IJEMD-SS, 5 (4) (2026) https://doi.org/10.54938/ijemdss.2026.05.4.811

International Journal of Emerging Multidisciplinaries: Social Science

Research Paper
Journal Homepage: www.ojs.ijemd.com
ISSN (Online): 2958-0277

Exploring the Use of Artificial Intelligence in Education: Ethical Considerations and Responsible Use of AI in the Digital Educational Learning Environment

1. Hiba Syed, 2. Dr. Abdullah Ghunio, 3. Muhammad Usman Jamal,

4. Sana Deedar, 5. Kaleem Mustafa

1. PhD Scholar, Department of Public Administration, University of Karachi, Pakistan

hibasyed774@gmail.com

2. (PhD in Education) IT/Computer Science Teacher BPS-17, SE&LD Govt of Sindh Karachi, Pakistan

phdghunio@gmail.com

3. M.Phil Scholar, University of Karachi, Pakistan

usmanjamal44@gmail.com

4. Research Scholar MBA, City University of Seattle

Sanadeedar8799@gmail.com

5. PhD Scholar, Department of Public Administration, University of Karachi & Visiting Faculty, NUML University Karachi Campus, Pakistan

kmustafa@numl.edu.pk

Abstract

By leveraging AI on online platforms, educational institutions underwent a complete overhaul of their teaching processes and organizational activities. The paper explores ethical considerations and governance issues related to the implementation of AI in educational settings, emphasizing the importance of responsible and equitable usage. The research design is qualitative, involving a rigorous examination of current literature, policy reports, and case studies about the application of

AI in educational contexts.The analysis presents essential risk-ethical considerations and assesses the existing governance strategies in the context of digital learning. The technologies based on AI offer an opportunity to enhance the individualization of education, its availability, and effectiveness. The research findings demonstrate that these developments create major privacy issues, together with algorithmic bias and a lack of transparency and accountability. The implementations of these systems do not establish specific ethical standards that require proper oversight and control mechanisms. The insights can be used to highlight the significance of collaborative policies between educators, policy makers, and developers of technological solutions to support teaching and learning in student-centered learning. The authors summarize that the indispensable components to integrate AI responsibly are opaque algorithms, solid policies to protect the data, ethical principles, and human control of AI. The steps need to be implemented to establish fairness, together with inclusiveness and trust, which will improve AI-enabled learning systems that support digital transformation in education through sustainable and responsible methods.

Keywords: Artificial Intelligence in Education, Ethical AI Governance, Digital Learning Environments, Data Privacy, Algorithmic Bias, Responsible AI

1. Introduction

The use of artificial intelligence (AI) is swiftly altering educational contexts, introducing new approaches for students to gain knowledge and undergo assessments in online learning environments. Educational institutions now adopt AI systems which provide new ways to achieve personalized learning experiences and operational efficiency and system expansion (Holmes et al., 2019; OECD, 2021). Educational institutions use data analytics combined with machine learning algorithms to create personalized learning experiences which help students learn better while teachers adopt more effective teaching methods (Zawacki-Richter et al., 2019; Chen, 2024). The current educational changes represent an extreme transformation which moves educational institutions away from traditional teaching methods toward modern educational approaches based on real-time data and adaptive learning techniques (UNESCO, 2021).

In addition to the personalization, AI technologies help to increase access and participation in education. Virtual learning assistants, predictive analytics, and gamified platforms help to provide

continuous feedback structures, self-paced learning, and reduce administrative overhead on educators (Holmes et al., 2022; OECD, 2023). These innovations are long familiar to improve the learning outcomes and simplifying the decision-making process in institutions (UNESCO, 2023; Isaifan et al., 2025). In this regard, AI is becoming all the more put forth as a revolutionary tool that could hold the answer to long-standing problems in the education sector, such as the disparity in learning performance and the lack of resources (Chen, 2024; OECD, 2021).

However, there are no ethical or governance concerns that can allow introducing AI into educational systems. The widespread application of student information to train and use AI systems creates significant concerns regarding data privacy, surveillance, and informed consent (UNESCO, 2021; Nguyen et al., 2023). Furthermore, the algorithmic decision-making process can also recreate or even increase the current social disparities, and this is especially true when the training data is based on biased or incomplete representations (OECD, 2021; Kaşarcı et al., 2025). Issues of transparency and explainability also make the use of AI in education more challenging since most systems are black boxes, which prevents stakeholders from understanding or appealing automated decisions (Nguyen et al., 2023; Isaifan et al., 2025). Moreover, the growing dependence on AI technologies also brings up the issue of autonomy among students, the role of teachers changing, and human judgment in the pedagogical setting being eroded (UNESCO, 2021; Holmes et al., 2022).

Although scholars are increasingly focused on the potentials and threats of AI in education, there is still a gap in coherent and context-sensitive ethical governance frameworks to inform the responsible use of AI (Mochizuki et al., 2025; Komarudin, 2025). Current strategies tend to focus on the broad concepts of ethical AI and fail to consider the institutional, pedagogical, and sociocultural aspects of education settings (UNESCO, 2021; OECD, 2023). Moreover, the incomplete character of existing governance systems demonstrates the lack of cohesion between the major stakeholders, such as educators, policymakers, and technology developers, which weakens the attempts to make governance accountable and deliver equal results (Roumate, 2023; Soko, 2025).

In order to resolve those concerns, the current research paper will critically examine the ethical considerations of the introduction of AI in the field of education and evaluate the existing governance policies in the digital education sphere. The research fulfills the following aims:

1. To analyze the role of AI-driven technologies in shaping learning experiences, student autonomy, and decision-making processes within digital learning environments.
2. To assess the core ethical risks associated with AI in education, focusing on concerns related to data privacy, algorithmic bias, and issues of transparency and accountability.
3. To evaluates current ethical governance frameworks and policy approaches which direct AI implementation in educational settings.
4. To examine the gaps and limitations in current governance mechanisms, particularly in relation to implementation, oversight, and stakeholder coordination.
5. To propose a comprehensive and context-sensitive ethical governance framework that promotes responsible, transparent, and equitable use of AI in education.

2. Literature Review

2.1. AI in Education: Concepts and Applications

Artificial intelligence has brought significant changes to education by affecting how teaching is delivered, the learning environments, and the administrative functions of schools (Holmes et al., 2019; OECD, 2021).Adaptive learning systems, intelligent tutoring systems, automated assessment tools, and learning analytics are considered AI in education (AIED) (Zawacki-Richter et al., 2019; Nguyen et al., 2023). Such technologies involve machine learning and data analytics to simulate learner behavior, predict performance, and provide individualized content (UNESCO, 2023).

Adaptive systems dynamically modify content according to interactions with students, whereas intelligent tutoring systems approximate personalized instruction by providing real-time feedback (Holmes et al., 2019). Learning analytics also contributes to data-driven teaching through monitoring the performance trends (OECD, 2021). Nevertheless, researchers warn that the growing use of data-driven systems leads to the issue of surveillance, control, and the changing relationships between teachers and students (Holmes et al., 2022; UNESCO, 2021).

2.2. Benefits and Transformative Potential of AI

AI can be used to improve personalization, access, and efficiency in education (OECD, 2021; UNESCO, 2023). It allows personalized learning that enhances engagement and academic performance, in contrast to the standardized model of teaching (Zawacki-Richter et al., 2019). There is also the widening of access with AI, including speech recognition and automated translation, and lessening the administrative load on educators (Holmes et al., 2022).

Although these benefits exist, researchers note that the value of AI should be evaluated not only in the context of efficiency but also with a consideration of other principles of education, including equity, inclusivity, and human agency (UNESCO, 2021). It poses a significant conflict between the optimization of technologies and ethical accountability (Nguyen et al., 2023).

2.3. Ethical Challenges in AI-Driven Education

The use of AI brings up some critical ethical issues. One of the primary concerns is data privacy because AI systems utilize a large amount of student information, which brings up the question of consent, ownership, and misuse (UNESCO, 2021; OECD, 2021). There is also a risk of reinstating the inequalities through algorithmic bias, especially in case the systems are trained on biased datasets (Nguyen et al., 2023).

Black-box systems minimize transparency and explainability and lower trust and accountability (UNESCO, 2021). Furthermore, more intensive use of AI is associated with the threat to the autonomy of students and the role of teachers, which may limit critical thinking and change the power of teaching (Holmes et al., 2022). These issues bring out the importance of context-sensitive ethical practices.

2.4. Ethical Governance and Policy Frameworks

International bodies have established AI ethics principles that focus on fair, accountable, transparent, and private information and human control (OECD, 2019; UNESCO, 2021).

Nonetheless, these frameworks can be rather general and not enforceable, which restricts their applicability in schools (Mochizuki et al., 2025).

Fragmentation among the stakeholders also serves to undermine governance by creating inconsistency in the implementation and poor accountability (Roumate, 2023). Therefore, the understanding that governance should be effective, context-specific, and practically enforceable is gaining momentum (Nguyen et al., 2023).

2.5. Research Gap

Although research is on the increase, there are some gaps. Current literature concentrates on technological advantages, and ethical issues are usually discussed separately. No context-specific governance models of education exist, and most of the frameworks are abstract and unrealistic.

Additionally, little interest is taken in the way the governance mechanisms operate in practice, specifically in terms of effectiveness and enforcement. The stakeholder roles are also addressed separately, and little emphasis is given to their interdependence. To deal with these gaps, there is a need to have an integrated and context-sensitive approach to ethical AI governance in education.

3. Methodology

This paper uses a qualitative research design that will involve a systematic review of scholarly publications, policy reports and case-based evidence to explore ethical issues and governance models of artificial intelligence in education. The databases used to gather data included Google Scholar, Scopus, and Web of Science and were searched using keywords related to AI in the education field (e.g., AI in education, ethical AI, AI governance and algorithmic bias).

It was screened in a structured manner to make sure it was relevant and of quality. The pre-selected inclusion and exclusion criteria were used to select studies (Table 1). The process of selection included title and abstract screening and then the analysis of the full-text, leading to a narrowed body of literature.

Thematic analysis was used to analyze the data to highlight the common patterns connected with the major ethical issues, such as data privacy, bias, transparency, and accountability. This

methodology allowed applying a critical synthesis to the available governance frameworks and limitations.

Although the study maintains methodological rigor by being systematic in its selection and analysis of issues, it has limitations due to the use of secondary data and the extent of literature available.

Table 1: Study Selection Criteria

Criteria Type	Inclusion Criteria	Exclusion Criteria
Publication Type	Peer-reviewed articles, policy reports, scholarly works	Blogs, opinion pieces, non-academic sources
Time Frame	Studies published between 2018–2025	Studies published before 2018
Focus Area	AI in education with an ethical or governance focus	Purely technical AI studies without an ethical context
Relevance	Direct relevance to digital learning environments	Irrelevant sectors (e.g., healthcare-only AI)
Quality	Indexed and credible academic sources	Low-quality or non-verified publications

4. Discussion and Analysis

4.1. AI-Driven Opportunities Versus Ethical Risks

The harnessing of artificial intelligence in the learning sector is an interdependent relationship between the transformative opportunities and the new ethical threats. On the one hand, AI-based systems will help to increase the level of customization, introduce adaptive learning channels, and support the use of data in the decision-making process and overcome the long-standing lack of efficiency of the traditional educational system (Zawacki-Richter et al., 2019; OECD, 2021). These technologies will help it monitor the performance of students in real-time, record the learning gaps in real-time, and give the learners individual instructions that will enable them to improve academic performance and student engagement (Holmes et al., 2019).

The advantages, however, are also closely related to the large-scale gathering of the data and analysis of the algorithms themselves, which also pose significant ethical risks. The privacy issues are also caused by the same processes that lead to personalization and surveillance, exploitation of data, and loss of privacy of learners (UNESCO, 2021; Nguyen et al., 2023). The present situation shows two opposing sides which demonstrate a major battle between two different resources for educational AI technology. The worth of AI systems needs assessment through their performance yet their evaluation should focus on their ethical value and their complete effect on educational equity and student freedom (Holmes et al. 2022).

4.2. Critical Evaluation of Ethical Challenges

One of the acute problems is the problem of data privacy because AI systems are built on the basis of constant extraction and analysis of sensitive personal information of students, their behavioral patterns, performance history, and personal identifiers (UNESCO, 2021; OECD, 2021). In most instances, learners are unknowledgeable of the scope of their data gathering and use, which poses a concern over informed consent and institutional responsibility (Nguyen et al., 2023). The vulnerability to the threat of abuse, unauthorized access, and commercialization of educational data is further contributed to by the lack of effective data protection systems (Chen, 2024).

Another serious issue is algorithmic bias, and the prospects of fairness and inclusiveness are quite high. The results of AI systems that are taught using historically biased or incomplete data can have a systematic negative impact on specific groups of students, especially students of marginalized backgrounds (Nguyen et al., 2023; Kaşarcı et al., 2025). One such tool is predictive analytics to assess the performance of students or prescribe learning paths that can consciously or unconsciously support already existing disparities by prioritizing the most common learning patterns and ignoring the multiplicity of mental and cultural backgrounds (OECD, 2021).

Transparency is another issue that complicates ethical accountability. Most AI systems are opaque black boxes, which means that stakeholders have restrictions on comprehending how decisions are produced (UNESCO, 2021). This inexplicability results in a loss of trust and restrictions in the ability of teachers and learners to challenge or distrust automated results (Nguyen et al., 2023). This lack of clarity carries with it a serious point of concern as far as education is concerned, where

assessment and feedback play a crucial role in establishing academic paths, and the issue of equity and procedural fairness is brought up.

Besides, another issue that the increasing reliance on AI technologies raises is the issue of student autonomy and the shifting role of teachers. Although AI can help in the process of self-directed learning, overreliance on automated suggestions can limit autonomy of thought and diminish chances of critical interaction (Holmes et al., 2022). Meanwhile, the teachers are able to experience a shift in professional authority, with the algorithmic processes gaining even greater influence over the teaching and assessment procedures (UNESCO, 2023). The re-designing of the roles underlines the need to provide a balance between the technological support and human decision-making in education.

4.3. Limitations of Existing Governance Frameworks

Although these ethical issues are increasingly acknowledged, existing governance frameworks are not adequately prepared to cope with the intricacies of AI integration in education. The existing policies are mostly based on the high-level ethical standards, such as fairness, accountability, and transparency, but they are often not operationalized and lack enforcement mechanisms (UNESCO, 2021; OECD, 2019). Thus, a big disconnect between normative guidelines and real practice in educational institutions occurs (Mochizuki et al., 2025).

Some of the key weaknesses of the current models of governance are that they are general. The development of ethical frameworks is usually done on a high, cross-sectoral level with inadequate consideration of the specifics of the educational setting (OECD, 2023). These include the special relation of power in institutions or students, exposure of students to growth and how the pedagogy is affected by algorithmic decision-making. As a result, these frameworks do not offer practical guidelines that are based on the realities of teaching practice (Komarudin, 2025).

In addition, such governance initiatives are likely to be decentralized to several actors, including policymakers, educational establishments, and technology developers (Roumate, 2023). The result of such disintegration is inconsistencies in the regulatory standards, inefficiency of systems of accountability, and regulatory gaps (Soko, 2025). Ethical compliance is usually decentralized, and

it is difficult to know who would be in charge of the ethical compliance issues, such as bias, misuse of data or system failures (Kaşarcı et al., 2025).

The other major disadvantage is that the present governance systems are reactive in nature. Policies and regulations are especially tracked behind technological advancements, which are not determined by potential risks (OECD, 2021). The time gap between innovation and regulation results in a governance vacuum, in which AI systems are introduced in educational settings without proper ethical consideration or regulation (UNESCO, 2023). In turn, this may cause the institutions to adopt AI technologies that they lack a complete understanding of in the long-term, which further increases the likelihood of unforeseen consequences.

4.4. Stakeholder Gaps and Systemic Challenges

The governance of AI in education demands coordinated work of various stakeholders, but existing practices show that the stakeholders are not well aligned and do not collaborate (OECD, 2023). One such example is the educators who frequently turn into end-users when it comes to AI systems, without actively engaging in the design or implementation of AI systems themselves (Holmes et al., 2022). This restricts their capacity to evaluate the pedagogical soundness of such technologies and intervene in case of ethical issues involved.

Quite to the contrary, policymakers find it difficult to produce regulatory frameworks that can keep pace with the rapidly evolving technology. Such a lack of technical skills and cross-disciplinary coordination can result in excessively broad or too narrow responsive policies in relation to emerging risks (UNESCO, 2021). Similarly, the developers of technologies can focus on the notion of innovation and efficiency instead of prioritizing ethical considerations, particularly in the competitive market, where speed and scalability are of priority (OECD, 2021).

These issues at the system-wide level contribute to the importance of a more unified approach to governance that will allow developing cooperation between stakeholders and an appropriate accountability system (Roumate, 2023). Devoid of this kind of coordination, attempts to control AI in education will be uncoordinated and ineffective, eventually compromising the objective of responsible and equitable technological integration.

Collectively, the discussion highlights the fact that the ethical concerns related to AI in education are not purely technical problems but are ingrained within the larger institutional, social, and

governance frameworks (Mochizuki et al., 2025). The specified challenges complicate the transition into fragmented and reactive governance strategies to more proactive, context-specific and collaborative governance (UNESCO, 2021; OECD, 2023).

5. Proposed Ethical Governance Framework for AI in Education

This research paper seeks to develop an ethical governance model that emphasizes the importance of understanding the context and fully grasping ethical principles to oversee the use of artificial intelligence in educational settings. The structure transforms abstract ethical principles into practical implementation through its multi-level framework which connects essential values with stakeholder duties and operational systems of the organization.

5.1. Foundational Principles of Ethical AI Governance

This framework is anchored in five essential components that should be considered when creating, applying, and reviewing AI technologies within educational environments:

- **Transparency**: AI systems need to provide clear decision-making methods that educators and students can examine and question.
- **Accountability**: Established responsibility routes are essential to pinpoint the persons liable for outcomes that lead to damage or faults..
- **Fairness and Inclusivity**: AI systems should be designed to minimize bias and ensure equitable outcomes across diverse student populations.
- **Data Privacy and Protection**: Robust safeguards must be implemented to protect student data, including informed consent, secure storage, and limitations on data usage.
- **Human Oversight**: Human judgment must remain central to educational decision-making, with AI serving as a supportive tool rather than a replacement for educators.

These values form the normative base of systems of governance.

5.2. Multi-Stakeholder Governance Structure

The successful governance process demands the organized involvement of the most important stakeholders. This model has a strong focus on the above-defined roles and shared responsibility:

- **Educational Institutions**: Responsible for implementing ethical policies, monitoring AI use, and ensuring compliance with data protection standards.
- **Educators**: Act as critical mediators who interpret AI outputs, maintain pedagogical control, and safeguard student interests.
- **Policymakers and Regulators**: Develop context-specific regulations, enforce compliance, and provide oversight mechanisms.
- **Technology Developers**: Ensure ethical design practices, including bias mitigation, transparency features, and data security protocols.
- **Students and Users**: Participate as informed stakeholders with rights to data awareness, consent, and recourse mechanisms.

This collaborative model addresses the fragmentation observed in existing governance approaches.

5.3. Operational Mechanisms for Implementation

To translate ethical principles into practice, the framework proposes several actionable mechanisms:

- **Algorithmic Audits**: Regular evaluation of AI systems to detect bias, inaccuracies, and unintended consequences.
- **Data Governance Policies**: Clear guidelines on data collection, storage, access, and usage, aligned with privacy standards.
- **Transparency Protocols**: Implementation of explainable AI systems that allow users to understand decision-making processes.
- **Ethical Training Programs**: Capacity-building initiatives for educators and administrators to effectively engage with AI technologies.
- **Feedback and Redress Systems**: Mechanisms enabling students and educators to challenge AI-generated decisions and report concerns.

5.4. Conceptual Model of Ethical AI Governance in Education

The suggested framework can be seen as a unified system that connects foundational principles, involved parties, and functional processes:

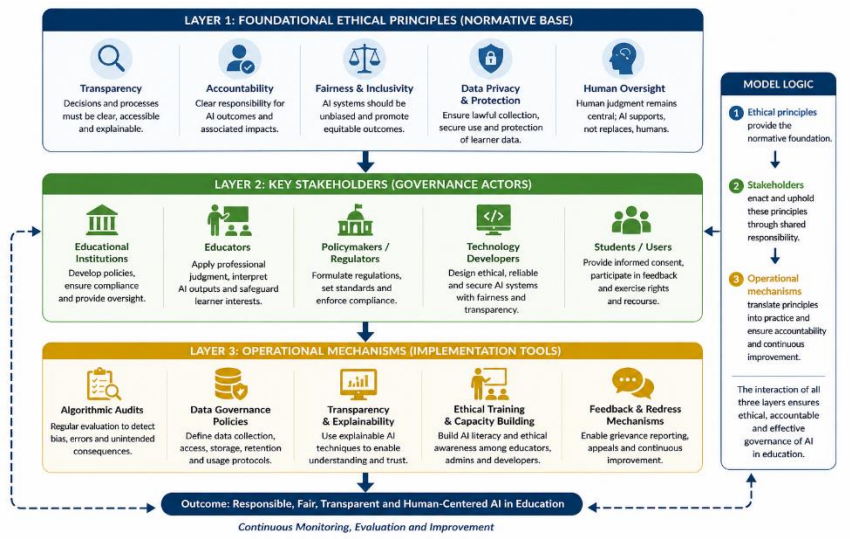

Figure 1: Structural model of ethical AI governance in education

5.5. Towards Responsible and Sustainable AI Integration

The proposed framework emphasizes two aspects to consider regarding ethical governance, namely: ethical governance is not part of an established code of rules, but a dynamic process that must respond to changes in technology. The model integrates normative principles and practicalapproaches with stakeholder partnering as a solution to the weaknesses of existing approaches that are usually either disjointed, reactive or too abstract.

Particularly, this model emphasizes the need to consider the incorporation of ethics in the entire lifecycle of AI systems: designing and developing, deploying and assessing. This will not make ethical considerations appear as some outside restriction, but they will be a part of the creativity in the sphere of education.

And lastly, the framework advances a vision of AI in education that is effective, data-driven, yet also fair, transparent and human. It is a guideline that policy-makers, educators and developers can collaborate to find solutions to ethical issues of AI adoption without compromising the cornerstones of the educational process.

6. Conclusion

Artificial intelligence implementation in educational settings creates an innovative educational system which has the ability to improve student learning and institutional operational effectiveness. This study shows that the new technological developments bring complicated ethical challenges which include the possibility of data privacy violations and algorithmic prejudice together with undisclosed information and emerging challenges in determining responsibility and human control. The issues mentioned above indicate that the problems of integrating AI in education are not a technological change but are more of an ethical and governance-based process. The current governance systems base their operations on essential ethical principles yet they remain divided and they handle educational requirements in a broad manner which fails to meet particular demands of educational institutions. It is in this context that the importance of more coherent, context-sensitive and enforceable governance strategies that will bring technological innovation in line with the values of education is introduced.

To this end, this paper suggested a holistic approach to regulation of ethics by incorporating the principles, the stakeholder partnership and the actual implementation strategies. The frame that adapts to transparency, accountability, fairness, data protection and human control provides a systematized approach of responsible AI use in education.

The question of how sustainability and fair use of AI in education can be achieved, then, is the capacity of the institutions to change their approach to governance to a more proactive and collaborative approach. To become successful in the long-term and establish a trusting relationship, it is crucial to make sure that digital learning environments do not lose the human factor.

7. Limitations

The current research is based on secondary data in the literature and policy documents that may be subject to publication bias and is not diverse in context. In addition, the absence of primary empirical data also restricts the insight into the real-world implementation and institutional practices.

References

[1] Chen, H. (2024). *The ethical challenges of educational artificial intelligence and coping measures*. *Science Insights Education Frontiers*. https://www.bonoi.org/index.php/sief/article/view/1293

[2] Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promises and implications for teaching and learning*. Center for Curriculum Redesign. https://curriculumredesign.org

[3] Holmes, W., Persson, J., Chounta, I. A., Wasson, B., & Dimitrova, V. (2022). *Artificial intelligence and education: A critical view through the lens of human rights, democracy and the rule of law*. Council of Europe.

[4] Isaifan, R. J., Tawalbeh, A., & Hasna, M. O. (2025). From principles to practice: A novel matrix for evaluating AI-powered learning platforms based on the UNESCO Ethical Impact Assessment tool. *Frontiers in Education, 10*, 1640780. https://doi.org/10.3389/feduc.2025.1640780

[5] Kaşarcı, İ., Demircan, Z. A., Ercan, G. Ç., & İnci, T. (2025). Managing artificial intelligence ethics in higher education: A systematic framework. *International Journal of Current Educational Studies*. https://doi.org/10.46328/ijces.223

[6] Komarudin, K. (2025). Ethics and governance of AI in education: Balancing innovation and accountability. *International Journal of Social Research, 3*(4), 177–189.

[7] Mochizuki, Y., Bruillard, E., & Bryan, A. (2025). The ethics of AI or techno-solutionism? UNESCO's policy guidance on AI in education. *British Journal of Sociology of Education*, 1–22. https://doi.org/10.1080/01425692.2025.2502808

[8] Nguyen, A., Ngo, H. N., Hong, Y., et al. (2023). Ethical principles for artificial intelligence in education. *Education and Information Technologies, 28*, 4221–4241. https://doi.org/10.1007/s10639-022-11316-w

[9] OECD. (2019). *OECD principles on artificial intelligence*. OECD. https://oecd.ai

[10] OECD. (2021). *OECD digital education outlook 2021*. OECD Publishing. https://doi.org/10.1787/589b283f-en

[11] OECD. (2023). *AI in education: Policy perspectives*. OECD Publishing. https://www.oecd.org

[12] Roumate, F. (2023). Ethics of artificial intelligence, higher education, and scientific research. In F. Roumate (Ed.), *Artificial intelligence in higher education and scientific research. Bridging human and machine: Future education with intelligence*. Springer. https://doi.org/10.1007/978-981-19-8641-3_10

[13] Soko, J. J. (2025). Ethical concerns and institutional policy responses to AI in higher education. *Journal of the Kenya National Commission for UNESCO*. https://doi.org/10.62049/jkncu.v5i1.426

[14] UNESCO. (2021). *Recommendation on the ethics of artificial intelligence*. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000381137

[15] UNESCO. (2023). *Guidance for generative AI in education and research*. UNESCO. https://doi.org/10.54675/EWZM9535

[16] Zawacki-Richter, O., Marín, V. I., Bond, M., et al. (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*, 39. https://doi.org/10.1186/s41239-019-0171-0