

New learning spaces between AI Literacy and educational experience: a pedagogical perspective

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Abstract: The growing integration of Artificial Intelligence into educational contexts is reshaping teaching practices and, more subtly, the conditions under which educational experience takes form. In contemporary debates, AI Literacy is often framed in terms of technical understanding or operational competence. While these dimensions are undoubtedly relevant, they tend to leave a central pedagogical question in the background: how is Artificial Intelligence actually experienced, interpreted, and made meaningful by learners within everyday educational practices? This article proposes an educational reinterpretation of AI Literacy grounded in the notion of educational experience. Drawing on John Dewey's reflections in *Experience and Education* (1938), learning is understood here as a dynamic process that unfolds through interaction with the environment and through the continuity of lived experience over time. From this perspective, Artificial Intelligence cannot be treated as a neutral or external tool. Rather, it becomes a constitutive element of contemporary learning environments, shaping meaning-making processes, participation, and learner agency—often in ways that remain implicit. AI Literacy is therefore interpreted not as a predefined set of skills, but as an experiential and reflective process that develops within concrete educational situations. The article concludes by emphasizing the role of intentional educational design in fostering reflective, inclusive, and meaningful learning experiences in AI-mediated learning spaces.

Keywords: AI Literacy; Educational Experience; Learning Environments; Education; Artificial Intelligence



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1. Introduction

Artificial Intelligence has progressively become a structural component of contemporary educational systems, determining instructional practices, assessment processes, and access to knowledge. Recommendation algorithms, adaptive platforms, generative tools, and data-driven decision-making systems are no longer marginal or experimental elements, but are increasingly embedded in the ordinary routines of teaching and learning. This widespread integration has reshaped educational environments, often through narratives centered on innovation, efficiency, and personalization (OECD, 2021; UNESCO, 2023; Williamson, 2017).

The introduction of Artificial Intelligence into education, however, does not merely entail the addition of new tools to pre-existing practices. Rather, it reconfig-

ures the conditions under which learning occurs, reshaping relationships between learners, knowledge, and environments. In doing so, it affects not only what is learned, but how learning is experienced, how agency is exercised, and how meaning is constructed within educational contexts (Selwyn, 2019; Williamson, 2017).

Beyond claims of technological progress, the educational use of Artificial Intelligence raises fundamental educational and epistemological questions. When algorithmic systems contribute to selecting, organizing, or generating educational content, they inevitably influence what is recognized as knowledge can be entitled. From an educational perspective, this shift calls for renewed attention to the experiential dimensions of learning, namely to the conditions through which learners encounter, interpret knowledge (Floridi, 2017; Selwyn, 2019).

Within this shifting landscape, the question of AI Literacy cannot be addressed not only as predefined competences or normative frameworks. It requires an educational inquiry to analyze how Artificial Intelligence is interpreted, and lived within everyday educational practices. From this standpoint, AI Literacy cannot be fully understood if it is separated from the concrete situations in which learners interact with AI as part of their educational environments (OECD, 2021; UNESCO, 2023).

2. AI Literacy: Definitions, Frameworks, and Critical Issues

In the international educational debate, AI Literacy is commonly described as the capacity to understand, use, and critically evaluate Artificial Intelligence systems. Frameworks developed by institutions and research communities emphasize knowledge of algorithms, data processes, and ethical implications, presenting AI Literacy as a key competence for participation in the contemporary digital societies.

While these approaches provide useful reference points, they also reveal significant limitations from an educational perspective. By relying on a competence-based logic, AI Literacy risks to be limited to a form of technical adaptation, oriented toward efficient interaction with intelligent systems rather than reflective educational growth (Calvani, 2011; Ranieri, Bruni, & Giannandrea, 2020).

A critical issue lies in the implicit assumption that if we understand Artificial Intelligence, we can control it. Such an assumption does not consider that AI systems actively shape learning environments, influencing what is visible, accessible, and valued within educational practices. From this standpoint, AI Literacy cannot be confined to what learners know about AI, but must also address how learners experience AI within educational contexts (Selwyn, 2019; Williamson, 2017).

These limitations suggest the need for a conceptual shift, beyond an understanding of AI Literacy considered as a framework for the experiential, relational, and contextual dimensions of learning. Such a shift opens the way for an educational perspective centered on educational experience (Rivoltella, 2017; Dipace, Fornasari, & De Angelis, 2023).

3. Educational Experience as an Educational Lens

In order to move beyond predominantly instrumental and skills-oriented approaches to AI literacy, this article adopts the concept of educational experience as its primary analytical lens. Within this framework, the philosophy of education developed by John Dewey offers a particularly fertile ground for rethinking learning as a process rooted in experience, interaction, and reflective engagement with the envi-

ronment (Dewey, 1916; Dewey, 1938). Rather than conceiving education as the transmission of predefined contents or competences, Dewey's perspective invites us to consider how learning takes shape within lived situations, through the continuous reconstruction of experience.

In *Experience and Education* (1938), Dewey famously argues that not all experiences are inherently educative. An experience becomes educational only when it supports growth through the combined principles of continuity and interaction. Continuity refers to the way in which each experience is connected to past experiences and, at the same time, opens possibilities for future ones. Interaction, on the other hand, concerns the dynamic relationship between the individual and the surrounding environment, understood as the complex interplay of material conditions, social relations, cultural meanings, and tools. Education, from this standpoint, is not an external intervention imposed upon experience, but a process through which experience itself is reorganized, interpreted, and oriented.

A crucial implication of Dewey's conception lies in the central role assigned to the environment. Far from functioning as a neutral backdrop, the environment actively participates in shaping the quality and direction of educational experience. Technologies, therefore, cannot be reduced to mere supports or instruments placed at the service of learning objectives. They contribute to defining what is possible, visible, and meaningful within educational situations. This insight proves particularly relevant in the context of Artificial Intelligence, where technological systems increasingly mediate access to information, organize learning pathways, and influence evaluative processes.

In AI-mediated educational contexts, the environment is no longer composed solely of physical spaces and human interactions. It increasingly takes the form of hybrid and relational ecosystems in which digital platforms, algorithmic systems, and data-driven tools coexist with teachers and learners. Adaptive learning systems personalize content delivery, recommendation algorithms prioritize certain forms of knowledge over others, and generative AI tools introduce new modes of interaction and co-creation. These elements do not simply add efficiency to existing practices; they reconfigure the experiential conditions under which learning occurs.

From an educational perspective, this reconfiguration raises critical questions. When algorithmic systems contribute to selecting, organizing, or even generating educational content, they implicitly shape learners' encounters with knowledge and their opportunities for reflection. The risk, as Dewey would suggest, is that experiences may become disjointed, fragmented, or oriented toward immediate performance rather than meaningful continuity. In such cases, the presence of advanced technologies does not guarantee educational value; on the contrary, it may contribute to experiences that are technically sophisticated yet pedagogically impoverished.

Contemporary educational theories inspired by Deweyan thought—such as experiential learning, situated learning, and constructivist approaches—emphasize the importance of context, participation, and reflection in fostering meaningful learning (Rivoltella, 2017; Dipace, Fornasari, & De Angelis, 2023). These perspectives converge on the idea that learning emerges through active engagement with authentic situations and through reflective interaction with tools, environments, and others. Applied to AI literacy, this implies a shift away from treating Artificial Intelligence as a decontextualized object of instruction and toward designing learning environments in which AI is encountered as part of lived educational experience.

In this sense, educational experience provides a critical lens for interpreting the transformation of learning spaces in AI-rich contexts. Learning environments are no longer defined solely by physical boundaries or curricular structures, but by networks of relations in which human and artificial actors interact. Within these environments, AI systems influence not only what is learned, but how learning takes place, how feedback is provided, and how success is defined and measured.

The educational challenge, therefore, concerns the intentional design and governance of AI-mediated learning environments. Without explicit educational intentionality, such environments risk promoting superficial engagement, automatisms of thought, and uncritical reliance on algorithmic outputs. Conversely, when guided by coherent pedagogical principles, AI-mediated spaces can support inquiry-based learning, reflective practices, and collaborative processes of knowledge construction. From this perspective, revisiting Dewey's concept of experience is not a matter of applying a classical theory to contemporary technologies in a merely analogical way. Rather, it involves reactivating experience as a critical category for understanding how educational meaning is produced, negotiated, and sustained in technologically mediated contexts.

Understanding AI literacy through the lens of educational experience thus requires attention to how learners interact with, reflect upon, and attribute meaning to AI-mediated environments. It is within these experiential dynamics—often implicit, sometimes contested—that the educational significance of Artificial Intelligence can be properly assessed.

4. AI Literacy as Educational Experience

Building on the experiential framework outlined above, AI literacy can be understood as an educational experience that integrates cognitive, ethical, and social dimensions of learning. Rather than privileging knowledge about Artificial Intelligence or technical proficiency alone, this perspective highlights how learners encounter, interpret, and reflect upon AI as part of their educational environments (UNESCO, 2023; Floridi, 2017).

From this standpoint, AI literacy involves a set of interconnected experiential dimensions. These include experiencing AI as a socio-technical system embedded within cultural and educational practices; reflecting on the epistemic status and reliability of AI-generated knowledge; critically examining the values, assumptions, and normative orientations encoded in algorithmic systems; and developing ethical judgment and responsibility in AI-mediated actions. Such dimensions do not work as isolated components, but emerge through learners situated engagement with AI-rich learning environments (Ranieri et al., 2020; Spadafora, De Luca, & Domenici, 2023).

This understanding of AI literacy aligns with John Dewey's notion of reflective experience, as articulated in *Experience and Education* (1938), in which action and reflection are inseparable. Learners do not simply use AI tools in a functional manner; rather, they engage with them in ways that actively shape their understanding of knowledge, agency, and responsibility. Experience becomes educational when interaction with technology is accompanied by critical reflection on its meanings, implications, and consequences.

Framing AI literacy as educational experience also foregrounds the central role of learner agency. Learners are encouraged to analyze AI outputs, evaluate their relevance and trustworthiness, make informed decisions, and participate actively in

shaping their learning environments. This orientation challenges narratives that portray AI as an autonomous or authoritative source of knowledge and supports a human-centered, educational approach to technology.

In this sense, learner agency should not be understood merely as individual autonomy, but as the capacity to act meaningfully within technologically mediated environments. Agency is exercised through interpretation, decision-making, and responsibility, all of which are shaped by the affordances and constraints of AI systems. Educational experience becomes the space in which learners learn not only to use AI, but to position themselves in relation to it, negotiating its influence on their learning trajectories and sense-making processes.

From this perspective, educational experience cannot be reduced to cognitive processing alone, but involves embodied, relational, and affective dimensions that are increasingly mediated by digital and AI-based environments.

The experiential reconceptualization of AI literacy carries significant implications for educational practice. First, it calls for a redefinition of the teacher's role, positioning educators as designers of learning environments capable of integrating AI in educational meaningful ways that foster inquiry, dialogue, and reflective engagement. Second, curriculum design should incorporate AI literacy across disciplinary areas, avoiding its treatment as a standalone subject. Project-based, problem-based, and inquiry-oriented approaches are particularly suited to supporting AI literacy as experience, as they enable learners to engage with AI in authentic contexts and to reflect critically on its educational, ethical, and social implications (Spadafora et al., 2023; Zappalà, Di Tore, & Sibilio, 2024).

Finally, an experiential approach to AI literacy supports inclusive education. By valuing diverse experiences and promoting critical engagement, AI-mediated learning environments can be intentionally designed to foster equity, accessibility, and participation, rather than reproducing or amplifying existing educational inequalities.

5. Discussion

The educational perspective developed in this article invites a critical re-examination of the role of Artificial Intelligence within contemporary educational environments. While dominant narratives often frame AI as a driver of efficiency, personalization, and instructional optimization, an experiential reading reveals a more complex and ambivalent scenario. AI-mediated learning spaces do not inherently enhance educational quality; rather, they reconfigure the conditions under which educational experience unfolds.

From a Deweyan standpoint, the central issue is not the presence of technology itself, but the nature of the experiences it helps to generate. AI systems actively participate in shaping interaction, influencing how learners encounter knowledge, make decisions, and attribute meaning to educational activities. As a result, AI literacy emerges as a site of educational tension, situated between automation and agency, delegation and responsibility, standardization and reflective judgment.

This tension becomes particularly visible when learning environments prioritize algorithmic guidance and efficiency over inquiry and continuity of experience. In such cases, AI-mediated spaces risk narrowing educational experience, encouraging passive reliance on automated outputs and limiting opportunities for critical reflection. Conversely, when educational design foregrounds experience, interaction, and re-

flection, AI can support richer forms of engagement and contribute to educational growth (Ranieri et al., 2020; Zappalà et al., 2024).

From a research perspective, this framework opens several directions for further inquiry. Investigating AI literacy as educational experience requires methodological approaches capable of capturing processes rather than merely outcomes. Qualitative, longitudinal, and design-based research approaches appear especially relevant for examining how learners and educators negotiate agency, responsibility, and meaning within AI-mediated environments over time. Moreover, attention to contextual and inclusive dimensions is essential, as institutional, cultural, and socio-material conditions significantly shape how AI is experienced in educational settings. Such research can contribute to clarifying the educational conditions under which AI supports, rather than constrains, formative educational processes.

6. Conclusions

This article has proposed an educational reinterpretation of AI Literacy by placing educational experience at the center of analysis. Such a move does not deny the importance of technical knowledge or operational competence in relation to Artificial Intelligence. Rather, it seeks to situate these dimensions within a broader educational horizon, one concerned with how learning takes shape, acquires meaning, and unfolds over time in concrete educational contexts.

When approached through the lens of experience, AI Literacy cannot be reduced to a stable or fully predetermined set of competences. It emerges instead as an open-ended educational process, constructed through situated practices, interpretive acts, and ongoing interaction between learners, environments, and technologies. In this sense, the educational relevance of Artificial Intelligence lies less in its technical sophistication than in the experiential conditions it contributes to shaping within learning environments.

Reframing AI Literacy in experiential terms also brings into focus dimensions that are often treated as secondary, such as responsibility, critical judgment, and inclusion. Where AI-mediated learning environments are guided by explicit educational intentionality, they can support reflective engagement, strengthen learner agency, and foster meaningful educational growth. Where such intentionality is absent, the risk is not merely technological dependence, but a gradual impoverishment of educational experience itself, as optimization and automation displace inquiry and reflective deliberation.

Ultimately, the educational significance of Artificial Intelligence cannot be assessed independently of the environments in which it is embedded and enacted. It is within the ongoing—and at times unresolved—tension between environment, experience, and agency that AI-mediated learning spaces may become genuinely educational.

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