framing the question primarily in terms of whether they are likely to get caught rather than whether their actions are morally defensible (Cotton et al., 2023). Faculty members, meanwhile, frequently report uncertainty about how to respond to AI use in their courses, reflecting a gap between the pace of technological change and the development of ethical frameworks to guide practice (Kasneci et al., 2023).

IT Governance in Educational Settings

IT governance has traditionally been understood as the framework through which organisations assign decision-making authority, accountability, and oversight responsibility for IT-related policies and practices (Weill & Ross, 2004). It encompasses the structures, processes, and relational mechanisms through which organisations ensure that their IT investments and operations align with strategic objectives and comply with relevant legal, regulatory, and ethical obligations (De Haes & Van Grembergen, 2009).

The dominant frameworks for IT governance, most notably COBIT (Control Objectives for Information and Related Technologies), developed by ISACA, and ISO/IEC 38500, provide structured approaches to governing IT decisions across organisations of varying sizes and sectors. COBIT 2019 organises IT governance around six principles: providing stakeholder value, taking a holistic approach, applying a dynamic governance system, separating governance from management, tailoring to enterprise needs, and treating governance as an end-to-end enterprise system (ISACA, 2018). ISO/IEC 38500, by contrast, focuses more specifically on the role of organisational leadership in directing and evaluating IT use, articulating principles of responsibility, strategy, acquisition, performance, conformance, and human behaviour (ISO/IEC, 2015).

In the context of higher education, IT governance has historically been applied primarily to concerns such as data management, cybersecurity, system procurement, and regulatory compliance (Ali & Green, 2012). However, the advent of AI as a pervasive and consequential technology demands a significant expansion of this governance remit. Universities must now grapple with questions such as: who has the authority to approve the institutional deployment of AI tools? How are AI systems evaluated for educational appropriateness and ethical compliance? What mechanisms exist to monitor the unintended consequences of AI use? How are faculty and students informed about and protected from algorithmic bias? These are quintessentially governance questions, and they require governance answers.

Peterson (2004) distinguished between governance structures, processes, and relational mechanisms as three complementary elements of an effective IT governance system. Applied to AI in higher education, structural mechanisms might include dedicated AI ethics committees, clear policy frameworks, and designated roles such as Chief AI Officer or AI Ethics Officer. Process

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 15 Issue 06 , June - 2026

mechanisms would encompass AI impact assessments, procurement due diligence for AI tools, regular audits of AI-mediated decision-making, and transparent reporting to institutional stakeholders. Relational mechanisms would include faculty and student engagement processes, cross-disciplinary working groups, and collaborative partnerships with external bodies such as government agencies, professional associations, and civil society organisations.

The literature on IT governance in educational settings is relatively nascent compared to the broader corporate IT governance literature. Ali and Green (2012) found that public sector organisations, including universities, often struggle to implement effective IT governance due to the diffusion of decision-making authority, resource constraints, and cultural resistance to centralised oversight. More recent work by Luckin and Cukurova (2019) highlights the particular challenge of governing AI in educational contexts, where the technology is designed to adapt and learn, making static governance frameworks inadequate to the task of ongoing oversight.

The Intersection of Ethical Awareness and IT Governance

While ethical awareness and IT governance are analytically distinct, the literature increasingly points to the importance of their intersection in producing genuinely responsible AI ecosystems. Weidinger et al. (2021) observe that the ethical risks associated with large language models, including discrimination, misinformation, privacy violations, and the erosion of epistemic autonomy, cannot be mitigated by either individual ethical commitment or institutional policy alone. What is required is a systemic approach in which ethical principles are embedded in governance structures, and governance structures in turn cultivate and reinforce ethical practice.

Chan (2023) makes a related argument in the educational context, contending that universities which rely solely on honour codes and academic integrity policies to regulate AI use will find these measures insufficient in the absence of broader institutional frameworks that embed AI ethics into the culture and practice of teaching and learning. Conversely, governance frameworks that are imposed top-down without genuine engagement with the ethical values and concerns of students and faculty are likely to be experienced as punitive rather than enabling, and may generate compliance without fostering the kind of reflective, critical engagement with AI that genuine educational responsibility requires.

This insight is consistent with the broader governance literature's turn toward value-sensitive design (Friedman et al., 2013) and responsible innovation (Stilgoe et al., 2013), both of which emphasise that ethical values must be embedded in the design and governance of technology systems rather than merely appended as afterthoughts. In higher education, this suggests that AI governance frameworks must be co-developed with the communities they serve, must reflect the specific values and missions of educational institutions, and must be flexible enough to evolve alongside rapidly changing AI capabilities and use cases.

Theoretical Framework

This paper is grounded in two complementary theoretical streams: Responsible AI ethics frameworks and IT governance theory. Together, these streams provide the conceptual vocabulary and analytical structure for the proposed model.

Responsible AI Ethics Framework

The Responsible AI literature has crystallised around a set of core principles that provide normative guidance for the development and use of AI systems in ways that are beneficial, fair, transparent, and accountable (Jobin et al., 2019; Floridi et al., 2020; UNESCO, 2021). These principles, often summarised under the FATE acronym (Fairness, Accountability, Transparency, and Ethics), serve as a normative foundation for this paper's conceptual model. Of particular relevance is UNESCO's (2021) framing of responsible AI in terms of four core values: respect for human rights and dignity, promotion of peaceful and inclusive societies, protection of environmental sustainability, and the fostering of diversity and inclusiveness.

In the higher education context, these values translate into a commitment to ensuring that AI tools serve pedagogical goals rather than undermine them, that they do not perpetuate or amplify existing educational inequalities, and that their deployment is transparent and accountable to all institutional stakeholders. The Responsible AI framework therefore provides not only a normative foundation for evaluating specific AI uses, but also a set of aspirational principles against which institutional governance arrangements can be designed and assessed.

IT Governance Theory

IT governance theory, as articulated by Weill and Ross (2004) and subsequently developed by De Haes and Van Grembergen (2009), understands governance as the means by which organisations exercise strategic control over their IT assets and decisions. The key

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 15 Issue 06 , June - 2026

insight of this tradition is that governance is not simply about control and compliance, it is about aligning IT decisions with organisational values and strategic priorities, and about creating the conditions under which technology serves rather than subverts organisational mission.

Peterson's (2004) tripartite model of governance structures, processes, and relational mechanisms provides an operational vocabulary for translating abstract governance principles into concrete institutional arrangements. This model is particularly useful in the higher education context because it recognises that effective governance is not achieved through any single mechanism but through the coordinated deployment of complementary structural, procedural, and relational approaches.

Proposed Conceptual Model

Building on these theoretical foundations, this paper proposes a conceptual model of responsible AI use in higher education that positions ethical awareness and IT governance as the two primary enabling conditions for responsible AI integration. The model holds that ethical awareness at the individual level mediates between exposure to AI-generated content tools and responsible AI use behaviours. When students and faculty possess robust ethical awareness, including awareness of integrity implications, data ethics, and algorithmic fairness, they are more likely to use AI tools in ways that align with academic values and respect the rights of others.

IT governance at the institutional level, in turn, moderates the relationship between ethical awareness and responsible AI use. Strong IT governance frameworks amplify the impact of individual ethical awareness by providing structural support, clear guidance, accountability mechanisms, and a culture of ethical AI practice. Weak or absent governance, by contrast, may undermine even well-intentioned ethical behaviour by failing to provide the institutional reinforcement necessary for responsible practice to become the norm.

Critically, the relationship in this model is bidirectional. Just as strong IT governance supports and reinforces ethical awareness, cultivated ethical awareness among institutional communities can inform, enrich, and legitimize governance frameworks, making them more responsive, credible, and effective. This bidirectionality reflects the understanding that responsible AI ecosystems are not built top-down or bottom-up alone, but through the iterative, reflexive interaction between individual agency and institutional structure, an insight that resonates strongly with structuration theory (Giddens, 1984) and responsible innovation scholarship (Stilgoe et al., 2013).

DISCUSSION

Ethical Awareness as a Prerequisite for Responsible AI Use

The argument that ethical awareness is a foundational prerequisite for responsible AI use rests on a well-established tradition in applied ethics that distinguishes between knowing about ethics and actually thinking ethically (Rest, 1986; Jones, 1991). An individual who knows that plagiarism is against institutional policy but does not understand or genuinely care about the underlying reasons for that policy, the epistemic value of original work, the fairness implications of academic fraud, the harm done to academic communities, is less likely to make ethical decisions in novel or ambiguous situations. The same logic applies squarely to AI use: students who understand why integrity matters in AI-assisted work, and who have developed the capacity to recognise when AI use crosses ethical lines, are more capable of navigating the grey areas that inevitably arise as AI tools become more capable and more pervasive.

This point has significant curricular implications. Several researchers have argued that AI ethics education should not be confined to technology-focused programmes but should be integrated across the curriculum in ways that connect ethical reasoning to disciplinary practice (Holmes et al., 2022; Nguyen et al., 2023; Akgun & Greenhow, 2022). A student in journalism, for example, needs to understand the specific ethical risks of using AI-generated content in news reporting, including issues of accuracy, attribution, and the potential manipulation of public discourse, in ways that a generic AI ethics module cannot adequately address. Similarly, a student in medicine or law must grapple with the particular ethical stakes of AI-assisted clinical or legal judgment. Discipline-embedded AI ethics education is therefore not a luxury but a necessity.

Ethical awareness also has affective and motivational dimensions that purely cognitive approaches to ethics education tend to overlook. Blasi (1980) argued that moral identity, the degree to which ethical values are central to an individual's self-concept, is a stronger predictor of moral behaviour than cognitive moral development alone. This suggests that higher education institutions should aim not only to teach about AI ethics but to cultivate ethical identity: an orientation toward ethical AI use as an expression of who one is, not merely a constraint on what one is permitted to do. Pedagogical approaches that engage students in authentic

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 15 Issue 06 , June - 2026

ethical dilemmas, facilitate reflective practice, and model ethical AI use by faculty and institutional leaders are more likely to foster this kind of ethical identity than compliance-focused instruction alone.

The relational context of learning also matters considerably. Research on academic integrity consistently finds that students are more likely to engage in ethical behaviour when they perceive their institution as fair and trustworthy, when they feel that their work is genuinely valued, and when they are part of academic communities that take integrity seriously (Bretag, 2019). This finding underscores the importance of institutional culture as a mediating factor in the relationship between ethical awareness and ethical action, and points once again to the importance of governance as a structural enabler of culture.

IT Governance as a Structural Enabler of Responsible AI

If ethical awareness provides the motivational foundation for responsible AI use, IT governance provides the structural scaffolding within which that motivation can be expressed, sustained, and amplified. Governance frameworks operationalise the institutional commitment to responsible AI by translating abstract values into concrete policies, procedures, and accountability mechanisms. Without this structural scaffolding, even the most ethically aware individuals may find themselves without the guidance, support, or authority to act on their ethical commitments in consistent and effective ways.

In the context of AI in higher education, effective IT governance would encompass several key elements. It would begin with clear and transparent AI use policies that define acceptable and unacceptable uses of AI tools in teaching, learning, and research, developed collaboratively with faculty and student stakeholders. It would include mechanisms for AI tool procurement and evaluation that incorporate ethical impact assessments, scrutiny of vendors' data practices, and consideration of algorithmic fairness. It would establish oversight mechanisms for AI-mediated decisions, such as automated grading, admissions screening, or student performance monitoring, including processes for human review, redress, and appeal. And it would embed ongoing monitoring and reporting on the use and impact of AI tools across the institution, with regular review and updating of policies in light of emerging evidence and evolving technology.

De Haes and Van Grembergen (2009) emphasise that effective IT governance requires not only structural mechanisms but genuine leadership commitment. In higher education, this means that senior institutional leaders, Vice-Chancellors, Provosts, and Deans, must take active ownership of the AI governance agenda, signal its importance through their own conduct and communications, and ensure that it is adequately resourced. The risk, as Luckin and Cukurova (2019) observe, is that AI governance in universities becomes a compliance exercise driven by legal and reputational risk management rather than a genuine expression of institutional values. When governance is experienced as performative rather than substantive, it loses its capacity to shape practice and culture.

A complementary challenge concerns the pace of technological change. AI capabilities are evolving rapidly, and governance frameworks designed for today's tools may be inadequate for tomorrow's. This points to the need for what Stilgoe et al. (2013) term reflexive governance, governance that builds in mechanisms for ongoing learning, adaptation, and revision in response to new knowledge, changing circumstances, and unforeseen consequences. For universities, this might mean establishing standing committees on AI governance with regular review cycles, building evaluation research into all major AI deployments, and maintaining open channels of communication between governance bodies and the campus communities they serve.

It is also important to recognise that institutional IT governance does not operate in isolation. Universities function within broader national and international regulatory environments that increasingly include AI-specific legislation and guidance. UNESCO's Recommendation on the Ethics of Artificial Intelligence (2021) calls on member states to develop national AI ethics frameworks that apply to educational institutions. Institutional governance must therefore be understood not as a self-contained system but as a node within a broader governance ecosystem that includes national regulation, international standards, professional associations, and civil society advocacy.

Policy Implications for Higher Education Institutions

The conceptual model proposed in this paper carries concrete implications for policy and practice in higher education that operate at multiple levels: curricular, institutional, and systemic.

At the curricular level, the model argues for the integration of AI ethics education across disciplines, with particular attention to developing the capacity for ethical reasoning in AI-mediated contexts rather than merely transmitting information about AI policies. This requires investment in faculty development, as many educators are themselves navigating the ethical complexities of AI use for the first time and may not feel equipped to guide students through these challenges. Universities should consider dedicated

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 15 Issue 06 , June - 2026

professional development programmes on AI ethics and responsible AI practice, drawing on the growing body of resources available from organisations such as UNESCO, the Alan Turing Institute, and the Partnership on AI.

At the institutional level, the model advocates for the development of comprehensive AI governance frameworks co-developed with faculty, students, and other stakeholders. Such frameworks should be transparent, principle-based, and flexible enough to accommodate the rapidly evolving AI landscape. They should assign clear responsibility for AI governance at the senior leadership level while distributing operational responsibility across academic departments and administrative units. Critically, they should include mechanisms for monitoring and evaluation, and should be subject to regular review and public reporting. Institutional policies on AI use should strike a deliberate balance between enabling innovation and managing risk. Overly restrictive policies may drive AI use underground, making it more difficult to monitor and govern, while also forfeiting genuine educational benefits that responsible AI use can deliver. Conversely, policies that are too permissive may inadvertently normalise practices that compromise academic integrity or student welfare.

At the systemic level, the model calls for greater coordination and knowledge-sharing between higher education institutions, government bodies, and international organisations on AI governance. The challenges posed by AI-generated content and other AI applications in education are not unique to any single institution, they are systemic challenges that require systemic responses. Regional and national consortia of universities could develop shared governance frameworks, pooled evaluation resources, and common standards for AI ethics education that individual institutions can adapt to their specific contexts.

Challenges and Barriers

Despite the compelling case for integrating ethical awareness cultivation and IT governance as the twin pillars of responsible AI use in higher education, the implementation of this approach faces significant challenges that deserve honest acknowledgement.

Resource constraints are a primary concern. The development and maintenance of effective IT governance frameworks, the design and delivery of embedded AI ethics curricula, and the ongoing monitoring and evaluation of AI use across an institution all require substantial investments of human and financial capital. Many universities, particularly those in low- and middle-income countries, are already operating under significant resource pressures, and may lack the capacity to implement the governance infrastructures described in this paper (Pedro et al., 2019; Miao et al., 2021). International support mechanisms, including capacity-building initiatives from UNESCO and other bodies, will be essential to ensuring that AI governance is not a privilege reserved for well-resourced institutions in wealthy countries.

Cultural resistance also presents a meaningful challenge. Academic culture, with its strong traditions of autonomy, academic freedom, and scepticism toward bureaucratic oversight, may resist governance frameworks perceived as constraining. The challenge for institutional leaders is to frame AI governance not as a constraint on academic freedom but as an expression of academic values, a means of protecting the integrity of scholarship and the welfare of students in an environment of rapid and sometimes disorienting technological change. When faculty and students are genuine partners in the development of governance frameworks rather than mere subjects of them, cultural resistance tends to diminish and buy-in tends to increase.

The speed of AI development is itself a structural barrier to effective governance. AI capabilities are evolving faster than governance frameworks can adapt, which argues for frameworks that prioritise adaptability and responsiveness over comprehensiveness. Governance arrangements that establish clear principles and iterative review mechanisms are more likely to remain fit for purpose over time than those that attempt to specify rules for every conceivable AI use case in advance.

Finally, there is the challenge of equity and inclusion. The benefits and burdens of AI use in higher education are not distributed equally. Students from disadvantaged backgrounds may lack access to premium AI tools or the digital literacy to use them effectively, creating new dimensions of educational inequality (Lim et al., 2023). Conversely, the risks of algorithmic bias and digital surveillance may fall disproportionately on already marginalised groups (Akgun & Greenhow, 2022). Governance frameworks that do not explicitly address equity and inclusion risks are likely to perpetuate and potentially amplify existing inequalities, even as they seek to promote responsible AI use. An equity lens, therefore, is not optional in AI governance design, it is foundational.

CONCLUSION AND DIRECTIONS FOR FUTURE RESEARCH

This paper has argued that responsible AI use in higher education cannot be achieved through either individual ethical awareness or institutional IT governance alone, but requires the deliberate cultivation and integration of both. The conceptual model proposed here positions ethical awareness as the motivational and cognitive foundation of responsible AI behaviour, and IT governance as

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 15 Issue 06 , June - 2026

the structural enabler that translates ethical values into consistent institutional practice. Together, these two dimensions create the conditions for higher education institutions to harness the genuine educational potential of AI-generated content tools while managing their ethical risks and societal consequences.

The paper has drawn on a broad review of the existing literature to demonstrate that both dimensions are currently underdeveloped in most higher education contexts. Ethical awareness of AI among students and faculty remains uneven and often shallow. IT governance frameworks adequate to the challenge of AI integration remain rare. The gap between the pace of AI adoption and the development of the ethical and governance infrastructure necessary to guide that adoption is real and growing. Closing this gap is one of the most urgent challenges facing higher education today.

Several directions for future research emerge from this analysis. Empirical studies are needed to test the relationships proposed in the conceptual model, particularly the mediating role of ethical awareness and the moderating role of IT governance in shaping responsible AI use behaviours across different institutional and cultural contexts. Comparative institutional research could illuminate how different governance approaches perform under different regulatory, cultural, and resource conditions. Longitudinal studies could track changes in ethical awareness and governance capacity as universities accumulate experience with AI integration. And participatory research involving students, faculty, and institutional leaders could generate the kind of rich, contextualised knowledge needed to design governance frameworks that are both ethically grounded and practically effective.

The integration of generative AI into higher education is not a future possibility, it is a present reality. The question is no longer whether universities should engage with this technology, but how. The answer proposed here is through the dual commitment to ethical awareness and responsible IT governance: two sides of the same coin, and together, the foundation of a higher education system that can embrace the potential of AI without sacrificing its core values.

REFERENCES

1. Akgun, S., & Greenhow, C. (2022). Artificial intelligence in education: Addressing ethical challenges in K-12 settings. *AI and Ethics*, *2*(3), 431–440.
2. Ali, S., & Green, P. (2012). Effective information technology (IT) governance mechanisms: An IT outsourcing perspective. *Information Systems Frontiers*, *14*(2), 179–193.
3. Baidoo-Anu, D., & Owusu Ansah, L. (2023). Education in the era of generative artificial intelligence (AI): Understanding the potential benefits of ChatGPT in promoting teaching and learning. *Journal of AI*, *7*(1), 52–62
4. Blasi, A. (1980). Bridging moral cognition and moral action: A critical review of the literature. *Psychological Bulletin*, *88*(1), 1–45.
5. Bretag, T. (Ed.). (2019). *Handbook of academic integrity*. Springer.
6. Chan, C. K. Y. (2023). A comprehensive AI policy education framework for university teaching and learning. *International Journal of Educational Technology in Higher Education*, *20*(1), 38.
7. Cotton, D. R. E., Cotton, P. A., & Shipway, J. R. (2023). Chatting and cheating: Ensuring academic integrity in the era of ChatGPT. *Innovations in Education and Teaching International*, *61*(2), 228–239.
8. De Haes, S., & Van Grembergen, W. (2009). An exploratory study into IT governance implementations and its impact on business/IT alignment. *Information Systems Management*, *26*(2), 123–137.
9. Dwivedi, Y. K., Kshetri, N., Hughes, L., Slade, E. L., Jeyaraj, A., Kar, A. K., Baabdullah, A. M., Koohang, A., Raghavan, V., & Ahuja, M. (2023). "So what if ChatGPT wrote it?" Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy. *International Journal of Information Management*, *71*, 102642.
10. Floridi, L., Cowls, J., Beltrametti, M., Chatila, R., Chazerand, P., Dignum, V., Luetge, C., Madelin, R., Pagallo, U., Rossi, F., Schafer, B., Valcke, P., & Vayena, E. (2020). An ethical framework for a good AI society: Opportunities, risks, principles, and recommendations. In L. Floridi (Ed.), *Ethics, governance, and policies in artificial intelligence* (pp. 19–39). Springer.
11. Friedman, B., Kahn, P. H., Jr., & Borning, A. (2013). Value sensitive design and information systems. In N. Doorn, D. Schuurbiers, I. van de Poel, & M. E. Gorman (Eds.), *Early engagement and new technologies: Opening up the laboratory* (pp. 55–95). Springer.
12. Giddens, A. (1984). *The constitution of society: Outline of the theory of structuration*. Polity Press.
13. Holmes, W., Porayska-Pomsta, K., Holstein, K., Sutherland, E., Baker, T., Shum, S. B., Santos, O. C., Rodrigo, M. T., Cukurova, M., Bittencourt, I. I., & Koedinger, K. R. (2022). Ethics of AI in education: Towards a community-wide agenda. *International Journal of Artificial Intelligence in Education*, *32*(4), 504–526.
14. ISACA. (2018). *COBIT 2019 framework: Introduction and methodology*. ISACA.
15. ISO/IEC. (2015). *ISO/IEC 38500:2015 — Information technology — Governance of IT for the organization*. International Organization for Standardization.
16. Jobin, A., Ienca, M., & Vayena, E. (2019). The global landscape of AI ethics guidelines. *Nature Machine Intelligence*, *1*(9), 389–399.
17. Jones, T. M. (1991). Ethical decision making by individuals in organizations: An issue-contingent model. *Academy of Management Review*, *16*(2), 366–395.
18. Kasneci, E., Seßler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., Gasser, U., Groh, G., Günnemann, S., Hüllermeier, E., Krusche, S., Kutyniok, G., Michaeli, T., Nerdel, C., Pfeffer, J., Poquet, O., Sailer, M., Schmidt, A., Seidel, T., & Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences*, *103*, 102274.
19. Lim, W. M., Gunasekara, A., Pallant, J. L., Pallant, J. I., & Pechenkina, E. (2023). Generative AI and the future of education: Ragnarök or reformation? A paradoxical perspective from management educators. *The International Journal of Management Education*, *21*(2), 100790.
20. Luckin, R., & Cukurova, M. (2019). Designing educational technologies in the age of AI: A learning sciences-led approach. *British Journal of Educational Technology*, *50*(6), 2824–2838.

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 15 Issue 06 , June - 2026

21. Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence unleashed: An argument for AI in education*. Pearson.
22. Miao, F., Holmes, W., Ronghuai, H., & Hui, Z. (2021). *AI and education: A guidance for policymakers*. UNESCO Publishing.
23. Mittelstadt, B. D., Allo, P., Taddeo, M., Wachter, S., & Floridi, L. (2016). The ethics of algorithms: Mapping the debate. *Big Data & Society*, *3*(2), 1–21.
24. Nguyen, A., Ngo, H. N., Hong, Y., Dang, B., & Nguyen, B. P. T. (2023). Ethical principles for artificial intelligence in education. *Education and Information Technologies*, *28*(4), 4221–4241.
25. Pedro, F., Subosa, M., Rivas, A., & Valverde, P. (2019). *Artificial intelligence in education: Challenges and opportunities for sustainable development*. UNESCO.
26. Peterson, R. (2004). Crafting information technology governance. *Information Systems Management*, *21*(4), 7–22.
27. Rest, J. R. (1986). *Moral development: Advances in research and theory*. Praeger.
28. Selwyn, N. (2019). *Should robots replace teachers? AI and the future of education*. Polity Press.
29. Stilgoe, J., Owen, R., & Macnaghten, P. (2013). Developing a framework for responsible innovation. *Research Policy*, *42*(9), 1568–1580.
30. Tlili, A., Shehata, B., Adarkwah, M. A., Bozkurt, A., Hickey, D. T., Huang, R., & Agyemang, B. (2023). What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education. *Smart Learning Environments*, *10*(1), 15.
31. UNESCO. (2021). *Recommendation on the ethics of artificial intelligence*. UNESCO Publishing.
32. Weidinger, L., Mellor, J., Rauh, M., Griffin, C., Uesato, J., Huang, P.-S., Cheng, M., Glaese, M., Balle, B., Kasirzadeh, A., Kenton, Z., Brown, S., Hawkins, W., Stepleton, T., Biles, C., Birhane, A., Haas, J., Rimell, L., Hendricks, L. A., & Gabriel, I. (2021). *Ethical and social risks of harm from language models*. arXiv.
33. Weill, P., & Ross, J. W. (2004). *IT governance: How top performers manage IT decision rights for superior results*. Harvard Business School Press.
34. Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education — where are the educators? *International Journal of Educational Technology in Higher Education*, *16*(1), 39.