A META-SYNTHESIS RESEARCH ON EMBRACING THE FUTURE: TRANSFORMING ACADEMIC GOVERNANCE WITH AI TECHNOLOGIES

Juma Yusuf Mnzile[1]*, Müyesser Ceylan[2], Ahmet Zeki Güven[3]

[1,2,3]Akdeniz University, Türkiye.

ABSTRACT

As societies strive to maintain their existence in the digital age, AI has emerged as a powerful force for customized instruction that accommodates individual needs in the 21st century. Through a meta-synthesis approach, the current study aims to discuss the integration of artificial intelligence (AI) into academic governance. This approach facilitates the rigorous examination of multiple studies to develop new ideas. Due to the diversity of AI-related studies across diverse domains, a meta-synthesis approach was highly well-suited for this present work. In this case, a review of 29 publications took place using seven (7) reputable databases such as ERIC, Frontiers, Google Scholar, MDPI, ScienceDirect, Taylor & Francis, and Wiley Online Library. The time period covered was January 2022 to February 2025. The study's results indicate that academic institutions are typically well-prepared to integrate AI technologies into their daily academic practices. It's highlighted that, as the game-changers, AI solutions offer a diverse range of benefits, such as self-paced and personalized instruction that responds to individuals' learning needs and narrows educational disparities. This individualization can clear the path for a more democratic education that empowers marginalized students to self-sustain and control over their academic and career journey. Nevertheless, the integration of AI also raises critical ethical concerns, including data privacy and security, bias in AI algorithms, job displacement, ethical dilemmas, AI ethical issues, and economic inequality. To address the challenges associated with AI tools, government, policymakers, and technology developers must collaborate to create an inclusive, unbiased, and effective academic environment that meets the diverse needs of individuals in the 21st century.

1. INTRODUCTION

At the beginning of the 2020s, the rapid advancement of artificial intelligence (AI) signaled a paradigm shift with the potential to accelerate change across multiple domains, including social structures, organizational processes, and governance systems (Tahiru, 2021). In education, AI has emerged as a transformative force reshaping not only pedagogical practices but also the ways in which academic institutions plan, manage, and evaluate their core functions. As educational systems increasingly prioritize digital transformation and 21st-century skills, AI-driven technologies have become central to both instructional innovation and institutional management (Ng et al., 2023).

Recent developments in machine learning, natural language processing, and data analytics have expanded the use of AI beyond classroom-level applications toward broader institutional functions. AI-supported tools such as intelligent tutoring systems, smart content, learning analytics dashboards, and virtual learning environments now contribute to personalized instruction, assessment processes, and administrative decision-making (Chen et al., 2020; Ng et al., 2023; Ceylan & Mnzile, 2025). These technologies are increasingly positioned as mechanisms through which educational institutions seek to enhance efficiency, responsiveness, and alignment with the evolving demands of the global workforce. Alongside these opportunities, AI has been widely promoted as a solution to persistent educational challenges, particularly through its capacity to personalize learning and expand access across geographical and institutional boundaries (Davies et al., 2020; Nguyen, 2023). Empirical studies highlight the pedagogical potential of generative AI tools, such as ChatGPT, in areas including language learning, academic writing, and formative feedback (Asad et al., 2024). Similarly, AI-powered educational platforms have been shown to improve instructional quality, assessment practices, and learner engagement by enabling data-informed and adaptive learning environments (Srinivasa et al., 2022; Ng et al., 2022). Despite this transformative potential, the integration of AI into education remains uneven and contested. Institutional readiness for AI adoption varies considerably due to disparities in funding, digital literacy, and infrastructural capacity (Reuben & Kabilan, 2024; Rahman et al., 2025). Moreover, the expansion of AI raises significant ethical and governance-related concerns, including data privacy and security, algorithmic bias, over-reliance on automated systems, and the redistribution of professional roles within educational organizations (Eden et al., 2024; Yang, 2021). Without carefully designed governance strategies, AI implementation risks reinforcing existing inequalities, particularly between resource-rich private institutions and under-resourced public schools (Nemani, 2025; Roshanaei et al., 2023). In response to these challenges, international policy frameworks emphasize the need to balance innovation with ethical responsibility, equity, and sustainability in AI-enabled education systems (UNESCO, 2023).

Although research on AI in education has expanded rapidly, the majority of existing studies concentrate on classroom-level applications, user perceptions, or technological effectiveness (Karakose & Tülübaş, 2024; Dogan & Arslan, 2025). Comparatively limited attention has been paid to AI's implications for academic governance, understood here as the structures and processes through which educational institutions make decisions, allocate resources, ensure accountability, and formulate policy. The OECD (2023) underscores that sustainable AI adoption requires not only technological infrastructure but also ethically grounded leadership, institutional capacity-building, teacher professional development, and coordinated stakeholder engagement. Addressing this gap, the present study adopts a meta-synthesis approach to examine how AI is reshaping academic governance across diverse educational contexts. Drawing on 29 empirical studies published between 2022 and 2025 and retrieved from seven major academic databases (ERIC, Frontiers, Google Scholar, MDPI, ScienceDirect, Taylor & Francis, and Wiley Online Library), the study synthesizes evidence around three interrelated questions:

(i) To what extent are educational institutions prepared for AI technology integration?

(ii) What are the benefit–cost dynamics of AI adoption, particularly in relation to managerial workload reduction, decision-making quality, financial investment, data protection, and algorithmic bias?

(iii) How does AI contribute to closing educational gaps while simultaneously posing risks of deepening inequalities between public and private institutions?

By synthesizing findings across these dimensions, this study aims to generate evidence-based insights to inform policymakers, educational leaders, and practitioners in the development of adaptive, equitable, and ethically grounded governance models for the digital age. Ultimately, the study

positions AI not merely as a technological tool but as a governance-relevant capacity that has the potential to reshape decision-making, resource allocation, and institutional accountability. When approached as a collaborative and responsibly governed partner, AI can support data-informed policies, enhance organizational agility, and contribute to the creation of inclusive and future-oriented educational environments (Dogan & Arslan, 2025; Nemani, 2025).

2. LITERATURE REVIEW

2.1. Theoretical Framework

This study is guided by two complementary theoretical frameworks: the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). These models are widely used to explain technology adoption processes in educational settings and provide a structured lens for understanding how individuals and institutions engage with emerging technologies such as artificial intelligence (AI). In the context of this study, TAM and UTAUT are employed not only to explain individual-level acceptance but also to inform broader institutional and governance-related dynamics associated with AI integration.

2.2. Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), originally developed by Davis (1989), is a foundational framework designed to predict the likelihood that individuals, groups, or organizations will adopt and use new technological systems. TAM posits that two core determinants—perceived usefulness and perceived ease of use—shape users' attitudes toward technology and ultimately influence their intention to adopt it. Perceived ease of use refers to the extent to which a technology is regarded as user-friendly and effortless to operate, whereas perceived usefulness reflects users' beliefs about the extent to which the technology enhances performance or efficiency (Luo et al., 2024). Together, these perceptions play a central role in shaping acceptance behaviors and determining whether a technology becomes embedded in routine practice (Musa et al., 2024). Within educational contexts, empirical research consistently demonstrates that technologies perceived as useful and easy to use are more likely to be embraced by educators and learners, leading to higher levels of satisfaction and more positive attitudes toward innovation (Granić & Marangunić, 2019). Fathema et al. (2015) further argue that such positive attitudes foster sustained intentions to adopt technology across instructional, administrative, and organizational domains. From

an academic governance perspective, TAM provides a valuable framework for understanding how perceptions of AI tools among institutional actors—such as administrators, faculty members, and support staff—shape the feasibility of AI-driven decision-making, assessment, and management processes.

2.3. Unified Theory of Acceptance and Use of Technology (UTAUT)

Building on TAM, the Unified Theory of Acceptance and Use of Technology (UTAUT), proposed by Venkatesh et al. (2003), offers a more comprehensive explanation of technology adoption by integrating multiple theoretical perspectives. UTAUT identifies four key constructs influencing behavioral intention and actual technology use: performance expectancy, effort expectancy, social influence, and facilitating conditions. Performance expectancy captures the extent to which users believe that a technology will improve job performance, while effort expectancy reflects perceived ease of use. Social influence refers to the degree to which important others encourage or legitimize technology adoption, and facilitating conditions denote the availability of organizational and technical infrastructure supporting use. Collectively, these constructs emphasize that technology adoption is not solely an individual decision but is shaped by organizational culture, leadership support, and institutional capacity. In educational settings, UTAUT has been widely applied to explain teachers' and administrators' acceptance of digital tools, demonstrating that adoption is closely linked to perceptions of institutional support, professional development opportunities, and infrastructural readiness (Priyatma, 2023). For example, teachers' willingness to integrate tablets or digital platforms into classroom practice is strongly influenced by their confidence in technical assistance, instructional guidance, and organizational support systems.

2.4. Integrating TAM and UTAUT in the Context of Academic Governance

Taken together, TAM and UTAUT offer a robust analytical foundation for examining AI adoption in education, particularly when extended beyond individual usage to institutional and governance-level processes. While these models are traditionally applied at the user level, recent scholarship suggests that their constructs can be meaningfully scaled to analyze organizational decision-making, leadership strategies, and system-level readiness for technological transformation. In this sense, perceived

usefulness and performance expectancy align closely with governance priorities such as efficiency, accountability, and evidence-based decision-making, whereas facilitating conditions and social influence reflect broader issues of policy alignment, resource allocation, and stakeholder coordination.

At the same time, critical scholars caution that technology acceptance models should not be applied uncritically, as they may overlook power relations, data governance concerns, and the broader sociotechnical contexts within which AI systems operate. From this perspective, AI adoption in education must be understood not only as a matter of acceptance but also as a governance challenge shaped by datafication, institutional norms, and ethical accountability. Accordingly, this study employs TAM and UTAUT as analytical tools while remaining attentive to emerging critical perspectives on AI, governance, and institutional power, thereby situating technology acceptance within a wider framework of academic governance transformation.

2.5. Incorporating AI in Academic Settings

The rapid development of artificial intelligence (AI) is reshaping multiple domains, with education emerging as one of the most profoundly affected fields (Mnzile, 2026). Within academic settings, AI has increasingly been positioned as both an opportunity and a challenge, influencing student achievement, instructional practices, and institutional operations through a complex interplay of benefits and risks (EdTech, 2020). Recent studies indicate that AI is now deeply embedded in contemporary educational environments, supporting personalized instruction, increasing learner engagement, and expanding access to educational resources across diverse contexts (Vieriu & Petrea, 2025).

Generative AI applications, such as ChatGPT, represent a significant shift in educational practice by enabling adaptive and personalized learning experiences that respond to diverse learner needs (Hennekeuser et al., 2024). Empirical evidence suggests that students exposed to tailored learning environments tend to develop more positive attitudes toward learning, increased self-efficacy, and stronger academic engagement (Johnson & Smith, 2019). These outcomes are further supported by machine learning–based systems capable of analyzing large-scale educational data to identify learning gaps, predict performance patterns, and provide targeted academic support (Baker, 2021). Consistent with these findings, Zawacki-Richter et al. (2019) argue that AI-driven platforms—particularly

adaptive learning systems—can enhance student engagement and performance by offering immediate feedback and promoting self-directed learning strategies. However, the integration of AI into academic settings extends beyond pedagogical innovation and raises broader organizational and governance-related considerations. While many educational stakeholders express optimism regarding AI adoption, persistent challenges remain. These include concerns about the accuracy and transparency of AI-generated outputs, the risk of excessive reliance on automated systems, ethical issues surrounding students' use of AI, and varying levels of educator readiness and willingness to engage with AI technologies (Vieriu & Petrea, 2025). Such challenges underscore that AI adoption is not a purely technical process but one that is deeply shaped by institutional culture, professional norms, and governance arrangements. In this regard, the literature increasingly emphasizes that successful AI integration requires deliberate coordination between pedagogical goals, institutional policies, and ethical oversight. Garzón et al. (2025) highlight that AI initiatives in education are most effective when implemented through collaborative frameworks involving educators, administrators, and policymakers, ensuring that technological innovation aligns with principles of equity, accountability, and educational quality. Without such coordination, AI risks reinforcing existing asymmetries in capacity and access rather than contributing to meaningful institutional transformation.

Taken together, these studies suggest that incorporating AI in academic settings should be understood as a multidimensional process encompassing instructional practice, institutional readiness, and governance structures. Rather than viewing AI solely as a pedagogical tool, its integration must be approached as an organizational and policy challenge that requires careful alignment between technological capabilities, human expertise, and ethical responsibility.

3. RESEARCH METHODOLOGY

This study examines the integration of artificial intelligence (AI) into academic governance through a meta-synthesis approach. Meta-synthesis is a qualitative interpretive methodology that seeks to integrate and re-interpret findings from multiple related studies in order to generate higher-order insights that extend beyond individual empirical results (Noblit & Hare, 1988; Sandelowski & Barroso, 2007). Unlike systematic reviews that primarily

aggregate findings or meta-analyses that statistically combine quantitative results, meta-synthesis is particularly suited to fields characterized by conceptual diversity, contextual variation, and an emerging evidence base. This approach is especially appropriate for research on AI in academic governance, where existing studies are predominantly qualitative or mixed-methods in nature and are situated across diverse institutional, cultural, and policy contexts. As Bearman and Dawson (2013) argue, meta-synthesis enables the integration of fragmented qualitative evidence to produce interpretive explanations that are transferable across settings. Given the rapidly evolving and policy-relevant nature of AI adoption in education, meta-synthesis allows for the identification of shared patterns, tensions, and governance implications that cannot be captured through single-study analyses.

3.1. Research Design and Framework

The study was conducted in accordance with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure methodological transparency, replicability, and rigor throughout the review process (Sohrabi et al., 2021; Page et al., 2021). While PRISMA is most commonly associated with systematic reviews, its structured framework is increasingly used in qualitative synthesis studies to enhance the clarity and trustworthiness of study identification, screening, and selection processes. In this study, PRISMA served as a methodological scaffold rather than a purely procedural checklist. It guided the systematic documentation of inclusion and exclusion decisions, strengthened the auditability of the review process, and ensured that the synthesis was grounded in a transparent and reproducible search strategy. This alignment enhanced the credibility of the synthesis by making explicit how evidence relevant to academic governance and AI integration was identified and evaluated.

3.2. Data Sources and Search Strategy

A comprehensive literature search was conducted across seven major academic databases: ERIC, Frontiers, Google Scholar, MDPI, ScienceDirect, Taylor & Francis, and Wiley Online Library. The review covered publications from January 2022 to February 2025, a period marked by a significant expansion of empirical and conceptual research following the emergence of generative AI tools such as ChatGPT. International policy reports have identified this period as a critical phase in the

institutionalization of AI in education, characterized by accelerated experimentation, governance debates, and ethical concerns (UNESCO, 2023; OECD, 2023). Search terms were developed to capture both technological and governance-related dimensions of AI adoption. These included combinations of keywords such as "AI integration in education," "academic governance," "institutional capacity for AI," "educational policy and AI readiness," "AI benefits and costs," "decision-making," and "educational equity." This strategy ensured that the search extended beyond classroom-level applications and focused explicitly on studies addressing institutional decision-making, leadership, resource allocation, and policy implications.

3.3. Inclusion and Exclusion Criteria

Clear inclusion and exclusion criteria were established to ensure that the selected studies were directly aligned with the research objectives and provided sufficient analytical depth for synthesis (Patino & Ferreira, 2018). Studies were included if they:
- Were published between 2022 and 2025,
- Explicitly addressed the role of AI in academic governance or institutional-level processes,
- Presented empirical, evidence-based findings with sufficient methodological detail, and
- Were published in English.
- Studies were excluded if they:
- Were published prior to 2022,
- Were not available in English,
- Focused exclusively on classroom-level AI applications without reference to governance, leadership, or institutional decision-making,
- Lacked sufficient detail for qualitative coding or synthesis, or
- Were non-empirical in nature.
- The exclusion of classroom-only studies was intentional, reflecting the study's conceptual focus on governance structures rather than instructional techniques alone.

3.4. Study Selection and Screening Process

The initial database search yielded 536 records. After duplicate removal, 139 studies remained for title and abstract screening. This stage was conducted independently by two reviewers to enhance objectivity and reduce selection bias. Based on predefined eligibility criteria, 95 studies were retained for full-text assessment.

During the full-text screening stage, each study was evaluated according to the following criteria:
   i.   clarity of the research focus,

ii. methodological appropriateness,

iii. relevance to academic governance and AI integration, and

iv. alignment with the inclusion and exclusion criteria.

Following this process, 29 studies (27 journal articles, one doctoral thesis, and one book chapter) met all criteria and were included in the final synthesis. The study selection process is illustrated using a PRISMA flow diagram (Figure 1), which transparently documents each stage of identification, screening, eligibility assessment, and inclusion. The relatively high number of duplicate records reflects overlapping coverage across multidisciplinary databases such as ERIC, Google Scholar, and MDPI. During the full-text assessment stage, studies were excluded for multiple reasons, including lack of empirical evidence, insufficient methodological detail for synthesis, or limited relevance to academic governance. This structured approach enhances the transparency, rigor, and replicability of the meta-synthesis process.
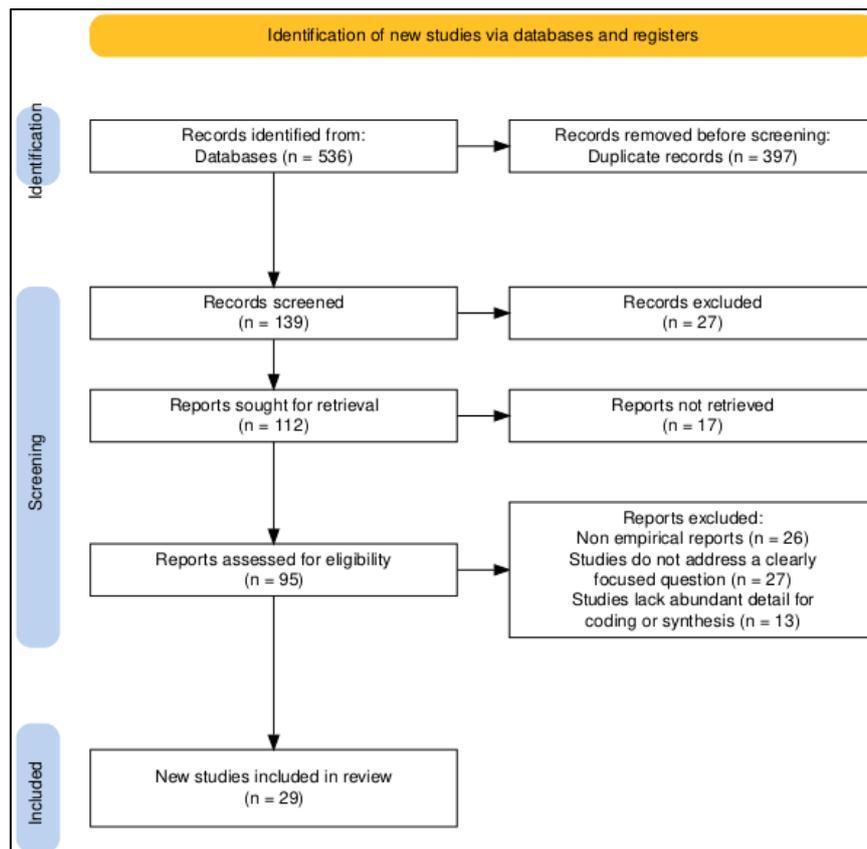

Figure 1: PRISMA flow diagram illustrating the identification, screening, eligibility assessment, and inclusion of studies.

The figure presents the multi-stage study selection process, including database searching, duplicate removal, title and abstract screening, full-text assessment, and final inclusion. A high number of duplicate records reflects overlapping coverage across multidisciplinary databases. Reasons for full-text exclusion may include multiple criteria, in line with PRISMA 2020 recommendations

3.5. Quality Appraisal

The methodological quality and clarity of the included studies were assessed using the Critical Appraisal Skills Programme (CASP) checklists. CASP was selected due to its suitability for evaluating qualitative and mixed-methods research, which constituted the majority of the studies included in this meta-synthesis. This approach enabled a structured and systematic appraisal of evidence related to the integration of artificial intelligence (AI) in academic governance. The CASP framework was used to evaluate key dimensions of methodological rigor, including the clarity of research aims, the appropriateness of research design and data collection methods, the transparency and robustness of data analysis, and the credibility of reported findings. In addition, particular attention was paid to the extent to which studies situated their findings within existing literature and explicitly

acknowledged methodological limitations. Rather than functioning as an exclusionary tool, the quality appraisal process informed the interpretive weighting of studies during synthesis. Studies that did not fully meet minimum quality standards were not automatically excluded; instead, they were subjected to sensitivity analysis to examine their influence on the overall findings. This approach ensured that the synthesis remained inclusive while prioritizing methodologically robust evidence in the interpretation of patterns and themes.

The CASP appraisal addressed the following guiding questions:

i. Does the study explicitly address the transformation of academic governance through AI?
ii. Are the reported outcomes relevant, clearly defined, and aligned with the research aims?
iii. Are the data collection and analysis methods supported by evidence of validity and reliability?
iv. Are the methods appropriate for addressing questions related to AI integration at the institutional or governance level?
v. Are the findings meaningfully contextualized within the existing literature?
vi. Are the limitations of the study clearly acknowledged and discussed?

Through this quality appraisal process, the study enhanced the credibility, transparency, and analytical rigor of the meta-synthesis, ensuring that the final interpretations were grounded in methodologically sound and contextually relevant evidence.

3.6. Data Analysis and Synthesis

Following data extraction, the full texts of the included studies were subjected to an iterative coding process to enhance analytical rigor and reliability. Data analysis was guided by Noblit and Hare's (1988) seven-phase meta-synthesis framework, which emphasizes interpretive translation across studies rather than mere aggregation of findings. This approach enabled the comparison, integration, and reinterpretation of evidence related to the role of artificial intelligence (AI) in academic governance across diverse institutional and national contexts. The synthesis process was operationalized through Thomas and Harden's (2008) thematic synthesis approach, consisting of three interconnected stages: (i) line-by-line coding of study findings, (ii) the development of descriptive themes, and (iii) the generation of higher-order analytical themes. NVivo 12 software was used as an analytical support tool to systematically organize codes, facilitate cross-study comparison, and document analytic decisions, thereby

enhancing transparency and auditability. Through this process, codes were progressively clustered and translated across studies, allowing for the identification of patterns of convergence, divergence, and contextual variation. Rather than treating individual studies as isolated units, the synthesis focused on how findings interacted across contexts, highlighting both shared governance challenges and context-specific dynamics. This interpretive process resulted in the consolidation of four analytically distinct but interrelated themes:

(1) Artificial intelligence in academic governance,
(2) Cost–benefit dynamics of AI adoption,
(3) Access to AI resources and institutional capacity, and
(4) Equity-focused AI interventions and risks of stratification.

Importantly, the synthesis went beyond descriptive thematic grouping by examining tensions and contradictions within and across studies. For example, while some studies emphasized AI's potential to enhance institutional efficiency and evidence-based decision-making, others highlighted governance risks related to algorithmic bias, data asymmetries, and uneven institutional readiness. These contrasts were analytically preserved to reflect the complex and contested nature of AI-driven governance transformation rather than being smoothed into uniform conclusions. The use of NVivo supported systematic comparison but did not substitute for interpretive judgment. Analytical decisions were guided by theoretical sensitivity to academic governance processes, including decision-making structures, accountability mechanisms, and resource allocation practices. In this way, the synthesis produced higher-order insights into how AI functions not merely as a technological innovation but as a governance-relevant capacity reshaping institutional priorities and power relations.

3.7. Ensuring Trustworthiness and Ethical Considerations

To enhance trustworthiness, inter-researcher comparisons and audit trails were employed throughout the analysis process (Patton, 2015). Discrepancies in coding and theme development were discussed until consensus was reached, strengthening analytical credibility. As the study relied exclusively on secondary data, ethics committee approval was not required. All sources were cited appropriately in accordance with principles of academic integrity and transparency (Lincoln & Guba, 1985). To provide transparency regarding the empirical basis of the meta-synthesis,

Table 1 presents an overview of the studies included in the final sample, including publication year, title, database source, and type of publication. This overview enables readers to assess the breadth, diversity, and contextual scope of the evidence informing the synthesis and supports the study's claims regarding institutional readiness, governance dynamics, and equity considerations in AI adoption.

Table 1: Sources used to search for studies.

Author(s)/Year	Title	Database	Type of Publication
Alshorman (2024)	The readiness to use AI in teaching science	ERIC	Article
Bae et al.(2024)	Pre-service teachers' dual perspectives on generative AI: Benefits, challenges, and integration into their teaching and learning	ERIC	Article
Black & Betts (2025)	Unlocking the future: How are EdD faculty using Generative AI in doctoral research	ERIC	Article
Capraro et al. (2024).	The impact of generative artificial intelligence on socioeconomic inequalities and policy making	Google Scholar	Article
Eke (2024)	Assessing the readiness and attitudes of Nigerian teacher educators towards the adoption of artificial intelligence in educational settings	ERIC	Article
Es-Sarghini & Boumahdi (2025)	Interactive assessment of writing competency in french as a foreign language	ERIC	Article
George & Wooden (2023)	Managing the strategic transformation of higher education through artificial intelligence	MDPI	Article
Ghiasvand et l. (2024)	"I'm not ready for this metamorphosis": an ecological approach to iranian and italian efl teachers 'readiness for artificial intelligence-mediated instruction	ERIC	Article
Kamalov et al. (2023)	New era of artificial intelligence in education	MDPI	Article
Karakose (2024)	Will artificial intelligence (AI) make the school principal redundant?	ERIC	Article
Karakose & Tülübaş (2024)	School leadership and management in the age of artificial intelligence	ERIC	Article
Kim (2025)	Perceptions and preparedness of K-12 educators in adopting generative AI.	ERIC	Article
Li (2023)	AI in education: Bridging the divide or widening the gap? Exploring equity, opportunities, and challenges in the digital age	Google Scholar	Article
MacDowell et al. (2024)	Preparing Educators to Teach and Create With Generative Artificial Intelligence	ERIC	Article
Mazı & Yıldırım (2025)	Primary school teachers' opinions on the use of artificial intelligence in educational practices.	ScienceDirec	Article
Napier & Wada (2024)	Bridging the Skills Gap: The Design Education Landscape with AI and Experiential Learning.	Wiley Online Library	Article
Ofem et al., (2025)	Teachers' Preparedness for the Utilization of Artificial Intelligence in Classroom Assessment.	Frontiers	Article
Opesemowo (2024)	Artificial Intelligence in Education, Bridging Community Gap: A Phenomenological Approach.	Google Scholar	Thesis
Owan et al. (2023)	Exploring the potential of artificial intelligence tools in educational measurement and assessment	Google Scholar	Article
Panday-Shukla (2025)	Exploring generative artificial intelligence in teacher education.	ScienceDirect	Article
Salas-Pilco et al. (2022)	Artificial intelligence and new technologies in inclusive education for minority students	MDPI	Article
Schoon, et al. (2025)	Adoption and perceptions of generative AI among South African academics.	Taylor & Francis	
Sihag (2024)	Transforming and Reforming the Indian Education System with Artificial Intelligence	ERIC	Article
Singh et al. (2025)	AI and education: Bridging the gap to personalized, efficient, and accessible learning	Google Scholar	Chapter
Somabut et al.(2025)	Preparing for the AI era: Science teachers' readiness and professional development needs for generative AI integration in secondary education.	ScienceDirect	Article
Subaveerapandiyan & Gozali (2024)	AI in Indian libraries: Prospects and perceptions from library professionals	ERIC	Article
Taktak et al.(2024)	Use of ChatGPT in Education: Future Strategic Road Map with SWOT Analysis.	ERIC	Article
Wang et al.(2023)	Exploring the Potential Impact of Artificial Intelligence (AI) on International Students in Higher Education	MDPI	Article
Weng & Fu (2025)	Generative AI in language education: Bridging the divide and fostering inclusivity	ERIC	Article

4. RESULTS

Figure 2 provides an integrative overview of the findings derived from the meta-synthesis and illustrates how artificial intelligence (AI) is positioned within educational systems as a governance-relevant capacity. Rather than presenting isolated outcomes, the results reflect cross-study patterns that emerged from the synthesis and highlight how AI adoption intersects with institutional preparedness, managerial efficiency, and equity considerations in academic governance. The analysis is structured around three interrelated analytical dimensions. First, the findings reveal varying levels of institutional preparedness for AI integration, shaped by differences in infrastructural capacity, leadership readiness, and professional development opportunities. While some institutions demonstrate strategic alignment between AI initiatives and governance objectives, others remain constrained by limited resources, fragmented policy frameworks, or insufficient organizational support. Second, the synthesis highlights benefit–cost dynamics associated with AI adoption in institutional administration. Across studies, AI technologies are frequently reported to reduce administrative workloads, enhance data-informed decision-making, and improve operational

efficiency. At the same time, these benefits are accompanied by governance-related challenges, including financial investment demands, concerns over data protection and security, and risks of algorithmic bias. The results suggest that such tensions are not peripheral but central to how AI reshapes institutional decision-making processes.

Third, the findings emphasize AI's dual role in equity and access. On the one hand, AI-enabled systems are shown to support marginalized learners, expand access to educational resources, and facilitate more inclusive institutional practices. On the other hand, the synthesis reveals persistent inequalities between public and private institutions, with disparities in technological infrastructure and governance capacity shaping who benefits most from AI adoption. These patterns indicate that without deliberate governance strategies, AI may simultaneously function as both an equalizing and stratifying force within education systems. Taken together, the results underscore that AI adoption in education is not merely a technical innovation but a governance process characterized by trade-offs, contextual variation, and ethical considerations. Figure 2 visually synthesizes these dynamics by illustrating the interaction between institutional readiness, administrative transformation, and equity-related outcomes in the implementation of AI technologies.
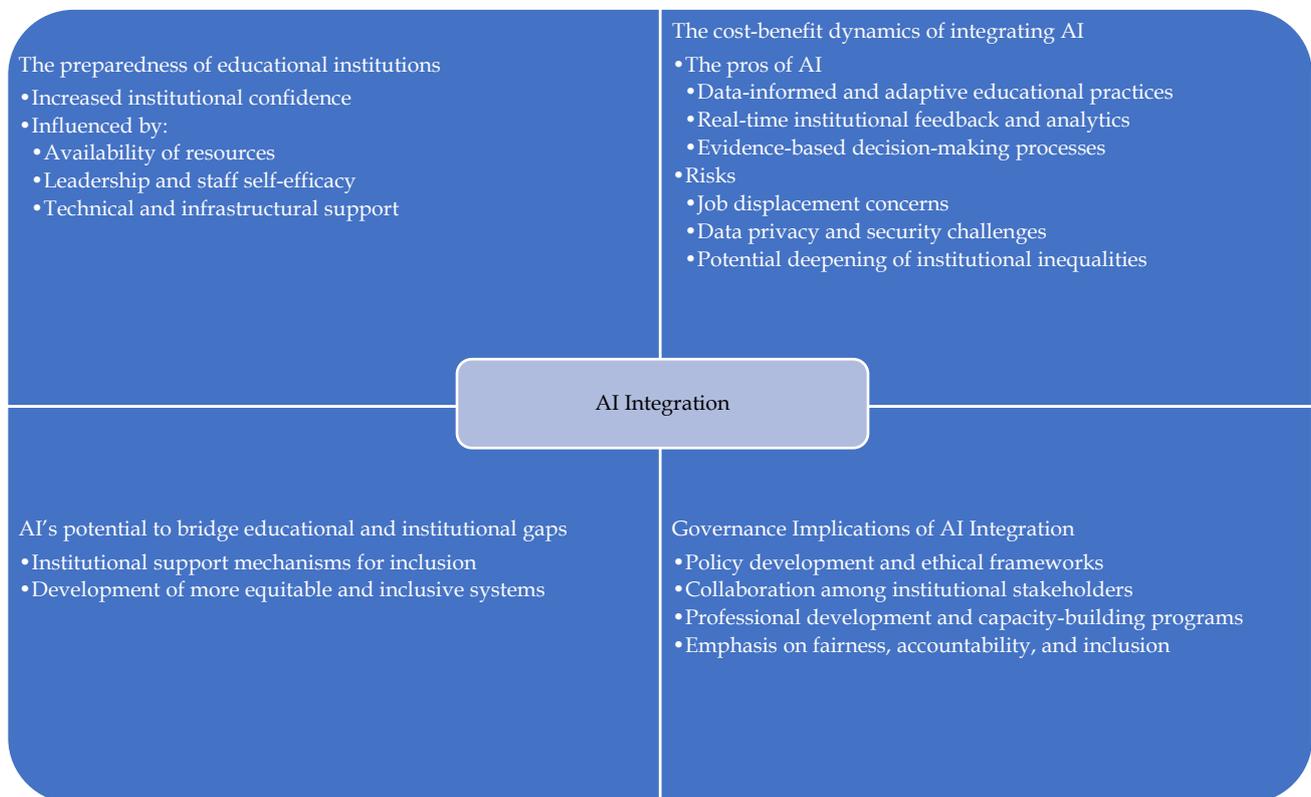

The preparedness of educational institutions
- Increased institutional confidence
- Influenced by:
  - Availability of resources
  - Leadership and staff self-efficacy
  - Technical and infrastructural support

The cost-benefit dynamics of integrating AI
- The pros of AI
  - Data-informed and adaptive educational practices
  - Real-time institutional feedback and analytics
  - Evidence-based decision-making processes
- Risks
  - Job displacement concerns
  - Data privacy and security challenges
  - Potential deepening of institutional inequalities

AI Integration

AI's potential to bridge educational and institutional gaps
- Institutional support mechanisms for inclusion
- Development of more equitable and inclusive systems

Governance Implications of AI Integration
- Policy development and ethical frameworks
- Collaboration among institutional stakeholders
- Professional development and capacity-building programs
- Emphasis on fairness, accountability, and inclusion

Figure 2: Analytical synthesis of AI integration in academic governance.

The figure presents a conceptual synthesis model derived from the meta-synthesis findings, illustrating the interrelationships between institutional preparedness, benefit–cost dynamics, and equity-related governance implications of AI integration in educational settings.

4.1. *The preparedness of educational institutions to adopt AI technology*

The findings indicate that educational institutions generally demonstrate a positive orientation toward the adoption of artificial intelligence (AI), perceiving it as a catalyst for pedagogical innovation, personalized learning, and administrative efficiency. Across studies, AI is commonly associated with reduced instructional workload, enhanced assessment practices, and improved data-driven decision-making in educational settings (Alshorman, 2024; Black & Betts, 2025; Eke, 2024; Panday-Shukla, 2025). As illustrated in Figure 2, teachers often view AI as a supportive tool that can increase student engagement, facilitate equitable assessment, and streamline routine tasks such as grading and lesson planning. Despite this generally favorable outlook, institutional preparedness is marked by considerable variation across contexts. While educators with higher levels of digital competence tend to perceive AI as more accessible and user-friendly, concerns persist regarding the reliability of AI systems and the potential erosion of interpersonal interaction—an element widely regarded as central to effective teaching and student engagement (Alshorman, 2024; Aghaziarati et al., 2023). These mixed perceptions suggest that readiness extends beyond technical infrastructure to include pedagogical beliefs and professional confidence. At the institutional level, disparities in preparedness are particularly evident across regions and sectors. Larger and well-resourced institutions typically demonstrate higher levels of AI readiness due to stronger infrastructural capacity, institutional support mechanisms, and access to professional development opportunities (Somabut et al., 2025). In contrast, institutions operating in resource-constrained contexts—particularly in parts of Africa—often face challenges related to limited awareness of AI applications, outdated curricula, and insufficient technical expertise, which constrain their ability to engage with AI-enhanced educational practices (Ghiasvand et al., 2024; Schoon et al., 2025). While studies report a strong willingness among educators in countries such as Nigeria to adopt AI, this intention is frequently undermined by structural and resource-related limitations (Nwankwo & Afolabi, 2022;

Reuben & Kabilan, 2024; Ogunleye, 2021). The synthesis further reveals a notable gap between willingness and preparedness, particularly among primary school teachers. Although many express a desire to integrate AI into instructional practices, they often lack the necessary training, experience, and technical competence to do so effectively (Mazı & Yıldırım, 2025). Similar concerns emerge in relation to both in-service and pre-service teachers, where limited exposure to AI tools restricts confident and responsible adoption (Kim, 2025; Rui et al., 2025). Psychological readiness also emerges as a critical factor: while optimism toward AI is common, insufficient hands-on experience and limited institutional support contribute to uncertainty and hesitation, especially in rural and under-resourced schools (Alshorman, 2024; Ghiasvand et al., 2024; Ofem et al., 2025). Overall, the findings suggest that preparedness for AI integration is shaped by an interplay of institutional capacity, professional competence, and contextual conditions. While positive attitudes toward AI are widespread, sustainable adoption depends on the alignment of infrastructure, professional development opportunities, and institutional support structures. Without such alignment, readiness remains uneven, reinforcing existing disparities in the implementation of AI across educational systems (Rahman et al., 2025).

4.2. *The cost-benefit of integrating AI solutions into managing school operations*

The findings highlight both the transformative potential and the structural challenges associated with integrating artificial intelligence (AI) into academic governance and school management processes. Across the reviewed studies, AI-driven tools are consistently associated with increased administrative efficiency, data-informed decision-making, and enhanced instructional coordination (Taktak et al., 2024; George & Wooden, 2023). From a benefits perspective, the integration of AI into school operations enables the automation of routine managerial and assessment-related tasks, thereby reducing workload pressures on teachers and administrators. Tools such as Gradescope, ExamSoft, and EssayGrader facilitate adaptive assessment, real-time feedback, predictive analytics, and automated grading, allowing educators to redirect their efforts toward strategic planning, academic mentoring, and instructional improvement (Owan et al., 2023). These capabilities support more consistent evaluation practices and enable institutions to monitor student progress and organizational performance in a

systematic and timely manner (Es-Sarghini & Boumahdi, 2025).

In addition, AI-enhanced analytics contribute to improved governance practices by supporting evidence-based resource allocation, risk management, and long-term planning. By processing large-scale educational data efficiently, AI reduces the likelihood of human error and generates insights that are faster, more precise, and operationally actionable than those derived from traditional methods (Owan et al., 2023). Several studies report that such data-driven approaches strengthen institutional adaptability and organizational learning, positioning academic institutions as more responsive and innovative systems (Black & Betts, 2025; Capraro et al., 2024; Napier & Wada, 2024). These findings align with prior evidence emphasizing the role of adaptive learning systems, learning analytics dashboards, and automated assessment tools in enhancing both pedagogical quality and administrative effectiveness (American Federation of School Administrators, 2023; Cooper, 2023; Donasco & Oliveros, 2024). Despite these benefits, the synthesis also reveals substantial cost-related and ethical challenges that complicate AI integration in educational governance. Financial barriers emerge as a primary concern, as institutions must invest in software acquisition or development, hardware upgrades, infrastructure maintenance, and sustained professional training for staff (Sihag, 2024; Bae et al., 2024). These costs are often compounded by resistance to change, limited institutional capacity, and uneven access to technical expertise, particularly in resource-constrained settings.

Ethical and governance-related risks further complicate the cost–benefit balance. Multiple studies highlight concerns related to algorithmic bias, data privacy, surveillance, and cybersecurity vulnerabilities associated with AI systems in education (MacDowell et al., 2024; Singh et al., 2025; Subaveerapandiyan & Gozali, 2024). Because AI systems rely on large-scale data collection and automated analysis, unintended consequences—such as data misuse, unauthorized access, or biased decision-making—may arise if governance mechanisms are insufficient (Ferrara, 2024; Paul, 2024). These risks underscore the importance of institutional oversight, transparency, and ethical safeguards in AI-supported governance structures.

The findings also indicate that AI integration may generate broader social and equity-related costs. Access to AI-enabled learning environments often depends on high-speed internet connectivity, advanced digital infrastructure, and technical literacy—resources that are unevenly distributed across regions and socio-economic contexts (Mahmoud & Sørensen, 2024). As a result, the deployment of adaptive AI-based systems may unintentionally exacerbate existing inequalities between institutions, particularly disadvantaging learners in under-resourced or rural settings (Capraro et al., 2024; Li, 2023). In addition, concerns regarding job displacement were reported, as the automation of routine tasks raises anxieties among educators about the future of professional roles within academic institutions (Subaveerapandiyan & Gozali, 2024). At the same time, several studies emphasize that AI is more commonly perceived as a tool for professional augmentation rather than replacement. Rather than eliminating teaching roles, AI is viewed as enhancing educators' capacity to manage administrative complexity and focus on pedagogical and relational aspects of education that require human judgment and empathy (Karakose, 2024; Karakose & Tülübaş, 2024). This distinction between automation and augmentation emerges as a critical factor in shaping educators' acceptance of AI and mitigating resistance linked to job insecurity.

Overall, the cost–benefit dynamics of AI integration in academic governance reveal a complex trade-off between efficiency gains and systemic risks. While AI offers substantial potential to enhance decision-making, operational effectiveness, and institutional responsiveness, these benefits are contingent upon adequate investment, ethical governance frameworks, and equitable access to digital resources. Without such conditions, the risks associated with AI—including inequality, privacy violations, and professional uncertainty—may outweigh its anticipated advantages (Sihag, 2024; Eden et al., 2024).

4.3. AI's potential to bridge educational gaps in school programs

The synthesis highlights the growing potential of artificial intelligence (AI), particularly generative AI, to address persistent educational disparities and promote more inclusive and equitable school programs. Across the reviewed studies, AI is positioned as a mechanism that can support educational modernization by enabling flexible, personalized, and culturally responsive learning environments (Napier & Wada, 2024; Weng & Fu, 2025). At the institutional level, AI contributes to bridging educational gaps by automating routine administrative processes—such as scheduling, assessment, and resource management—thereby allowing educators to allocate more time to

mentoring, differentiated instruction, and higher-order pedagogical activities (Es-Sarghini & Boumahdi, 2025; Kamalov et al., 2023). Several studies emphasize that this redistribution of professional effort strengthens instructional quality and supports more adaptive school programs, particularly when combined with partnerships that link education to real-world and industry-based learning contexts (Napier & Wada, 2024). From a pedagogical perspective, AI-enabled systems—including intelligent tutoring systems, adaptive learning platforms, learning analytics dashboards, and educational robots—facilitate individualized instructional pathways aligned with students' learning styles, progress levels, and specific needs (Capraro et al., 2024; Opesemowo, 2024). This level of personalization enhances accessibility and engagement, contributing to a more democratic educational environment in which diverse learners are better supported. AI-driven platforms also enable remote collaboration, self-directed learning, and immediate feedback, which collectively reduce communication barriers and strengthen learners' ability to apply theoretical knowledge in practice (Napier & Wada, 2024; Kamalov et al., 2023).

The findings further indicate that AI plays a critical role in supporting historically underserved and marginalized student populations. Several studies report that AI applications can provide culturally sensitive materials, multilingual resources, and flexible learning supports tailored to students from ethnic minorities, low-income backgrounds, and learners with disabilities (Opesemowo, 2024; Weng & Fu, 2025; Singh et al., 2025). By expanding access to academic, social, and economic resources, AI tools may enable these students to navigate educational pathways more autonomously and equitably (Johnson & Davis, 2024). In this regard, AI is framed not only as a technological innovation but also as a governance-relevant instrument for promoting social inclusion within school systems.

However, the synthesis also reveals that AI's capacity to bridge educational gaps is contingent upon addressing structural and ethical constraints. Persistent challenges related to algorithmic bias, unequal access to digital infrastructure, and socio-economic disparities risk undermining the equity-enhancing potential of AI if left unaddressed (Capraro et al., 2024; Singh et al., 2025). Studies caution that access to personalized AI-based learning environments often depends on reliable internet connectivity and advanced technological resources, which remain unevenly distributed across regions and institutions (Salas-Pilco et al., 2022). Without inclusive infrastructure and bias-mitigation mechanisms, AI-supported school programs may inadvertently reinforce existing inequalities rather than reduce them.

Overall, the findings suggest that AI holds substantial promise for bridging educational gaps by supporting personalized learning, inclusive pedagogical practices, and institutional flexibility. Yet, this potential is realized only when AI integration is accompanied by governance structures that prioritize equity, accessibility, and contextual sensitivity. When embedded within such frameworks, AI can function as a strategic tool for advancing inclusive and future-oriented school programs rather than as a driver of new forms of educational stratification (Nemani, 2025).

5. SUGGESTIONS

Building on the synthesized findings presented in Figure 2, this study proposes a set of interconnected recommendations aimed at supporting the responsible, equitable, and sustainable integration of artificial intelligence (AI) into academic governance.

5.1. Policy development and ethical governance frameworks

The findings indicate that the ethical implications of AI adoption in academic settings extend beyond technical concerns, raising fundamental questions related to autonomy, accountability, data sovereignty, and institutional responsibility. In response, educational institutions and policymakers should establish coherent ethical governance frameworks that define clear principles, boundaries, and use cases for AI integration in academic contexts (Weng & Fu, 2025). Such frameworks can promote transparency, mitigate algorithmic bias, safeguard data privacy, and ensure that AI-supported decision-making aligns with educational values and public trust.

5.2. Multi-stakeholder collaboration and shared governance

The study highlights the importance of sustained collaboration among diverse stakeholders—including educators, administrators, ethicists, policymakers, industry representatives, technology developers, and civil society actors—in shaping responsible AI ecosystems in education. Inclusive governance structures that incorporate multiple perspectives can enhance legitimacy, foster innovation, and support socially responsive AI deployment (Owan et al., 2023). Consistent with the findings of Leon et al. (2025) and Vieriu and Petrea

(2025), cross-sector partnerships between public institutions, private industry, and academic organizations are particularly critical for advancing AI literacy initiatives, expanding equitable access to AI-enabled resources, and embedding ethical considerations into institutional decision-making processes.

5.3. *Targeted professional development and capacity building*

The synthesis underscores professional development as a key enabling condition for effective AI integration. Educators and administrators require structured and context-sensitive training programs that strengthen AI literacy, digital competence, and ethical awareness (Panday-Shukla, 2025). Such programs should support the pedagogically sound use of AI tools for lesson planning, differentiated instruction, assessment, and administrative coordination, while also reinforcing educators' professional agency and confidence in AI-supported environments.

5.4. *Equity-oriented and inclusive implementation strategies*

Finally, the findings emphasize that AI integration must be explicitly aligned with fairness and inclusion objectives. Institutions should prioritize strategies that leverage AI to address the learning needs of marginalized and underserved student populations, while simultaneously reducing digital divides related to access, gender, and socio-economic status (Salas-Pilco et al., 2022). Equity-oriented AI governance requires transparency, human oversight, accountability mechanisms, and culturally responsive practices to ensure that AI technologies support—not undermine—educational justice across diverse school contexts.

6. DISCUSSION

This study set out to examine how artificial intelligence (AI) is reshaping academic governance by synthesizing recent empirical evidence across diverse educational contexts. The findings suggest that AI is increasingly positioned not merely as a technological tool, but as a governance-relevant mechanism influencing institutional decision-making, administrative coordination, and equity-oriented educational practices. In contrast to the dominant AI-in-education literature, which largely concentrates on classroom-level applications and learner outcomes, this study advances the discussion by foregrounding AI's institutional and governance dimensions.

The synthesis reveals that educational institutions generally demonstrate a growing willingness to adopt AI technologies, particularly where these tools support administrative efficiency, data-informed leadership, and personalized learning pathways. Consistent with prior research, AI-enabled systems—such as adaptive learning platforms and learning analytics dashboards—enhance instructional responsiveness and operational agility. However, this study extends existing knowledge by demonstrating that institutional preparedness for AI adoption is uneven and deeply contingent upon infrastructural capacity, professional competence, and contextual conditions. These findings resonate with sociotechnical perspectives that conceptualize technological change as embedded within organizational structures and power relations rather than as a neutral or uniform process. In this respect, Figure 2 provides an analytical synthesis of how institutional readiness, cost–benefit dynamics, and equity considerations interact to shape AI-driven academic governance.

Importantly, the study highlights that AI's perceived benefits are accompanied by substantial governance challenges. Ethical risks related to data privacy, algorithmic bias, transparency, and professional identity emerge as persistent concerns across contexts. These findings align with critical scholarship on algorithmic governance and datafication, which cautions that AI systems may reproduce or amplify existing inequalities if ethical oversight and institutional accountability are insufficient. The results further indicate that AI adoption may exacerbate educational disparities when access to digital infrastructure and technical expertise is unevenly distributed, particularly between well-resourced and under-resourced institutions. A key contribution of this study lies in its conceptual synthesis of AI integration as a balance between institutional readiness, cost–benefit dynamics, and equity implications. By analytically linking these dimensions, the study moves beyond descriptive accounts of AI adoption and offers an integrated framework for understanding how AI reshapes academic governance. This synthesis responds directly to calls in the literature for more theory-informed and governance-focused analyses of AI in education, complementing prior systematic reviews that have predominantly emphasized pedagogical or technological perspectives.

Overall, the findings suggest that AI should be understood as a sociotechnical governance instrument whose impact depends on how institutions align technological innovation with

ethical principles, professional development, and inclusive policy frameworks. When such alignment is absent, AI risks reinforcing existing structural inequalities; when present, it has the potential to support more adaptive, transparent, and equitable educational systems.

7. CONCLUSION

The rapid advancement of artificial intelligence represents a profound shift in the organization and governance of educational systems. This study demonstrates that AI holds significant potential to enhance academic governance by supporting data-driven decision-making, administrative efficiency, and inclusive educational practices. At the same time, the findings underscore that AI integration is not inherently beneficial and must be carefully governed to avoid ethical, social, and institutional risks. By synthesizing recent empirical evidence, this study contributes to the literature by reframing AI in education as a governance-level phenomenon rather than a solely instructional innovation. The results indicate that the successful integration of AI depends on institutional readiness, sustained professional development, ethical governance frameworks, and equitable access to digital resources. Without these conditions, AI adoption may deepen existing educational inequalities and undermine trust in academic institutions.

In conclusion, AI's role in education should be understood as both an opportunity and a responsibility. When embedded within transparent, accountable, and equity-oriented governance structures, AI can support the development of more inclusive, adaptive, and future-oriented educational systems. This study provides an evidence-based foundation for policymakers, educational leaders, and researchers seeking to navigate the complex relationship between technological innovation and academic governance in the digital age.

8. LIMITATIONS AND IMPLICATIONS FOR FUTURE RESEARCH

8.1. Limitations

Despite offering a comprehensive synthesis of recent evidence on the role of artificial intelligence (AI) in transforming academic governance, this study is subject to several limitations. First, the analysis is based exclusively on secondary qualitative data drawn from recently published studies. While this approach enables broad pattern identification, it limits the depth of contextual insight that could be achieved through primary empirical investigation. Consequently, institution-specific dynamics,

informal governance practices, and localized implementation challenges may not be fully captured. Second, the rapid pace of AI development means that some findings may become outdated as technologies, regulatory frameworks, and institutional practices continue to evolve. The wide institutional and geographical scope of the reviewed studies, while enhancing generalizability, may also obscure nuanced differences in governance capacity, cultural context, and infrastructural readiness across educational systems. Third, the meta-synthesis focused on English-language publications and predominantly Western-oriented theoretical frameworks, which may limit the global transferability of the findings, particularly to non-Western or low-resource educational contexts. Finally, although ethical and infrastructural challenges—such as data governance, algorithmic bias, and digital inequality—are acknowledged, these issues could not be examined in depth due to the scope and design of the study. As a result, the analysis does not fully address how ethical AI governance can be operationalized across diverse institutional environments.

8.2. Implications for Future Research

Future research should extend this work by employing longitudinal and mixed-methods designs to examine the long-term effects of AI integration on academic governance, teaching practices, and learning outcomes. In particular, empirical studies that capture institutional decision-making processes, leadership practices, and policy implementation at the organizational level would provide valuable insights into how AI reshapes governance structures over time. Further research is also needed to explore AI's impact on educational equity across diverse socio-economic and cultural contexts. Comparative studies focusing on under-resourced regions and marginalized communities could illuminate how strategic investment, infrastructure development, and targeted capacity-building initiatives influence equitable AI adoption. In this regard, future studies should examine how generative AI (GenAI) training and governance strategies can be aligned with institutional missions, national education policies, and long-term development goals. Moreover, there is a need for research that integrates ethical, social, and human rights perspectives into AI education and governance frameworks. Future studies should investigate practical models for embedding ethical reasoning, transparency, and accountability into AI curricula and institutional policies, ensuring that ethical considerations are not overshadowed by technical

innovation. Research that examines how AI literacy can be systematically integrated across disciplines—and how educational leaders can cultivate organizational cultures that prioritize responsible AI use—would significantly advance both theory and practice in the field of academic governance.

Acknowledgment

REFERENCES

Adams, D., & Thompson, P. (2025). Transforming school leadership with artificial intelligence: Applications, implications, and future directions. *Leadership and Policy in Schools, 24*(1), 77–89.

Aghaziarati, A., Nejatifar, S., & Abedi, A. (2023). Artificial intelligence in education: Investigating teacher attitudes. *AI and Tech in Behavioral and Social Sciences, 1*(1), 35–42.
https://doi.org/10.61838/kman.aitech.1.1.6

Alshorman, S. M. (2024). The readiness to use AI in teaching science: Science teachers' perspective. *Journal of Baltic Science Education, 23*(3), 432–448.

American Federation of School Administrators. (2023). Artificial intelligence and education. https://www.theschoolleader.org/news/artificial-intelligence-and-education

Asad, M. M., Shahzad, S., Shah, S. H. A., Sherwani, F., & Almusharraf, N. M. (2024). ChatGPT as artificial intelligence-based generative multimedia for English writing pedagogy: Challenges and opportunities from an educator's perspective. *The International Journal of Information and Learning Technology, 41*(5), 490–506.

Bae, H., Jaesung, H., Park, J., Choi, G. W., & Moon, J. (2024). Pre-service teachers' dual perspectives on generative AI: Benefits, challenges, and integration into their teaching and learning. *Online Learning, 28*(3), 131–156. https://doi.org/10.24059/olj.v28i3.4543

Baker, J. A. (2021). Artificial intelligence in education: Bringing it all together. In OECD digital education outlook 2021: Pushing the frontiers with AI, blockchain, and robotics (pp. 43–56). OECD Library.

Bearman, M., & Dawson, P. (2013). Qualitative synthesis and systematic review in health professions education. *Medical Education, 47*(3), 252–260. https://doi.org/10.1111/medu.12092

Black, E., & Betts, K. (2025). Unlocking the future: How are EdD faculty using generative AI in doctoral research? *Impacting Education: Journal on Transforming Professional Practice, 10*(1), 49–56.

Booth, A., Sutton, A., & Papaioannou, D. (2016). *Systematic approaches to a successful literature review* (2nd ed.). SAGE.

Capraro, V., Lentsch, A., Acemoglu, D., Akgun, S., Akhmedova, A., Bilancini, E., Bonnefon, J. F., Brañas-Garza, P., Butera, L., Douglas, K. M., & Everett, J. A. (2024). The impact of generative artificial intelligence on socioeconomic inequalities and policymaking. *PNAS Nexus, 3*(6), pgae191.

Ceylan, M., & Mnzile, J. Y. (2025). The integration of artificial intelligence (AI) in educational settings. In *Economic and political consequences of AI: Managing creative destruction* (pp. 395–414). IGI Global Scientific Publishing.

Chen, L., Chen, P., & Lin, Z. (2020). Artificial intelligence in education: A review. *IEEE Access, 8,* 75264–75278. https://doi.org/10.1109/ACCESS.2020.2988510

Cooper, G. (2023). Examining science education in ChatGPT: An exploratory study of generative artificial intelligence. *Journal of Science Education and Technology, 32*(3), 444–452. https://doi.org/10.1007/s10956-023-10039-y

Davis FD (1989) Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Q 13(3):319. https://doi.org/10.2307/249008

Davies, H. C., Eynon, R., & Salveson, C. (2020). The mobilization of AI in education: A Bourdieusean field analysis. *Sociology, 55*(3), 539–560. https://doi.org/10.1177/0038038520967888 (Original work published 2021)

Dogan, M., & Arslan, H. (2025). The role of artificial intelligence in school leadership. *Revista de Pedagogie Digitala, 4*(1), 23–30. https://doi.org/10.61071/RPD.2531

Donasco, A., & Oliveros, S. T. R. (2024). AI's impact on educational leadership and learning. *International Multidisciplinary Journal of Research for Innovation, Sustainability, and Excellence (IMJRISE), 1*(8), 228–236.

Eden, C. A., Chisom, O. N., & Adeniyi, I. S. (2024). Integrating AI in education: Opportunities, challenges, and ethical considerations. *Magna Scientia Advanced Research and Reviews, 10*(2), 006–013.

Edtech. (2020). Successful AI examples in higher education that can inspire our future. EdTech Magazine. Available online: https://edtechmagazine.com/higher/article/2020/01/successful-ai-examples-higher-education-can-inspire-our-future?utm_source=chatgpt.com (accessed on 29 January 2025).

Eke, E. O. (2024). Assessing the readiness and attitudes of Nigerian teacher educators towards the adoption of artificial intelligence in educational settings. *Journal of Educational Technology and Online Learning, 7*(4), 473–487.

Es-Sarghini, A., & Boumahdi, A. (2025). Interactive e-assessment of writing competency in French as a foreign language: Development and implementation of an AI-enhanced progress monitoring system. *Australian Journal of Applied Linguistics, 8*(1), 102495.

Fathema, N., Shannon, D., & Ross, M. (2015). Expanding the Technology Acceptance Model (TAM) to examine faculty use of Learning Management Systems (LMSs) in higher education institutions. Journal of online learning & teaching, 11(2).

Ferrara, E. (2024). Fairness and bias in artificial intelligence: A brief survey of sources, impacts, and mitigation strategies. *Sci, 6*(1), 3. https://doi.org/10.3390/sci6010003

Garzón, J., Patiño, E., & Marulanda, C. (2025). Systematic Review of Artificial Intelligence in Education: Trends, Benefits, and Challenges. Multimodal Technologies and Interaction, 9(8), 84.

https://doi.org/10.3390/mti9080084

George, B., & Wooden, O. (2023). Managing the strategic transformation of higher education through artificial intelligence. *Administrative Sciences, 13*(9), 196. https://doi.org/10.3390/admsci13090196

Ghiasvand, F., Kogani, M., & Alipoor, A. (2024). "I'm not ready for this metamorphosis": An ecological approach to Iranian and Italian EFL teachers' readiness for artificial intelligence mediated instruction. *Teaching English with Technology, 24*(3).

Gligorea, I., Cioca, M., Oancea, R., Gorski, A. T., Gorski, H., & Tudorache, P. (2023). Adaptive learning using artificial intelligence in e-learning: A literature review. *Education Sciences, 13*(12), 1216.

Granić, A., & Marangunić, N. (2019). Technology acceptance model in educational context: A systematic literature review. British Journal of Educational Technology, 50(5), 2572-2593.

Hennekeuser, D., Vaziri, D. D., Golchinfar, D., Schreiber, D., & Stevens, G. (2025). Enlarged education–exploring the Use of Generative AI to support lecturing in Higher Education. International Journal of Artificial Intelligence in Education, 35(3), 1096-1128.

Johnson, A., & Smith, B. (2019). The impact of personalized learning on student attitudes and self-efficacy in mathematics. Educational Technology Research and Development, 38(2), 201-218.

Johnson, D. L., & Davis, C. G. (2024). Bridging the gap for underserved populations: Personalized AI solutions for college access and learning support. *New Directions for Higher Education, 2024*(207), 47–62.

Kamalov, F., Santandreu Calonge, D., & Gurrib, I. (2023). New era of artificial intelligence in education: Towards a sustainable multifaceted revolution. *Sustainability, 15*(16), 12451.

Karakose, T. (2024). Will artificial intelligence (AI) make the school principal redundant? A preliminary discussion and future prospects. *Educational Process: International Journal, 13*(2), 7–14. https://doi.org/10.22521/edupij.2024.132.1

Karakose, T., & Tülübaş, T. (2024). School leadership and management in the age of artificial intelligence (AI): Recent developments and future prospects. *Educational Process: International Journal, 13*(1), 7–14. https://doi.org/10.22521/edupij.2024.131.1

Kim, J. (2025). Perceptions and preparedness of K-12 educators in adopting generative AI. Research in Learning Technology, 33.

Leon, C., Lipuma, J., & Oviedo-Torres, X. (2025, July). Artificial intelligence in STEM education: A transdisciplinary framework for engagement and innovation. In *Frontiers in Education* (Vol. 10, p. 1619888). Frontiers.

Li, H. (2023). AI in education: Bridging the divide or widening the gap? Exploring equity, opportunities, and challenges in the digital age. *Advances in Education, Humanities and Social Science Research, 8*(1), 355–355.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE.

Luo, J., Ahmad, S. F., Alyaemeni, A., Ou, Y., Irshad, M., Alyafi-Alzahri, R., ... & Unnisa, S. T. (2024). Role of perceived ease of use, usefulness, and financial strength on the adoption of health information systems: The moderating role of hospital size. Humanities and Social Sciences Communications, 11(1), 1-12.

MacDowell, P., Moskalyk, K., Korchinski, K., & Morrison, D. (2024). Preparing educators to teach and create with generative artificial intelligence. *Canadian Journal of Learning and Technology, 50*(4), 1–23.

Mahmoud, C. F., & Sørensen, J. T. (2024). Artificial intelligence in personalized learning with a focus on current developments and future prospects. *Research and Advances in Education, 3*(8), 25–31.

Mazı, A., & Yıldırım, İ. O. (2025). Primary school teachers' opinions on the use of artificial intelligence in educational practices. Social Sciences & Humanities Open, 11, 101576.

Mnzile, J. Y. (2026). Empowering Future Generations: How AI is Transforming Sustainable Education Practices. In Using AI to Achieve the Sustainable Development Goals (SDGs) (pp. 133-156). IGI Global Scientific Publishing.

Musa, H. G., Fatmawati, I., Nuryakin, N., & Suyanto, M. (2024). Marketing research trends using technology acceptance model (TAM): a comprehensive review of researches (2002–2022). Cogent Business & Management, 11(1). https://doi.org/10.1080/23311975.2024.2329375

Napier, P., & Wada, T. (2024). Bridging the skills gap: The design education landscape with AI and experiential learning. *Design Management Journal, 19*(1), 19–30.

Nemani, S. K. (2025). Leveraging AI-driven personalized learning tools to bridge educational inequities in STEM education: A path toward just and inclusive learning environments. *International Journal of Multidisciplinary Research and Growth Evaluation, 6*(3), 1212–1225. https://doi.org/10.54660/IJMRGE.2025.6.3.1212-1225

Ng, D. T. K., Leung, J. K. L., Su, J., Ng, R. C. W., & Chu, S. K. W. (2023). Teachers' AI digital competencies and twenty-first-century skills in the post-pandemic world. *Educational Technology Research and Development, 71*(1), 137–161.

Ng, D. T. K., Luo, W., Chan, H. M. Y., & Chu, S. K. W. (2022). Using digital story writing as a pedagogy to develop AI literacy among primary students. *Computers and Education: Artificial Intelligence, 3*, 10005.

Nguyen, N. D. (2023). Exploring the role of AI in education. *London Journal of Social Sciences, 6,* 84–95. https://doi.org/10.31039/ljss.2023.6.108

Noblit, G. W., & Hare, R. D. (1988). *Meta-ethnography: Synthesizing qualitative studies*. SAGE.

Nwankwo, E., & Afolabi, J. (2022). Bridging the gap: Integrating AI into science education in

Nigeria. International Journal of Educational Development, 37, 67-81.

OECD. (2023). *Artificial intelligence in education: Ensuring equity and ethics*. Organisation for Economic Co-operation and Development. https://www.oecd.org/education/ai-in-education.pdf

Ofem, U. J., Orim, F. S., Edam-Agbor, I. B., Amanso, E. O. I., Eni, E., Ukatu, J. O., ... & Abuo, C. B. (2025, August). Teachers' Preparedness for the Utilization of Artificial Intelligence in Classroom Assessment: The Contributory Effects of Attitude Toward Technology, Technological Readiness, and Pedagogical Beliefs with Perceived Ease of Use and Perceived Usefulness as Mediators. In Frontiers in Education (Vol. 10, p. 1568306). Frontiers.

Ogunleye, T. (2021). Impact of technological awareness on educational advancement in Nigeria.

Journal of Educational Technology, 14(4), 28-35.

Opesemowo, O. (2024). Artificial intelligence in education, bridging community gap: A phenomenological approach. *International Journal of New Education, 14,* 59–79. https://doi.org/10.24310/ijne.14.2024.20505

Owan, V. J., Abang, K. B., Idika, D. O., Etta, E. O., & Bassey, B. A. (2023). Exploring the potential of artificial intelligence tools in educational measurement and assessment. *Eurasia Journal of Mathematics, Science and Technology Education, 19*(8), em2307.

Page, M. J., Moher, D., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & McKenzie, J. E. (2021). PRISMA 2020 explanation and elaboration: updated guidance and exemplars for reporting systematic reviews. bmj, 372.

Panday-Shukla, P. (2025). Exploring generative artificial intelligence in teacher education. *Teaching and Teacher Education, 165,* 10508.

Patino, C. M., & Ferreira, J. C. (2018). Inclusion and exclusion criteria in research studies: definitions and why they matter. Jornal brasileiro de pneumologia : publicacao oficial da Sociedade Brasileira de Pneumologia e Tisilogia, 44(2), 84. https://doi.org/10.1590/s1806-37562018000000088

Patton, M. Q. (2015). *Qualitative research & evaluation methods* (4th ed.). SAGE.

Paul, J. (2024). Privacy and data security concerns in AI. ResearchGate. https://www.researchgate.net/publication/380701474_Privacy_and_Data_Security_Concerns_in_AI

Priyatma, J. E. (2023). Application of the Unified Theory of Acceptance and Use of Technology (UTAUT) to the Use of Learning Management System (LMS). European Journal of Science, Innovation and Technology, 3(3), 138-149. Retrieved from https://ejsit-journal.com/index.php/ejsit/article/view/204

Rahman, M. K., Hossain, M. A., Ismail, N. A., Hossen, M. S., & Sultana, M. (2025). Determinants of students' adoption of AI chatbots in higher education: The moderating role of tech readiness. *Interactive Technology and Smart Education.* Advance online publication.

Reuben, B., & Kabilan, M. K. (2024). Assessment of university lecturers' readiness to adopt artificial intelligence (AI) technology in the Northeast of Nigeria. *International Journal of Advanced Research in Education and Society, 6*(2), 482–490.

Robert, R., & Meenakshi, S. (2024). The future of artificial intelligence (AI) in education: Threats and prospects for long-term growth. *Multidisciplinary*, 181–186.

Roshanaei, M., Olivares, H., & Lopez, R. (2023). Harnessing AI to foster equity in education: Opportunities, challenges, and emerging strategies. *Journal of Intelligent Learning Systems and Applications, 15,* 123–143. https://doi.org/10.4236/jilsa.2023.154009

Rui, X., Celik, I., & Edwards, J. (2025). Understanding pre-service teachers' needs for integrating AI-based tools in instruction through intelligent TPACK framework. Computers and Education Open, 100317.

Salas-Pilco, S. Z., Xiao, K., & Oshima, J. (2022). Artificial intelligence and new technologies in inclusive education for minority students: A systematic review. *Sustainability, 14*(20), 13572.

Sandelowski, M., & Barroso, J. (2007). Handbook for synthesizing qualitative research. Springer.

Schoon, A., Smit, A., Uzuegbunam, C., & Bosch, T. (2025). Adoption and perceptions of generative AI among South African academics. Teaching in Higher Education, 1–18. https://doi.org/10.1080/13562517.2025.2571911

Sihag, P. (2024). Transforming and reforming the Indian education system with artificial intelligence. *Digital Education Review, 45,* 98–105.

Singh, T. M., Reddy, C. K. K., Murthy, B. R., Nag, A., & Doss, S. (2025). AI and education: Bridging the gap to personalized, efficient, and accessible learning. In *Internet of behavior-based computational intelligence for smart education systems* (pp. 131–160). IGI Global.

Sohrabi, C., Franchi, T., Mathew, G., Kerwan, A., Nicola, M., Griffin, M., ... & Agha, R. (2021). PRISMA 2020 statement: What's new and the importance of reporting guidelines. International Journal of Surgery, 88, 105918.

Somabut, A., Tuamsuk, K., Lowatcharin, G., Traiyarach, S., & Kwangmuang, P. (2025). Preparing for the AI era: Science teachers' readiness and professional development needs for generative AI integration in secondary education. Social Sciences & Humanities Open, 12, 102259.

Srinivasa, K. G., Kurni, M., & Saritha, K. (2022). Harnessing the power of AI for education. In *Learning, teaching, and assessment methods for contemporary learners: Pedagogy for the digital generation* (pp. 311–342). Springer Nature Singapore.

Subaveerapandiyan, A. A., & Gozali, A. A. (2024). AI in Indian libraries: Prospects and perceptions from library professionals. *Open Information Science, 8*(1), 20220164.

Tahiru, F. (2021). AI in education: A systematic literature review. *Journal of Cases on Information Technology, 23*(1), 1–20.

Taktak, M., Bellibaş, M. Ş., & Özgenel, M. (2024). Use of ChatGPT in education: Future strategic road map with SWOT analysis. *Educational Process: International Journal, 13*(3), 7–21. https://doi.org/10.22521/edupij.2024.133.1

Tarisayi, K. S. (2024, March). Strategic leadership for responsible artificial intelligence adoption in higher education. In *CTE workshop proceedings* (Vol. 11, pp. 4–14).

Thomas, J., & Harden, A. (2008). Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Medical Research Methodology, 8*(45), 1–10. https://doi.org/10.1186/1471-2288-8-45

UNESCO. (2023). *AI and education: Guidance for policymakers*. United Nations Educational, Scientific and Cultural Organization. https://unesdoc.unesco.org/ark:/48223/pf0000376708

Venkatesh, V., Morris, M.G., Davis, G.B. and Davis, F.D. (2003). User acceptance of information technology:Toward a unified view. MIS quarterly.

Vieriu, A. M., & Petrea, G. (2025). The impact of artificial intelligence (AI) on students' academic development. *Education Sciences, 15*(3), 343. https://doi.org/10.3390/educsci15030343

Wang, T., Lund, B. D., Marengo, A., Pagano, A., Mannuru, N. R., Teel, Z. A., & Pange, J. (2023). Exploring the potential impact of artificial intelligence (AI) on international students in higher education: Generative AI, chatbots, analytics, and international student success. *Applied Sciences, 13*(11), 6716. https://doi.org/10.3390/app13116716

Weng, Z., & Fu, Y. (2025). Generative AI in language education: Bridging the divide and fostering inclusivity. *International Journal of Technology in Education, 8*(2), 395–420. https://doi.org/10.46328/ijte.1056

Yang, S. J. H. (2021). Guest editorial: Precision education—A new challenge for AI in education. *Educational Technology & Society, 24*(1), 105–108.

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), 1-27.