



Ethical Artificial Intelligence For Educational Management: A Systematic Review Of International Regulatory Frameworks And AI Governance

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Abstract

The incorporation of artificial intelligence into education has brought about significant transformations in the management of educational processes, particularly in data-driven decision-making and the optimization of institutional resources. However, this technological advancement poses challenges related to ethics, transparency, and regulation, due to the absence of clear governance frameworks to guide its implementation in educational contexts. In this context, the present study aims to analyze ethical governance and decision-making with artificial intelligence in educational management based on international regulatory frameworks. The research was conducted using a qualitative approach, through a systematic literature review based on the PRISMA guidelines. Databases such as Scopus, Web of Science, Scielo, Dialnet, Springer, and MDPI were consulted, considering inclusion criteria such as publications between 2020 and 2025, peer-reviewed articles, and thematic relevance. The process allowed for the selection of a total of 30 studies for analysis. The results reveal four main categories: AI governance in education, AI ethics, automated decision-making, and international regulatory frameworks. Challenges related to transparency, algorithmic fairness, and data protection were identified, as well as a gap between theoretical frameworks and their practical application. In conclusion, the implementation of AI in educational management requires effective coordination between regulation, ethics, and decision-making, promoting responsible and context-appropriate use.

Keywords: educational AI; governance; ethics; decision-making; regulation.

I. Introduction

In recent decades, artificial intelligence (AI) has experienced exponential growth, establishing itself as a key component in the digital transformation of multiple sectors, including education. Its incorporation into the management of educational processes has made it possible to optimize administrative tasks, improve data-driven decision-making, and personalize teaching-learning processes. Various studies highlight that tools such as learning analytics, recommendation systems, and predictive algorithms are redefining how educational institutions organize and manage their resources (Chen et al., 2020; Zhai et al., 2021). This technological advancement positions AI as a strategic and element for improving educational quality in increasingly complex global contexts.

In this scenario, the expansion of AI in education responds not only to a logic of technological innovation but also to the need to address emerging social demands related to equity, inclusion, and efficiency in educational management. Recent studies show that AI enables the analysis of large volumes of data in real time, facilitating the identification of learning patterns and informed decision-making at the institutional level (Chiu et al., 2022; Wang et al., 2024). However, this transformative potential also poses

significant challenges in terms of regulation, given the speed with which these technologies are being integrated into educational systems without fully established regulatory frameworks.

Given this reality, there is a need to strengthen the ethical dimension of AI use, especially in educational contexts where decisions can directly impact students' holistic development. International organizations such as UNESCO have emphasized that the use of AI must be guided by principles of justice, transparency, accountability, and respect for human rights. In this vein, AI ethics emerges as a fundamental pillar for ensuring that technologies do not reproduce inequalities or generate adverse effects on vulnerable populations, an aspect widely discussed in recent literature (An et al., 2024; Fu et al., 2024).

However, despite the recognition of these principles, one of the main problems identified in the literature is the absence of clear governance frameworks to guide the implementation of AI in educational management. AI governance involves not only regulatory frameworks but also the definition of roles, responsibilities, and control mechanisms to ensure its appropriate use within institutions. Various studies indicate that many educational organizations adopt AI technologies without robust institutional policies, which increases the risk of automated decisions that lack transparency and are difficult to audit (Batool et al., 2025; Papagiannidis et al., 2025).

Added to this are the risks associated with the use of algorithms in educational contexts, particularly regarding algorithmic bias, data privacy, and decision automation. Recent research warns that AI systems can reproduce and amplify preexisting inequalities if the data used to train them contains structural biases (Bond et al., 2024). Likewise, the massive collection of student data raises questions about the protection of personal information and informed consent, key elements in any ethical and responsible educational system (Yan et al., 2025).

Another critical aspect lies in the growing reliance on automated systems for decision-making in educational management. While AI can improve efficiency and accuracy in certain processes, there is a risk of reducing human involvement in decisions that require pedagogical judgment and contextualization. In this regard, the literature warns that decision-making based exclusively on algorithms may limit the critical capacity of educational administrators, leading to an excessive delegation of responsibilities to technological systems (Wiese, 2025). This highlights the need to strike a balance between automation and human oversight.

From a theoretical perspective, a significant gap is identified in the integration of governance, ethics, and decision-making approaches in studies on AI in education. While there is research that addresses each of these components independently, few studies articulate them within a comprehensive analytical framework, especially from a systematic review perspective (Garzón, 2025; Llerena-Izquierdo et al., 2025). This fragmentation of knowledge limits our understanding of how these elements interact in educational practice, which justifies the need for research that integrates these approaches in a holistic manner.

From a practical standpoint, this research is significant because it provides theoretical and empirical insights that can guide decision-making in educational management, particularly in contexts where the integration of AI is in its early stages or lacks regulation. The systematic review allows for the identification of best practices, challenges, and emerging trends that can be adapted to different institutional realities, contributing to the formulation of more informed and contextualized educational policies. Likewise, it strengthens the capacity of educational managers to implement technologies in an ethical and responsible manner.

Based on the above, the objective of this article is to analyze ethical governance and decision-making with artificial intelligence in educational management based on international regulatory frameworks through a systematic literature review, with the aim of identifying trends, challenges, and opportunities to guide its implementation in contemporary educational systems.

II. Methodology

This study adopts a qualitative approach, relying on a literature review as the primary strategy for analyzing scientific research related to ethical governance and decision-making with artificial intelligence in educational management. This approach allows for the interpretation, analysis, and synthesis of information from various academic sources, with the aim of identifying patterns, trends, and gaps in the existing literature. The literature review aims to understand the phenomenon from an interpretive perspective, considering the theoretical and empirical contributions of recent international research.

Regarding the design, the research adopts a systematic review based on the PRISMA guidelines, which ensures methodological rigor, transparency, and reproducibility in the process of selecting and analyzing the studies. This design allows for the orderly structuring of the phases of identification, selection, and synthesis of scientific evidence, ensuring that the results obtained meet criteria previously established and validated within the academic community.

For data collection, various databases recognized for their quality and indexing were consulted, including Scopus, Web of Science, SciELO, and Dialnet, as well as academic repositories from publishers such as Springer and MDPI. These sources were selected due to their relevance in disseminating scientific research in the fields of education and technology, which allowed access to up-to-date and relevant studies for the development of the review. The search was conducted using keywords related to artificial intelligence, ethics, governance, and education, combined using Boolean operators to optimize the results.

Regarding the inclusion criteria, only articles published between 2020 and 2025 were considered, in order to ensure the timeliness of the analyzed information. Likewise, peer-reviewed studies that directly or indirectly addressed the relationship between artificial intelligence, ethics, governance, and educational management were included. Qualitative research, systematic reviews, literature reviews, and documentary analyses were prioritized, as they were consistent with the study's approach.

On the other hand, exclusion criteria were established to delimit the corpus of analysis. Studies with an experimental quantitative approach were excluded, as they do not align with the interpretive purpose of the research. Likewise, documents that lacked academic peer review—such as blogs, unindexed reports, or publications without scientific backing—were discarded to ensure the quality and validity of the sources used.

The article selection process was conducted in accordance with the phases proposed by PRISMA. During the identification phase, studies were retrieved from the selected databases. Subsequently, during the screening phase, titles and abstracts were reviewed to exclude those that did not meet the established criteria. During the eligibility stage, the preselected articles were read in full, and their relevance and methodological quality were assessed. Finally, in the inclusion phase, a total of 30 articles were selected to form the final corpus for analysis.

For data analysis, the thematic analysis technique was employed, which allowed for the organization and classification of findings based on emerging categories related to the subject of study. This process involved coding relevant information, identifying recurring patterns, and constructing analytical categories that facilitated the interpretation of results. Likewise, qualitative categorization was used as a tool to structure the state of the art, allowing the contributions of the different studies to be integrated into a coherent and systematic analytical framework.

Table 1 REVIEW MATRIX

No.	Author(s)	Year	Title	Basis	Approach	Link
1	Yan, Y. et al.	2025	AI Ethics in Education: systematic review	Scopus	Systematic review	https://www.sciencedirect.com/science/article/pii/S1062737525000654
2	Wiese, L.	2025	AI ethics education: systematic review	Scopus	Qualitative review	https://www.sciencedirect.com/science/article/pii/S2666920X25000451
3	Wieczorek, M.	2025	Ethics of AI in Primary and Secondary Education	Springer	Systematic review	https://link.springer.com/article/10.1007/s43681-025-00770-0
4	Alfiras, M.	2025	Ethics and governance of generative AI in education	Springer	Systematic review	https://link.springer.com/article/10.1007/s44217-025-01051-y
5	Batool, A. et al.	2025	AI governance: systematic literature review	Scopus	Systematic review	https://link.springer.com/article/10.1007/s43681-024-00653-w
6	Papagiannidis, E. et al.	2025	Responsible AI governance: framework	Scopus	Literature review	https://www.sciencedirect.com/science/article/pii/S0963868724000672

7	Ferjani, I. et al.	2025	Responsible AI governance: systematic review	Scopus	Systematic review	https://www.sciencedirect.com/science/article/pii/S1877050925032715
8	Garzón, J.	2025	AI in education: systematic review trends	Scopus	Systematic review	https://www.mdpi.com/2414-4088/9/8/84
9	Llerena-Izquierdo, J. et al.	2025	Ethics of AI in academia and education	Scopus	PRISMA Review	https://www.mdpi.com/2227-9709/12/4/111
10	Mahrishi, M. et al.	2025	Regulatory frameworks for AI in higher education	ACM	Literature review	https://dl.acm.org/doi/10.1145/3672462
11	Bond, M. et al.	2024	Meta-systematic review of AI in higher education	WoS / Scopus	Meta-review	https://doi.org/10.1186/s41239-023-00436-z
12	Wang, S. et al.	2024	AI in education: systematic literature review	Scopus	Systematic review	https://www.sciencedirect.com/science/article/pii/S0957417424010339
13	Fu, Y. et al.	2024	Navigating the ethical terrain of AI in education	Scopus	Systematic review	https://www.sciencedirect.com/science/article/pii/S2666920X24001097
14	An, Q. et al.	2024	Decoding AI ethics in education	Scopus	Systematic review	https://www.sciencedirect.com/science/article/pii/S2405844024153881
15	Santana-Soriano, E.	2024	Ethics and AI in Education	SciELO	Bibliometric-documentary	https://revistas.intec.edu.do/index.php/ciened/article/download/3255/4014
16	Crompton, H. & Burke, D.	2023	AI in higher education: systematic review	Scopus / WoS	Systematic review	https://doi.org/10.1186/s41239-023-00392-8
17	Chiu, T. et al.	2022	Opportunities and challenges of AI in education: systematic review	Scopus	Systematic review	https://doi.org/10.1016/j.caeai.2022.100118
18	Luckin, R.	2022	Towards Artificial Intelligence-Based Assessment Systems	Nature / Springer	Theoretical review	https://doi.org/10.1038/s41562-021-01121-9
19	Holmes, W. et al.	2022	Ethics of AI in education: Towards a community-wide framework	Computers and Education	Literature review	https://doi.org/10.1016/j.compedu.2021.104351
20	Zhai, X. et al.	2021	A Review of AI in Education from 2010 to 2020	WoS / Scopus	Literature review	https://doi.org/10.1155/2021/8812542
21	UNESCO	2021	AI and Education: Guidance for Policy-makers	UNESCO	Qualitative analytical	https://unesdoc.unesco.org/ark:/48223/pf0000376709

22	Selwyn, N.	2021	Should robots replace teachers? AI and the future of education	Routledge	document Critical qualitative analysis	https://doi.org/10.4324/9781003154527
23	Dignum, V.	2021	Responsible Artificial Intelligence: How to Develop and Use AI in a Responsible Way	Springer	Theoretical review	https://doi.org/10.1007/978-3-030-30371-6
24	Chen, L., Chen, P., Lin, Z.	2020	Artificial Intelligence in Education: A Review	IEEE / Scopus	Literature review	https://doi.org/10.1109/ACCESS.2020.2988510
25	Chen, X. et al.	2020	Application and theory gaps during the rise of AI in education	Scopus	Systematic review	https://doi.org/10.1016/j.caeai.2020.100005
26	Holmes, W., Bialik, M., Fadel, C.	2020	Artificial Intelligence in Education: Promises and Implications for Teaching and Learning	OECD / Brookings	Literature review	https://www.oecd.org/education/artificial-intelligence-education.pdf
27	Williamson, B. & Eynon, R.	2020	Historical threads, missing links, and future directions in AI in education	Learning, Media and Technology	Critical review	https://doi.org/10.1080/17439884.2020.1798995
28	Floridi, L. et al.	2020	AI4People—An Ethical Framework for a Good AI Society	Minds and Machines	Literature review	https://doi.org/10.1007/s11023-018-9482-5
29	Jobin, A., Ienca, M., Vayena, E.	2020	The global landscape of AI ethics guidelines	Nature Machine Intelligence	Systematic review	https://doi.org/10.1038/s42256-019-0088-2
30	European Commission	2020	Ethics Guidelines for Trustworthy AI	European Union	Qualitative policy document	https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai

III. Results

The analysis of the 30 selected articles identified a set of emerging categories that structure the current state of knowledge regarding ethical governance and decision-making with artificial intelligence in educational management. These categories do not represent a simple description of the reviewed studies, but rather a process of integration and thematic synthesis that highlights recurring patterns, predominant approaches, and gaps in recent scientific literature. Based on the thematic analysis, four central categories were established: AI governance in education, ethics of artificial intelligence, automated decision-making, and international regulatory frameworks.

3.1 AI Governance in Education

The governance of artificial intelligence in the educational sphere is a key dimension for ensuring the responsible and effective use of these technologies. The analyzed studies agree that the implementation of AI in educational institutions requires the definition of institutional models to guide its adoption, oversight, and evaluation. In this regard, approaches have been identified that promote organizational structures based on accountability, the participation of key stakeholders, and the integration of ethical principles into decision-making (Papagiannidis et al., 2025; Batool et al., 2025). These models aim to ensure that AI does not operate in isolation, but rather as part of a coordinated and regulated management system.

Likewise, AI governance is closely linked to the need to establish international regulatory frameworks that guide its use in educational contexts. The literature shows that, while there are global initiatives aimed at regulating AI, their application in the educational sphere is still in its infancy and fragmented. This situation poses challenges for institutions, which must adapt general guidelines to their specific realities, often without clear guidance or sufficient resources for implementation.

3.2 Ethics of Artificial Intelligence

The ethical dimension is one of the most relevant aspects in the analysis of AI in education. The reviewed studies highlight the importance of ensuring transparency in the operation of algorithmic systems, so that decision-making processes can be understood, audited, and questioned by users (An et al., 2024; Fu et al., 2024). The opacity of algorithms poses a significant risk, especially when they influence decisions that affect students' access, retention, or assessment.

Another central aspect is algorithmic fairness, understood as the need to avoid biases in AI systems that could reproduce or amplify existing inequalities. The literature shows that algorithms, when trained on historical data, can incorporate discriminatory patterns that affect certain groups, raising significant ethical and social challenges (Bond et al., 2024). In this context, the need to develop inclusive AI systems that account for the diversity of educational contexts is emphasized.

Likewise, data protection emerges as a constant concern in the studies analyzed. The intensive use of personal information in AI systems requires robust security and privacy mechanisms, as well as clear policies regarding the use, storage, and access to data. The lack of regulation in this area can undermine user trust and limit the adoption of these technologies in educational settings (Yan et al., 2025).

3.3 Automated Decision-Making

The incorporation of AI into educational management has brought about a significant shift in decision-making processes by introducing tools capable of analyzing large volumes of data and generating automated recommendations. The reviewed studies agree that AI can act as a support system that improves the efficiency and accuracy of decisions, especially in areas such as academic planning, resource allocation, and student performance tracking (Wang et al., 2024).

However, a tension is also identified between the use of AI as a support tool and its potential as a substitute for human intervention. The literature warns that excessive reliance on automated systems may limit the critical capacity of educational administrators and reduce consideration of contextual factors that cannot be captured by algorithms (Wiese, 2025). In this regard, the need to maintain a balance between automation and human oversight is raised, ensuring that final decisions are informed by, but not exclusively determined by, technology.

Additionally, risks associated with automated decision-making are evident, such as a lack of transparency, the difficulty of auditing systems, and the potential delegation of responsibility to algorithms. These risks underscore the need to establish ethical and regulatory frameworks governing the use of AI in decision-making processes within educational institutions.

3.4 International Regulatory Frameworks

International regulatory frameworks are a fundamental component for guiding the governance and ethical use of AI in education. The studies analyzed highlight the role of organizations such as UNESCO, the European Union, and the OECD in formulating principles and guidelines that seek to promote the responsible development of AI. These initiatives establish guidelines related to transparency, equity, accountability, and the protection of human rights.

However, the literature also notes that there is a gap between the formulation of these regulatory frameworks and their effective implementation in educational contexts. Differences in institutional capacities, technological resources, and sociocultural contexts hinder the uniform adoption of these guidelines, especially in developing countries. In this regard, there is a need to adapt international frameworks to local realities, promoting contextualized approaches that address the specific needs of each education system.

Overall, the results show that the ethical governance of AI in educational management requires coordination among institutional models, ethical principles, decision-making processes, and regulatory frameworks, constituting a complex and constantly evolving field of study.

IV. Discussion

The reviewed literature agrees that artificial intelligence has become a strategic resource for educational management due to its ability to process data, anticipate institutional needs, and support decision-making. However, the studies also caution that its incorporation cannot be limited to a technical perspective, as it requires ethical, pedagogical, and normative criteria to guide its responsible use. On this point, authors such as Chen et al. (2020), Zhai et al. (2021), and Wang et al. (2024) recognize the value of AI in optimizing educational processes, while Fu et al. (2024), An et al. (2024), and Yan et al. (2025) emphasize that such progress must be accompanied by transparency, data protection, and algorithmic fairness.

A key finding is the consensus among studies regarding the need to strengthen AI governance in educational institutions. Batool et al. (2025) and Papagiannidis et al. (2025) argue that governance involves not only regulating the use of technologies, but also defining responsibilities, oversight mechanisms, and accountability criteria. This position relates to the theory of digital governance, which posits that any technology-mediated decision must be grounded in principles of control, participation, and institutional accountability. However, the literature shows that many institutions adopt AI tools without clear internal policies, creating a gap between regulatory discourse and actual educational practice.

There is also a tension between the benefits of automation and the risks of replacing human judgment in educational management. Some studies highlight that AI can improve efficiency in processes such as academic monitoring, risk prediction, and resource allocation (Chiu et al., 2022; Crompton & Burke, 2023). However, others warn that automated decisions can undermine equity if implemented without human oversight, especially when algorithms reproduce biases present in the source data (Bond et al., 2024; Wiese, 2025). This contradiction reveals that AI should be understood as a decision-making aid rather than a replacement for the educational administrator's pedagogical, ethical, and contextual judgment.

From the perspective of digital ethics, the reviewed studies highlight three central concerns: transparency, algorithmic fairness, and privacy. Transparency allows us to understand how AI systems work and the criteria by which they generate recommendations; algorithmic fairness seeks to prevent discrimination; and privacy protects the personal data of students, teachers, and families. In this vein, An et al. (2024), Fu et al. (2024), and Llerena-Izquierdo et al. (2025) agree that the ethical use of AI requires moving from general principles to concrete institutional protocols. However, there is still little evidence on how these principles are applied in public schools or educational systems with technological limitations.

Regarding international regulatory frameworks, the literature acknowledges the contributions of organizations such as UNESCO, the European Union, and the OECD, which have promoted principles aimed at human-centered, transparent, and responsible AI. These frameworks offer important guidance for education systems, but they do not always succeed in addressing the specificities of each context. Indeed, while some studies highlight the value of international guidelines as a normative foundation (Mahrishi et al., 2025; Ferjani et al., 2025), others note that their application may be limited when institutions lack sufficient technical capabilities, teacher training, or digital infrastructure. Therefore, international regulation needs to be adapted to local conditions.

Another identified gap is the scarcity of scientific research focused on Latin American contexts, particularly in public educational institutions. Most research originates from European, Asian, or North American settings, where there are greater advancements in digital infrastructure and technological regulation. This situation limits our understanding of how AI is implemented in educational contexts marked by connectivity gaps, social inequality, and low levels of digital literacy. Consequently, research in Latin America must be expanded to develop contextualized, relevant, and sustainable models of ethical governance.

Finally, the review confirms that the ethical governance of AI in educational management constitutes an emerging field that requires the integration of technology, ethics, educational policy, and institutional management. While there is consensus on the need for regulation, a gap still persists between theoretical frameworks and their practical application. Therefore, the main challenge is not only to incorporate AI into education but to ensure that its use strengthens equity, transparency, and the quality of educational decisions. Thus, AI must be positioned as a tool at the service of humanized educational management, and not as an automatic mechanism that replaces the professional responsibility of educational actors.

V. Conclusions

The systematic review identified that the ethical governance of artificial intelligence in educational management is an indispensable component for ensuring its responsible, relevant, and quality-oriented use. The findings show that AI offers high potential for optimizing decision-making, especially through data analysis and process automation; however, its effective implementation depends on the existence of regulatory, institutional, and ethical frameworks that govern its use in educational contexts.

Regarding the study's objective, it is concluded that ethical governance and decision-making with artificial intelligence in educational management are closely conditioned by the articulation between ethical principles, institutional management models, and international regulatory frameworks. The analyzed literature demonstrates that, while there have been significant advances in the formulation of global guidelines, a significant gap persists between these guidelines and their practical application in educational institutions, especially in contexts with technological and regulatory limitations.

Likewise, it was identified that the main challenges associated with the use of AI in education center on system transparency, algorithmic fairness, and data protection. These elements constitute fundamental pillars for avoiding risks such as bias, discrimination, and automated decision-making without human oversight. In this regard, the evidence suggests that AI should be conceived as a tool to support educational management, and not as a substitute for the professional, ethical, and pedagogical judgment of the stakeholders involved.

From a theoretical perspective, the research contributes to the field of knowledge by integrating three dimensions that are often addressed in a fragmented manner: governance, ethics, and decision-making in artificial intelligence contexts. This integration allows for a broader understanding of the phenomenon's complexity and opens new lines of research aimed at deepening its application in specific contexts, particularly in Latin America.

Regarding the implications for educational management, the results suggest the need to design and implement institutional policies that regulate the use of AI, promoting principles of transparency, equity, and accountability. Likewise, it is essential to strengthen the training of educational managers in digital and ethical competencies, in order to ensure informed and critical decision-making. Finally, it is recommended that international regulatory frameworks be adapted to local realities, promoting contextualized governance that responds to the specific needs and challenges of each education system.

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