



Towards a Digital Humanism: A Critical Analysis of Ethical Dimensions in UNESCO's AI Frameworks (2021–2025)

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KEYWORDS: UNESCO; artificial intelligence; digital humanism; educational ethics; sustainability; ecopedagogy; educational governance.

ABSTRACT: This article presents a critical analysis of UNESCO's normative frameworks on artificial intelligence (AI) and education produced between 2021 and 2025. Drawing upon four key documents — the *Recommendation on the Ethics of Artificial Intelligence* (2021), the *Guidance for Generative AI in Education and Research* (2024) and the *AI Competency Frameworks for Teachers and for Learners* (2025) — the study examines how UNESCO's human-centred approach redefines the ethical and pedagogical foundations of education in the digital age. Using qualitative documentary analysis, it explores the evolution of UNESCO's discourse from a declarative and normative ethics to a pedagogical and operational one. The findings reveal that the recent frameworks translate universal human values — such as dignity, inclusion, justice, and sustainability — into observable educational competences that transform both teaching and learning practices. Teachers are redefined as ethical mediators and learners as reflective citizens, capable of co-creating responsible intelligences. The discussion introduces the concept of an *ecopedagogy of intelligence*, linking ethics and sustainability within digital education. By aligning ethical AI with the Sustainable Development Goals (SDGs 4, 10, 13 and 16), UNESCO proposes a model of *digital humanism* grounded in human dignity, ecological awareness, and collective responsibility.

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1. INTRODUCTION: ETHICS AND HUMANISM IN THE AGE OF ARTIFICIAL INTELLIGENCE

Between 2021 and 2025, UNESCO published a coherent set of normative texts that define the ethical governance of artificial intelligence in education. These include the *Recommendation on the Ethics of Artificial Intelligence* (2021), the *Guidance for Generative AI in Education and Research* (2024), and the *AI Competency Frameworks for Teachers and for Learners* (2025). Together, they form an international architecture that places technology at the service of human dignity, inclusion, justice, and sustainability. UNESCO's approach departs from technocentric visions of digital transformation and situates the ethical dimension of AI as the foundation of a new educational humanism.

Artificial intelligence has become increasingly embedded in education, influencing how knowledge is created, mediated, and evaluated. Adaptive learning systems, algorithmic assessment, and generative tools are reshaping pedagogical practices. However, UNESCO insists that the purpose of education must remain fundamentally human: technology should enhance, not replace, critical thought, creativity, and responsibility. In this context, the challenge is not merely to integrate AI into classrooms but to learn *with* AI in ways that reinforce autonomy and ethical awareness. The present article explores this transformation, analysing how UNESCO's discourse redefines the roles of teachers and learners and how it operationalises ethical principles into educational competences. It advances the hypothesis that UNESCO's recent corpus marks a shift from normative declarations to a performative pedagogy of ethics, laying the groundwork for what can be described as a new form of *digital humanism*.

2. HYPOTHESIS AND OBJECTIVES

The central hypothesis of this study is that UNESCO's normative corpus on artificial intelligence between 2021 and 2025 embodies a new model of digital humanism by translating abstract ethical principles into measurable and observable competences for teachers and learners. This evolution signals a movement from declarative ethics, based on universal norms, to a form of applied ethics

embedded in professional and educational practice. The objective is to understand how this translation occurs and what it reveals about the relationship between human agency, technology, and education. The study aims to examine the continuity between UNESCO's ethical recommendations and its pedagogical frameworks, to interpret how ethical values are rearticulated as competences and to discuss the implications of this transformation for educational governance and professional identity. More broadly, the research seeks to conceptualise how these developments contribute to the emergence of a global pedagogy of responsibility.

3. METHODOLOGY

This work adopts a qualitative comparative documentary analysis of four UNESCO publications produced between 2021 and 2025. The corpus comprises the *Recommendation on the Ethics of Artificial Intelligence* (2021), the *Guidance for Generative AI in Education and Research* (2024), and the *AI Competency Frameworks for Teachers and for Learners* (2025). These texts were selected because they represent the most explicit and sequential articulation of UNESCO's vision of AI in education, moving from ethical principle to pedagogical implementation.

The analysis follows an interpretative logic, seeking to identify key conceptual patterns and their evolution across the documents. The reading focused on three interconnected dimensions: the ethical (dignity, justice, inclusion, sustainability), the pedagogical (teacher mediation, learner agency, critical and creative thinking) and the ecological (digital responsibility, environmental awareness, and sustainability). The interpretation combined thematic coding with lexical observation of recurring terms such as "human-centred", "responsibility", "justice" and "sustainability", which serve as indicators of conceptual coherence. The approach remains qualitative, yet systematically comparative, enabling the identification of a discursive progression from normative declaration to pedagogical application.

Validation of the interpretation was achieved through triangulation with existing literature on AI ethics in education, including key theoretical references from Luckin (2018), Selwyn (2022) and Knox (2023). The analysis aligns with UNESCO's ethical framework and the United Nations Sustainable Development Goals, ensuring coherence between conceptual categories and international normative references.

4. RESULTS

The analysis reveals a profound transformation of UNESCO's discourse between 2021 and 2025. The *Recommendation on the Ethics of Artificial Intelligence* (2021) defines ethics as a normative condition for technological legitimacy, emphasising human dignity, justice and environmental sustainability. However, this ethical vision remains primarily declarative and abstract. The later frameworks of 2024 and 2025 translate these universal values into pedagogical structures, demonstrating an evolution towards operational ethics. In this model, ethics becomes not only a principle to respect but also a competence to acquire and demonstrate through educational practice.

The *AI Competency Framework for Teachers* (2025) redefines the teacher as an ethical mediator and architect of meaning within the digital ecosystem. The teacher's role extends beyond the transmission of knowledge to include the cultivation of critical awareness, discernment and empathy in the use of technology. Educators are expected to understand the functioning and social implications of algorithms, to anticipate their potential biases and to integrate ethical reflection into the design of learning environments. This conception positions teachers as custodians of human responsibility and moral judgement, ensuring that the use of technology remains subordinate to pedagogical and ethical purposes.

In parallel, the *AI Competency Framework for Learners* (2025) constructs a complementary profile of the learner as a reflective citizen and co-creator of knowledge. The framework envisions learners who can understand, question and redesign technological systems in light of human values. Education is no longer limited to mastering tools but involves developing ethical and ecological awareness, as well as agency within complex digital environments. Learners are encouraged to act responsibly, to analyse the societal and environmental consequences of AI, and to contribute actively to sustainable innovation. In this sense, the frameworks collectively redefine education as an exercise in applied ethics, where the development of competences is inseparable from the cultivation of conscience.

Across the four documents, the notion of a "human-centred AI" emerges as a unifying principle. This concept, articulated in 2021 and reiterated throughout 2024 and 2025, establishes a hierarchy between technology and ethics: technological progress acquires legitimacy only if it serves human flourishing and collective well-being. The repetition of expressions such as "human-centred" and "rights-based" reveals a deliberate rhetorical strategy to anchor UNESCO's policy discourse in an ethical epistemology. The result is the formulation of a coherent paradigm of *digital humanism*, which integrates technological innovation within a framework of human dignity, justice and sustainability.

5. DISCUSSION

UNESCO's recent frameworks represent a decisive turning point in the governance of educational technologies. The transition from abstract principles to actionable competences signifies a pedagogical appropriation of ethics. Ethics ceases to be an external constraint on technology and becomes an intrinsic dimension of professional practice. In this sense, UNESCO achieves what can

be described as an operationalisation of ethics, in which ethical reflection is not simply taught but enacted through pedagogical action.

This evolution also reveals a new conception of educational responsibility. The teacher is no longer the exclusive bearer of knowledge but a mediator of critical and ethical interactions between humans and machines. The learner, similarly, is not a passive recipient of technological systems but an active participant in their ethical shaping. Together, they inhabit an ecosystem of shared agency, where human and artificial intelligences collaborate under the guidance of moral and ecological imperatives. This relational model echoes Luckin's (2018) idea of "intelligence augmentation", which sees technology as a partner in extending human capabilities rather than a substitute for them.

The dialectic between control and co-creation, central to UNESCO's discourse, invites a reconsideration of how authority and autonomy are distributed in the digital classroom. Rather than opposing human freedom to algorithmic determination, UNESCO suggests that co-responsibility should govern the interaction between educators, learners and machines. Knox's (2023) concept of postdigital ethics resonates here: human-technology relations must be understood as dynamic, negotiated and ethically situated. Such a view resists both the utopian and dystopian extremes that dominate public debate about AI. It reclaims the possibility of a critical yet constructive humanism adapted to the conditions of digital modernity.

Another significant dimension of UNESCO's framework is its ecological sensitivity. The *Recommendation on the Ethics of AI* (2021) explicitly connects technological ethics with environmental sustainability, warning of the ecological cost of digital infrastructures and data-intensive systems. This concern deepens in the 2025 frameworks, where sustainability is framed as both a learning objective and a guiding value. By introducing ecological awareness into AI education, UNESCO extends the ethical horizon beyond human relations to encompass the planet itself. The concept of an *ecopedagogy of intelligence* captures this synthesis: to educate ethically in the age of AI is to understand the environmental and social implications of our technological choices. This idea draws inspiration from Gadotti's (2000) and Sauv  s (2014) work on environmental education, adapted here to the context of digital ethics. The result is an eco-humanist vision that integrates ethical reflection, technological literacy and planetary responsibility.

The implications for teacher education are considerable. Training programmes must integrate AI ethics as a transversal component, combining technical understanding with philosophical reflection and environmental awareness. This requires the development of new curricula, research practices and institutional policies capable of evaluating the ethical impact of educational technologies. Selwyn (2022) has observed that digital education often becomes a site of automation and datafication; UNESCO's human-centred approach proposes an alternative pathway, where ethics and sustainability are the principal measures of innovation.

Ultimately, these frameworks suggest that education itself is the primary site of governance for artificial intelligence. Rather than regulating technology through external mechanisms alone, UNESCO proposes an *ethical pedagogy of governance*, in which every educational actor participates in shaping the moral direction of AI. This participatory model aligns with the Sustainable Development Goals and situates digital transformation within a wider project of social justice and ecological survival.

6. CONCLUSION

The critical examination of UNESCO's AI-related frameworks from 2021 to 2025 demonstrates a significant evolution in the organisation's understanding of the relationship between ethics, technology and education. The analysis confirms the initial hypothesis: UNESCO has moved from a normative conception of ethics to an operational and pedagogical one, effectively translating universal values into educational competences. This transformation defines the contours of a new digital humanism, in which teachers act as ethical mediators and learners as reflective citizens, and where technology becomes a partner in the co-creation of responsible knowledge.

The integration of sustainability within this ethical architecture marks the emergence of an *ecopedagogy of intelligence*, a perspective that recognises the interconnectedness of technological and ecological systems. Education, in this view, becomes a laboratory of conscience, dedicated not only to intellectual development but also to the cultivation of responsibility towards others and the planet. UNESCO's frameworks thus go beyond regulating artificial intelligence: they propose a redefinition of education itself as an ethical and creative practice of co-existence between human and artificial intelligences.

Future research should examine how these competences are implemented in national contexts and how they influence teacher training, curriculum design and institutional policies. Longitudinal studies could assess the impact of such ethical education on professional behaviour and student awareness. By extending its ethical vision into concrete pedagogical practices, UNESCO contributes not only to educational innovation but to the shaping of a global moral community capable of guiding technology towards the service of humanity and the Earth.

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