



ETHICAL GENERATIVE AI GOVERNANCE IN MADRASAH: AN EMPIRICALLY GROUNDED ISLAMIC EDUCATIONAL LEADERSHIP FRAMEWORK

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Abstract: This study aims to construct an empirically grounded Islamic educational leadership framework for governing generative artificial intelligence (GenAI) integration in Madrasah Aliyah. An interpretive qualitative multiple-site design was employed in 15 Madrasah Aliyah: five public and ten private across all 11 regencies and cities of Jambi Province, Indonesia. Data were collected from 75 principals, vice principals, and senior teachers through semi-structured interviews, observations, document analysis, and field notes between December 2023 and February 2024. The data were analyzed thematically through within-site and cross-site comparison. This study found that generative AI integration in Madrasah Aliyah operates within a severe governance vacuum, where state madrasahs (MAN) are paralyzed by bureaucratic dependency while private madrasahs (MAS) are constrained by acute resource deficits. Consequently, an empirically grounded Islamic educational leadership framework built upon *amanah*, *'adalah*, *ihsan*, and *mas'uliyah* is essential to transform chaotic AI adoption into an ethically governed and institutionally accountable educational practice. This study proves that traditional faith-based ethics provide strong moral and cultural legitimacy, allowing religious secondary institutions to reconcile rapid technological affordances with academic integrity, equitable access, and continuous quality enhancement.

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INTRODUCTION

The release of generative artificial intelligence (GenAI) technologies such as ChatGPT has fundamentally transformed the landscape of modern education, placing ethical AI governance as a critical dependent variable in institutional leadership (Alazmi & Bush, 2024; Chiu et al., 2023). Generative AI governance

refers to the systematic execution of policy, oversight, ethical guidelines, and risk-mitigation protocols that guide how emerging technologies are integrated into academic and administrative operations. In secondary and religious education settings, robust governance ensures that technological adoption enhances learning without compromising pedagogical integrity, data privacy, or institutional values (Chan, 2023; Chiu, 2024). Effective governance requires a clear distribution of roles, active quality assurance mechanisms, continuous monitoring, and structured guidelines regarding acceptable use, verification, and attribution. As educational institutions increasingly rely on automated algorithms to generate teaching materials, administrative documents, and learning tasks, the imperative to establish structured governance framework becomes paramount. Without a formalized governance framework, technological integration risks becoming fragmented, unsafe, and ethically ambiguous, which ultimately undermines both institutional reputation and educational outcomes (Cotton et al., 2024; Darvishi et al., 2024). Consequently, ethical GenAI governance serves as the foundational pillar for maintaining educational quality, digital responsibility, and institutional trust in contemporary schooling systems.

In field observations across various Madrasah Aliyah institutions, significant empirical gaps and operational phenomena emerge regarding how GenAI is currently managed. Teachers and administrators in both public and private madrasahs have extensively utilized ChatGPT to compose lesson plans, construct examination items, summarize complex learning materials, and draft official correspondence. However, this functional adoption occurs entirely within an institutional vacuum, characterized by a complete absence of formal written policies, official acceptable-use guidelines, or designated oversight teams. When academic integrity issues or factual inaccuracies arise from AI-generated outputs, school leaders respond in a purely reactive, case-by-case manner without established protocols. Furthermore, a clear structural disparity is observed between state madrasahs (MAN) and private madrasahs (MAS); public madrasahs experience operational paralysis while passively waiting for central directives from the Ministry of Religious Affairs, whereas private madrasahs possess local autonomy but lack the financial resources, technical expertise, and capacity to formulate independent governance frameworks. As a result, ethical responsibility is entirely delegated to individual teachers, leading to inconsistent evaluations of student work, unmonitored data exposure, and severe uncertainty regarding permissible AI assistance.

To resolve these pressing governance gaps, a comprehensive, multi-tiered solution must be implemented across organizational, curricular, and policy levels. First, educational institutions must establish value-based acceptable-use policies that clearly delineate permissible AI applications, compulsory output verification routines, and strict student data privacy protocols. Second, madrasah leaders need to integrate AI oversight into existing organizational structures, such as curriculum committees and quality assurance units, to ensure continuous monitoring and formal incident reporting mechanisms. Third,

schools must design targeted professional development programs that elevate teachers' digital literacy from mere operational usage to critical evaluation and pedagogical integration. Fourth, instructional assessment methods should be restructured to prioritize visible student reasoning, oral defense, and critical reflection over easily automated written outputs. Finally, a differentiated implementation strategy must be adopted, wherein central education authorities establish minimum national standards while providing targeted technical assistance and collaborative governance templates tailored to the distinct resource capacities of public and private madrasahs (Ezzani et al., 2023; Farrokhnia et al., 2024; Filgueiras, 2024).

Previous research has extensively examined the pedagogical affordances, risks, and policy requirements of artificial intelligence in general educational environments. Scholarship highlighted that while GenAI can support personalized learning and administrative efficiency, it introduces severe risks related to algorithmic bias, hallucinated facts, academic misconduct, and diminished critical thinking (Fullan et al., 2024; Ghimire & Edwards, 2024; Kasneci et al., 2023). Scholars have emphasized the necessity of institutional governance, human-centered AI frameworks, and comprehensive digital literacy to mitigate these challenges (Lo, 2023; Nguyen et al., 2023). Furthermore, research on AI policy formulation has begun to map out operational dimensions, including privacy, security, infrastructure, and stakeholder engagement (OECD, 2023; Putri et al., 2024; Tlili et al., 2023; UNESCO, 2023). In the domain of Islamic education, literature has consistently demonstrated that school leadership is fundamentally grounded in moral stewardship, social justice, and holistic human development (Alazmi & Bush, 2024; Arar et al., 2022; Brooks & Ezzani, 2022a; Shah, 2006). However, these existing studies remain fragmented, as mainstream AI ethics research predominantly focuses on higher education or secular K-12 schools, while Islamic leadership literature rarely investigates the governance of rapidly evolving digital technologies (Daniela et al., 2025; Messeri & Crockett, 2024; Wei, 2023).

The urgency of this research stems directly from the rapid, unguided proliferation of GenAI tools in madrasahs, which poses an immediate threat to academic integrity, institutional values, and educational equity if left ungoverned. Without immediate governance interventions, madrasahs risk fostering passive student dependence, compromising sensitive institutional data, and deepening the digital divide between well-resourced public schools and capacity-constrained private madrasahs. The novelty of this study lies in its empirical focus on Madrasah Aliyah; an educational context distinctively responsible for integrating academic excellence with moral and spiritual character formation and its conceptual synthesis of AI governance with Islamic educational leadership. By bridging the intersectional gap between technology ethics, leadership practices, and religious institutional values, this study offers a novel, culturally grounded paradigm for technology governance in faith-based education. The primary purpose of this study is to construct an empirically grounded Islamic educational leadership framework for ethical GenAI

governance specifically tailored to Madrasah Aliyah. The research focuses on identifying leadership responses, structural governance gaps, and institutional disparities between public (MAN) and private (MAS) madrasahs in managing the ethical and pedagogical consequences of GenAI.

RESEARCH METHOD

This study employed a qualitative interpretive multiple-site design with an empirically grounded and framework-building approach, conducted across 15 Madrasah Aliyah institutions (five state madrasahs/MAN and ten private madrasahs/MAS) distributed throughout all 11 regencies and municipalities in Jambi Province, Indonesia. The interpretive qualitative approach was selected because the primary objective was to investigate how school leaders and educators make sense of, adopt, and ethically govern generative artificial intelligence (GenAI) within their specific institutional, cultural, and organizational contexts. The research locus covers diverse geographic, socio-economic, and accreditation profiles, allowing for a comprehensive cross-site comparison between public madrasahs dependent on centralized regulations and private madrasahs possessing local autonomy. Throughout the entire research process, the researchers positioned themselves as the primary human instruments (*key instruments*) who maintained an active, reflective, and empathetic stance during field interactions while ensuring critical distance through rigorous reflexive field notes and explicit awareness of potential analytical bias. This dual position enabled the researchers to capture deep context-bound meanings, subtle leadership dynamics, and informal governance practices without imposing predetermined normative assumptions onto the participants' lived operational realities.

Data were collected between December 2023 and February 2024 through semi-structured interviews, direct field observations, document analysis (such as school strategic plans, curriculum guides, and digital guidelines), and comprehensive field notes. The primary data sources comprised 75 key informants—far exceeding the minimum threshold of 8 informants: consisting of 15 principals, 30 vice-principals (curriculum and administrative affairs), and 30 senior teachers selected through a purposive sampling strategy. The informant selection criteria required participants to hold formal institutional leadership authority, possess active experience in instructional design or school administration, and have directly engaged with or supervised digital technology and GenAI integration in their respective madrasahs. The collected qualitative data were systematically analyzed using an iterative, two-stage thematic analysis procedure. The first stage involved inductive coding (data familiarization, code generation, candidate theme development, and cross-site matrix comparison between MAN and MAS), followed by a second theory-informed stage that interpreted the empirical themes. To ensure rigorous qualitative trustworthiness, data validation was achieved through extensive data-source triangulation (comparing interviews, observational field notes, and institutional documents), participant triangulation (verifying findings across principals, vice-principals,

and teachers), member-checking of interpreted summaries, peer debriefing, and a comprehensive audit trail detailing all analytical decisions (Brennen, 2025; Libarkin & Kurdziel, 2023; Theobold et al., 2024).

RESULT AND DISCUSSION

Result

The analysis generated five interrelated themes: functional GenAI adoption without formal policy; leadership optimism accompanied by ethical ambiguity; soft-skill development as an ungoverned expectation; the absence of institutional governance structures; and different governance constraints in MAN and MAS. Participant identities are represented by anonymized codes: K refers to a principal, WK to a vice principal, and G to a teacher, followed by an institutional code. All interview excerpts were translated from Bahasa Indonesia into English.

Table 1. Participant Characteristics

Characteristic	Category	Frequency	Percentage
Role	Principal	15	20.0%
	Vice principal for curriculum	15	20.0%
	Vice principal for facilities/administration	15	20.0%
	Senior teacher	30	40.0%
Institutional type	MAN	25	33.3%
	MAS	50	66.7%
Gender	Male	48	64.0%
	Female	27	36.0%
Professional experience	Fewer than 5 years	12	16.0%
	5–10 years	28	37.3%
	11–15 years	22	29.3%
	More than 15 years	13	17.4%

Source: Authors' field data, December 2023–February 2024.

Table 1 shows that the participants represented three institutional levels: principals, vice principals, and teachers. Senior teachers constituted the largest participant group, accounting for 40.0% of the sample. The participation of principals and vice principals provided evidence concerning leadership decisions, institutional policies, curriculum management, and administrative arrangements, while senior teachers provided evidence concerning the everyday use of GenAI in teaching and assessment. The larger number of MAS participants reflected the inclusion of ten private madrasahs compared with five state madrasahs. Participants also represented different levels of professional experience, enabling the study to capture perspectives from relatively new personnel as well as those with extensive institutional experience.

Current Practices and Leadership Challenges in GenAI Integration

The integration of Generative Artificial Intelligence (GenAI), particularly ChatGPT, in Madrasah Aliyah has proceeded rapidly at an informal, individual level without clear institutional direction. Based on interviews with key informants, younger teachers actively utilize GenAI to expedite lesson planning,

generate assessment items, translate academic materials, and draft administrative correspondence. Madrasah leaders (principals and vice-principals) welcome the operational efficiency gained through these tools. However, this leadership optimism is not matched by ethical preparedness or clear operational guidelines. School leaders express persistent uncertainty regarding permissible boundaries for student AI use, output verification routines, data privacy, and strategies for addressing academic dishonesty.

These interview accounts align with direct observational findings across the study sites. In teachers' workrooms, educators frequently utilize ChatGPT on laptops and smartphones to generate instructional content instantly. Nevertheless, classroom observations revealed that many teachers passively accept student-submitted written work produced via GenAI without conducting critical inquiries or verifying the authenticity of student ideas. Document analysis further corroborated this governance deficit: examination of the Madrasah Operational Curriculum (KOM), Academic Regulations, and Principal Work Programs across all participating sites revealed a complete absence of formal clauses, technical guidelines, or Standard Operating Procedures (SOPs) governing ethical GenAI integration.

An in-depth analysis of these findings reveals a sharp disconnect between rapid grass-roots adoption and top-level leadership readiness. The primary leadership challenge lies in the inability of school leaders to translate their positive perceptions of technological efficiency into structured managerial oversight. Madrasah leaders remain trapped in ethical ambiguity, delegating AI usage boundaries entirely to the discretion of individual teachers. This practice creates severe inconsistencies in academic integrity evaluations across subject areas and risks fostering passive student dependency, ultimately diminishing critical reasoning skills. Table 1 details the distribution of madrasahs experiencing leadership challenges during GenAI integration:

Table 1. Distribution of Madrasahs Experiencing Leadership Challenges in GenAI Integration

Institutional Type	Institution Name (Anonymized Code)	Specific Leadership Challenges Encountered
MAN (State)	MAN 1 Jambi (K-MA01)	Ambiguity in setting ethical boundaries; passive dependence on central directives; uncertainty regarding student work evaluation standards.
	MAN 2 Jambi (K-MA02)	
	MAN 3 Jambi (K-MA03)	
MAS (Private)	MAS Barat (K-MA06)	Lack of technical expertise among leaders; ambiguous academic integrity evaluations; inability to provide pedagogical guidance to teachers
	MAS Perbatasan (K-MA11)	
	MAS Timur (K-MA07)	
	MAS Selatan (K-MA08)	
	MAS Utara (K-MA09)	
	MAS Pusat (K-MA10)	

A deeper examination of Table 1 demonstrates that leadership challenges are structurally patterned rather than randomly distributed across institutional types. In state madrasahs (MAN), the primary barrier is administrative

hesitation rooted in centralized governance; leaders possess adequate infrastructure but feel unauthorized to establish local policies without explicit ministerial approval. Conversely, in private madrasahs (MAS), the leadership challenge stems from a severe deficit in technical capacity and instructional coaching. Private school leaders acknowledge their autonomy but lack the pedagogical authority and technological literacy needed to supervise GenAI usage effectively. This structural divergence indicates that professional development programs must not adopt a one-size-fits-all approach; state madrasah leaders require administrative empowerment to create interim local policies, whereas private madrasah leaders require intensive technical capacity-building and practical supervisory tools.

Structural Governance Gaps and Institutional Disparities Across MAN and MAS

All participating Madrasah Aliyah institutions exhibit a structural governance vacuum, yet the underlying causes and manifestations differ substantially between State Madrasah Aliyah (MAN) and Private Madrasah Aliyah (MAS). Interview evidence indicates that the lack of formal AI policies in MAN is primarily driven by their hierarchical position within government administration, making them heavily reliant on official directives and technical guidelines from the central Ministry of Religious Affairs. Without official state mandates, MAN principals hesitate to formulate institutional guidelines due to fear of administrative non-compliance. In contrast, MAS principals reported complete institutional autonomy to craft internal policies. However, this autonomy remains unfulfilled due to acute financial constraints, lack of access to technology expertise networks, and limited managerial capacity to draft comprehensive digital governance frameworks.

Field observations at MAN sites showed well-equipped digital infrastructure and reliable internet access, yet these technical resources operated without designated oversight committees or digital ethics teams. At MAS sites, observations highlighted physical resource limitations, including insufficient hardware and unstable connectivity, which diverted administrative attention toward basic infrastructure survival rather than policy development. Document analysis reinforced these structural disparities: school budget plans (RAPBM) at MAS contained zero financial allocations for digital governance or teacher training, while MAN work plans budgeted for hardware acquisitions but omitted ethical policy development.

An in-depth analysis indicates that the governance vacuum in MAN stems from regulatory dependence and bureaucratic passivity, whereas in MAS it is caused by severe capacity constraints and resource scarcity. The centralized administrative structure of MAN stifles local leadership initiative, resulting in a *laissez-faire* environment that threatens data privacy and academic integrity. On the other hand, the administrative flexibility of MAS is rendered ineffective without technical expertise and financial support. This structural divergence deepens the educational quality divide between state and private faith-based

schools. Table 2 presents institutional data regarding the governance vacuum and the absence of formal GenAI procedures:

Table 2. Institutional Data on Governance Vacuum and Lack of Ethical GenAI Procedures Across MAN and MAS

Governance Parameter	Condition in MAN (State) [n=5]	Condition in MAS (Private) [n=10]
Formal GenAI Policy / SOP Availability	0% (Absent across all MAN sites)	0% (Absent across all MAS sites)
Dedicated AI Ethics / Oversight Team	0% (Absent)	0% (Absent)
AI-Integrated Quality Assurance Instruments	0% (Absent)	0% (Absent)
Primary Root Cause of Policy Absence	Awaiting official directives/guidelines from the Ministry of Religious Affairs.	Financial limitations, lack of technical expertise, and limited administrative capacity.
Handling of AI Misconduct Issues	Incident-based, reactive responses when cases arise.	Delegated entirely to individual teacher discretion.

The empirical metrics in Table 2 highlight a critical 100% governance deficit across all 15 research sites, regardless of funding status or geographic location. This complete absence of policy, oversight structures, and quality assurance mechanisms reveals that technological adoption in religious secondary education has occurred in an institutional vacuum. The data shows two distinct operational vulnerabilities: while state institutions suffer from "policy paralysis" due to bureaucratic centralization, private institutions suffer from "resource paralysis" due to structural neglect. The reliance on reactive, incident-based responses in MAN and individual teacher discretion in MAS creates an unpredictable academic environment where students face inconsistent ethical standards. This quantitative consensus underscores the urgent need for a standardized, national minimum governance framework that accommodates institutional capacity differences.

Cross-Site Comparative Analysis

Table 3 provides a cross-site comparative analysis summarizing the empirical findings across all three sub-results for MAN and MAS:

Table 3. Cross-Site Comparative Analysis: Synthesis of Findings Between MAN and MAS

Research Sub-Result	State Madrasah Aliyah (MAN)	Private Madrasah Aliyah (MAS)
1. Current Practices & Leadership Challenges	- Widespread GenAI adoption among younger teachers. - Leaders are optimistic but face ethical uncertainty. - Primary Challenge: Aligning technological efficiency with official academic standards.	- GenAI adoption is fragmented and highly variable. - Leaders are optimistic but lack technical expertise to guide staff. - Primary Challenge: Lack of supervision and potential decline in educational quality.
2. Governance Gaps & Institutional Disparities	- Governance vacuum caused by bureaucratic dependence on central directives. - Possesses infrastructure but	- Governance vacuum caused by financial constraints, lack of expertise, and capacity deficits. - Possesses policy autonomy but

remains passive in formulating local rules.	lacks capacity to execute governance.
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The cross-site synthesis in Table 3 illustrates that while the ethical risks of GenAI are universal across all madrasahs, the mechanisms for implementing the Islamic Educational Leadership Framework must be contextually differentiated. State madrasahs (MAN) possess the infrastructure needed to achieve *Ihsan* (excellence) but are constrained by administrative inertia, requiring *Mas'uliyah* (accountability) to empower local leadership initiative. Conversely, private madrasahs (MAS) possess high regulatory agility but lack the material resources to realize *'Adalah* (justice and equity), necessitating external collaborative support and shared policy templates to operationalize *Amanah* (stewardship). Thus, the framework functions not as a rigid, monolithic set of rules, but as an adaptable, value-driven roadmap that balances national equity standards with local institutional realities.

To address these empirical field challenges and structural gaps, this study constructed an empirically grounded Islamic educational leadership framework anchored in four core ethical principles: *amanah* (trusteeship and moral governance), *'adalah* (justice and equitable access), *ihsan* (excellence and continuous quality improvement), and *mas'uliyah* (accountability and identifiable responsibility). Interview accounts revealed a strong desire among educators for technology integration to remain grounded in Islamic character values rather than pursuing purely secular modernization. School leaders emphasized that *amanah* demands honesty in academic attribution and the protection of student data privacy. *'Adalah* requires schools to ensure equitable access to technology and fair assessment standards for all learners. *Ihsan* drives educators to use GenAI for meaningful, high-quality learning rather than superficial shortcuts. Finally, *mas'uliyah* establishes clear role allocations, transparent decision-making, and institutional accountability for technology outcomes.

Overall, these findings demonstrate that GenAI integration in Madrasah Aliyah is currently characterized by a severe governance-maturity gap, where informal adoption by teachers and students far outpaces institutional oversight. Without written policies, supervisory structures, or quality assurance protocols, unguided AI use poses significant threats to academic integrity, pedagogical quality, and student data privacy. This governance deficit is further complicated by structural institutional disparities, with state madrasahs constrained by bureaucratic dependence and private madrasahs hindered by resource scarcity. Consequently, the empirically grounded Islamic educational leadership framework built upon *amanah*, *'adalah*, *ihsan*, and *mas'uliyah*; provides a strategic and culturally legitimate pathway to transform unguided AI adoption into ethical, equitable, transparent, and institutionally accountable educational practice.

Discussion

The empirical finding that GenAI adoption occurs through informal, individual practices while creating leadership ambiguity directly correlates with Davis's *Technology Acceptance Model* (TAM) (Baiquni et al., 2025; Habibi et al., 2025) and Rogers's *Diffusion of Innovations Theory* (Banh & Strobel, 2023; Huynh-The et al., 2023; Salvagno et al., 2023). According to TAM, the high perceived usefulness and ease of use of generative tools like ChatGPT drive rapid individual uptake among teachers and administrative staff, long before formal organizational structures can react. This phenomenon aligns with wider scholarship on educational technology (Filgueiras, 2024; Fullan et al., 2024; Nguyen et al., 2023), which demonstrated that grass-roots digital adoption frequently creates a "pedagogical lag" where instructional usage outpaces policy formulation. Similar to findings in secular educational research, school leaders face significant ethical dilemmas regarding academic integrity, data privacy, and the preservation of critical thinking skills. Furthermore, educational leadership literature confirms that when principals lack digital governance competencies, technology integration defaults to unguided teacher discretion, leading to fragmented standards across subject areas.

This informal adoption and leadership ambiguity occur because the rapid commercial release of user-friendly GenAI tools bypassed traditional educational policymaking cycles. Teachers and administrative staff naturally gravitated toward ChatGPT to alleviate heavy workloads, finding immediate utility in automated lesson planning and document drafting. However, school leaders were structurally unprepared for the complex ethical dilemmas introduced by generative technology, such as algorithmic bias, intellectual property, and silent academic misconduct. Because school principals lacked specific training in digital technology ethics and governance, they defaulted to a passive management style, leaving critical decisions regarding permissible AI use to individual teacher discretion. This failure to establish proactive standards ultimately stems from treating AI as a mere technical convenience rather than a fundamental disruption to pedagogical integrity and institutional responsibility.

Structural Governance Gaps and Institutional Disparities Across MAN and MAS

The total structural governance vacuum identified across both state (MAN) and private (MAS) madrasahs strongly resonates with Weber's *Theory of Bureaucracy* (in Bashir & Lapshun, 2025; Jin et al., 2023; Rospigliosi, 2023) and DiMaggio and Powell's *Institutional Isomorphism* (in Asriyadin et al., 2026; Sanchez-Gonzalez & Terrell, 2023; Walter, 2024). In state madrasahs, the reliance on official ministerial directives reflects top-down bureaucratic inertia, where organizational actors prioritize strict procedural compliance over local administrative innovation. This structural passivity aligns with digital governance research showing that highly centralized public education systems often experience "policy paralysis" when confronted with rapidly evolving disruptive technologies. Conversely, the operational constraints observed in

private madrasahs mirror classic *Resource Dependence Theory*, which posits that organizational behavior and policy execution are fundamentally constrained by external resource availability. Educational equity literature reinforces this finding, proving that institutional policy autonomy remains ineffective when schools lack the financial capital, technical infrastructure, and expert human resources necessary to implement governance frameworks.

The structural governance gaps and disparities between MAN and MAS occurred because of fundamentally different institutional realities and regulatory dependencies. In public madrasahs, a deeply ingrained culture of administrative hierarchy causes leaders to perceive local policy formulation as a potential regulatory violation. They refrain from issuing school-level AI rules because they operate under the assumption that technology policies must originate from the Ministry of Religious Affairs. In contrast, private madrasahs possess the administrative freedom to innovate, but their survival depends primarily on managing basic operational costs, staff salaries, and physical facilities. Consequently, private school leaders lack the financial capital, technical networks, and managerial bandwidth required to design sophisticated digital ethics frameworks. This divergence demonstrates that centralized bureaucracy stifles initiative in public schools, while resource scarcity paralyzes policy execution in private institutions.

Cross-Site Comparative Analysis: Grounding an Islamic Leadership Framework

The cross-site synthesis underscoring the need for a differentiated, value-based governance framework builds directly upon *Values-Based Leadership Theory* (in Fullan et al., 2024; Ghasemy, 2025; Marchelia et al., 2026; Okunlola & Naicker, 2025; Rohani et al., 2026) and contemporary *Human-Centered AI Governance Frameworks* (in Haryaka et al., 2026; Sailin et al., 2024; Thien & Liu, 2024). While secular AI ethics frameworks advocate for universal technical standards such as transparency, fairness, and accountability, educational scholars argue that technology governance must be contextualized within an institution's core cultural and philosophical identity. In faith-based environments, Islamic educational leadership theory posited that school management is inherently moral and spiritual, guided by principles of stewardship and ethical responsibility. Grounding AI governance in the core constructs of *amanah* (trusteeship), *'adalah* (justice), *ihsan* (excellence), and *mas'uliyah* (accountability) extends traditional leadership models into the digital domain (Dwikurnaningsih, 2026; Parhusip, 2024). Moreover, contingency leadership theory supports the necessity of a differentiated implementation model, affirming that governance strategies must adapt to the distinct structural capacities and regulatory environments of public versus private institutions.

The necessity for a differentiated Islamic leadership framework arose because generic, secular policy templates fail to resonate with the distinct identity and moral mission of madrasahs. Madrasahs are institutionally tasked with fostering spiritual character alongside academic achievement, making

purely technical or restrictive AI rules culturally insufficient. When AI governance is framed through *amanah*, *'adalah*, *ihsan*, and *mas'uliyah*, ethical compliance transforms from an external administrative burden into a shared moral responsibility deeply rooted in faith. Furthermore, a differentiated implementation model is essential because treating public and private madrasahs identically ignores their structural inequalities. Public madrasahs need moral framework mechanisms that empower local leadership accountability (*mas'uliyah*) within centralized limits, whereas private madrasahs require collaborative external support and shared resources to fulfill their stewardship (*amanah*) and ensure educational justice (*'adalah*).

This study makes significant theoretical, empirical, and practical contributions to the fields of educational leadership and technology governance. Conceptually, it bridges a critical gap by integrating generative AI ethics with Islamic educational leadership philosophy, demonstrating how traditional faith-based values can provide actionable operational mechanisms for digital governance. Empirically, it contributes multi-site qualitative field evidence from secondary religious schools, an under-researched context in mainstream AI-in-education literature. Practically, the study provides a flexible, differentiated roadmap for policymakers and school leaders, offering public madrasahs an avenue for responsible local initiative while equipping capacity-constrained private madrasahs with shared governance strategies to bridge the digital divide.

CONCLUSION

The implied context of these findings reveals that the ongoing integration of generative artificial intelligence within Madrasah Aliyah is not merely a technical evolution, but a profound institutional test of faith-based educational governance. The pervasive governance vacuum and stark structural disparities between public (MAN) and private (MAS) madrasahs imply that unguided AI adoption threatens to erode academic integrity and pedagogical quality if technology remains unaligned with core institutional values. The critical implication of this research is the urgent necessity for educational policymakers and madrasah leaders to move beyond reactive management by operationalizing a value-driven leadership approach. By translating the normative Islamic principles of *amanah*, *'adalah*, *ihsan*, and *mas'uliyah* into actionable digital governance protocols, faith-based secondary schools can establish culturally legitimate mechanisms that reconcile rapid technological affordances with ethical stewardship, academic rigor, and institutional accountability.

Despite these rich qualitative insights, this study possesses certain limitations, particularly its regional empirical scope across 15 madrasahs in Jambi Province, which may limit the direct statistical generalizability of the findings to different geographical or institutional settings. Additionally, the qualitative cross-sectional design captured leadership responses and teacher practices at a specific juncture of rapid GenAI advancement. Future research should pursue longitudinal investigation to trace the long-term impact of AI governance frameworks on student character development, critical thinking

skills, and actual academic outcomes over time. Subsequent studies should also expand to quantitative, large-scale surveys across diverse national provinces and explore inter-institutional policy design, evaluating how collaborative networks between public and private madrasahs can effectively bridge the digital governance divide.

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