

# AI Literacy for Citizen Participation

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The global rush to define “AI literacy” reveals a fundamental confusion about what we’re trying to achieve. As educational systems scramble to integrate artificial intelligence into curricula, a striking pattern emerges: we’re building elaborate frameworks without consensus on what it means to be “literate” in an AI-saturated world. The evidence suggests this isn’t merely an academic debate—it’s a struggle over who gets to participate meaningfully in decisions about AI’s role in society.

Consider the paradox at the heart of current efforts. While [4] presents AI literacy as encompassing understanding, evaluation, and ethical use, the actual implementation tells a different story. States like Idaho announce they’ll create “statewide AI literacy standards,” yet [19] offers no definition of what literacy means beyond workforce preparation. This gap between aspiration and implementation runs throughout the evidence: we invoke literacy as essential for democratic participation while building frameworks oriented toward compliance and control.

The stakes of this definitional struggle extend far beyond classroom walls. How we conceive AI literacy determines whether citizens become active participants in shaping AI governance or passive consumers of AI systems designed by others. Current approaches, dominated by protective regulations and skills-based training, risk creating a form of literacy that teaches people to adapt to AI rather than question or reshape it.

## *The Definitional Muddle: What Do We Mean by AI Literacy?*

The concept of AI literacy suffers from what might be called definitional inflation—everyone agrees it’s important, but few agree on what it actually means. [20] identifies four distinct domains: functional, ethical, rhetorical, and pedagogical. Yet this comprehensive framework stands in stark contrast to how literacy gets operationalized in practice.

Most institutional approaches default to a narrow, technical definition. [6] reveals that educational initiatives primarily focus on tool

[4] AI Literacy: A Framework to Understand, Evaluate, and Use Emerging Technology

[19] Idaho to create statewide AI literacy standards for students

[20] Understanding AI Literacy | Teaching Commons

[6] Bridging AI Literacy and Technology Adoption Among Students

use—teaching students to operate AI systems rather than understand their underlying logics or societal implications. This reductionist approach treats literacy as a set of discrete skills rather than a way of thinking about technology’s role in society.

The evidence from [3] suggests three competing conceptualizations are currently vying for dominance: functional literacy (knowing how to use AI tools), critical literacy (understanding AI’s societal impacts), and what researchers call “indirect literacy” (recognizing when AI systems are shaping one’s environment). Each implies radically different educational goals and citizen capabilities.

Perhaps most tellingly, [10] notes that despite proliferating frameworks, there’s little agreement on whether AI literacy should be taught as a standalone subject or integrated across disciplines. This isn’t merely a curricular debate—it reflects deeper uncertainty about whether AI represents a technical skill set or a fundamental shift in how we need to think about knowledge, agency, and power in digital societies.

### *Competing Frameworks: Protection Versus Participation*

The dominant frameworks for AI literacy reveal a profound tension between protective and participatory visions of citizenship. On one side, we see frameworks oriented toward safety and risk mitigation. [14] from Quebec’s Ministry of Education exemplifies this approach, providing extensive guidance on legal compliance and ethical boundaries while saying little about democratic participation or critical engagement.

This protective orientation becomes even more pronounced when children are involved. [19] and similar reports frame AI literacy primarily as digital defense training. The underlying assumption is that citizens—especially young ones—need protection from AI rather than preparation to shape its development and deployment.

In contrast, participatory frameworks like those outlined in [1] envision literacy as enabling active engagement with AI systems. These approaches emphasize not just understanding how AI works but developing the capacity to question algorithmic decisions, advocate for transparency, and participate in governance discussions.

The tension between these visions plays out in implementation. [19] promises to develop critical users, yet the actual curriculum focuses heavily on recognizing AI-generated misinformation rather than engaging with broader questions of algorithmic governance or data justice.

[3] AI Literacy in K-12 and Higher Education in the Wake of Generative AI ...

[10] Empowering Learners for the Age of AI

[14] L utilisation pédagogique, éthique et légale de l intelligence ...

[19] Australian Report Warns AI Companion Chatbots Expose Children to Harmful Content

[1] AI & Data Competencies: Scaffolding holistic AI literacy in Higher Education

[19] Boston launches push to teach every high school grad to use AI critically

This pattern—invoking participation while implementing protection—suggests we haven’t resolved fundamental questions about what kind of AI literacy democracy requires.

### *The Missing Democratic Dimension*

Despite frequent invocations of democratic values, current AI literacy frameworks largely neglect the competencies needed for meaningful democratic participation in AI governance. [5] from the U.S. Department of Education mentions “human-centered design” repeatedly but provides little guidance on how citizens might actually influence AI system design or deployment decisions.

This democratic deficit becomes glaring when we examine what’s actually being taught. [11] reveals that most AI literacy education focuses on individual skills—recognizing deepfakes, using AI tools effectively, understanding privacy settings—rather than collective capacities for democratic action. Students learn to be savvy consumers of AI but not active participants in shaping its governance.

The frameworks that do address governance tend to position citizens as stakeholders to be consulted rather than decision-makers. [19] advocates for including young people’s voices in AI governance, yet the proposed mechanisms remain largely consultative. We’re teaching people to have opinions about AI without teaching them how to translate those opinions into political action or policy influence.

What would democratically-oriented AI literacy look like? It would need to include understanding of algorithmic decision-making processes, yes, but also knowledge of regulatory frameworks, advocacy strategies, and collective action possibilities. Current frameworks’ failure to include these elements suggests a limited vision of citizenship in algorithmic societies.

### *Whose Literacy Counts? The Problem of Perspective*

The evidence reveals a stark imbalance in whose perspectives shape AI literacy frameworks. [15] exemplifies the top-down approach: comprehensive guidance developed by experts and institutions with minimal input from teachers or students who must implement it.

This expert-driven approach creates frameworks that may be technically sound but disconnected from lived realities. When [19] identifies literacy gaps, it does so through institutional metrics rather than community-defined needs. The result is a version of literacy that

[5] Artificial Intelligence and the Future of Teaching and Learning (PDF)

[11] GenAI and misinformation in education: a systematic scoping ... - Springer

[19] Making the case for a child rights approach to AI - Media@LSE

[15] Orientaciones para la integración de la inteligencia artificial en la ...

[19] Digital Inequality Report: Fixing AI Literacy Gaps

serves institutional goals—compliance, risk management, workforce preparation—rather than community empowerment.

Student voices are particularly absent from these discussions. Despite evidence from [19] showing that 95% of students feel confident using AI while only 51% have received formal training in responsible use, frameworks continue to be designed without meaningful student input. This suggests students are developing their own informal literacies outside official channels—literacies that may be more practically useful but less aligned with institutional goals.

The dominance of institutional perspectives also shapes what counts as legitimate knowledge about AI. [12] reveals how teachers' ethical concerns about AI often get dismissed as resistance to innovation rather than valuable perspective on AI's educational impacts. When we privilege technical expertise over pedagogical wisdom or student experience, we create frameworks that may be sophisticated but fundamentally disconnected from educational realities.

### *From Skills to Critical Understanding*

The evolution from skills-based to critical approaches represents perhaps the most significant shift in AI literacy thinking. Early frameworks, focused on technical competencies, are giving way to more sophisticated understandings. [9] argues that AI literacy must address not just technical skills but epistemological questions—how do we know what we know in an age of synthetic media?

This shift toward critical understanding appears in frameworks like [8], which positions AI literacy as part of broader digital citizenship. Rather than teaching discrete skills, these approaches emphasize developing cognitive tools for navigating uncertainty, evaluating evidence, and maintaining agency in algorithmic environments.

Yet implementation lags behind theory. [18] illustrates how practical pressures often reduce critical AI literacy to detection skills—teaching students to recognize AI-generated content rather than critically engage with AI's broader implications. The gap between aspirational frameworks and classroom realities suggests we need new models for translating critical perspectives into teachable practices.

The most promising approaches integrate technical understanding with social analysis. [7] shows how countries like Finland embed AI literacy within broader media literacy education, teaching students to understand AI as both technical system and social phenomenon. This integrated approach offers a path beyond the false choice between

[19] UIC Student AI Usage Survey Reveals High Confidence, Yet ...

[12] IAG à l'École Primaire : Perceptions Éthiques, Déterminants ...

[9] Deepfakes and the crisis of knowing - UNESCO

[8] Citizens versus the internet: Confronting digital challenges with cognitive tools

[18] Teachers Strike Back Against AI Cheating - KQED

[7] Bridging the Information Gap: AI, Misinformation, and Global Education ...

skills and critique.

### *Cross-Domain Connections: Why Literacy Matters Everywhere*

AI literacy cannot be contained within educational institutions—it bleeds into every domain of social life. [2] demonstrates how AI literacy intersects with disability rights, as students with disabilities need both to use AI accessibility tools and advocate for their appropriate design. Literacy here means not just operational knowledge but the ability to articulate needs and demand accountability from AI developers.

[2] AI and Accessibility in Education - cosn.org

The workplace dimension reveals similar complexities. While policymakers frame AI literacy as workforce preparation, [16] warns that narrow vocational training may leave workers vulnerable to automation. True workplace AI literacy would include understanding labor rights in algorithmic management systems, not just skill in using AI tools.

[16] Report: The risks of AI in schools outweigh the benefits : NPR

Perhaps most critically, AI literacy intersects with democratic participation beyond formal politics. [21] reveals how AI systems shape political information consumption, often reinforcing existing biases. Media literacy, political literacy, and AI literacy can no longer be taught separately—they form an interconnected web of competencies needed for informed citizenship.

[21] Voters Increasingly Use AI as Political Advisor. A New Study Shows the Risks.

These cross-domain connections suggest we need to abandon siloed approaches to AI literacy. Instead of standalone AI courses, we might integrate AI perspectives across subjects: examining algorithmic bias in social studies, data representation in mathematics, or AI-generated content in language arts. This distributed approach could help students understand AI not as a separate technical domain but as a pervasive force shaping all aspects of contemporary life.

### *Reimagining AI Literacy for Democratic Life*

The path forward requires fundamentally reimagining what AI literacy means and whom it serves. Current frameworks, with their emphasis on individual skills and institutional compliance, prepare people to live with AI but not to shape it. A democratic approach to AI literacy would start from different premises.

First, it would prioritize collective over individual competencies. Rather than focusing solely on personal AI use, democratic AI literacy would teach people to organize, advocate, and participate in

governance decisions. This might include understanding regulatory processes, learning to submit public comments on AI policies, or organizing community responses to algorithmic systems.

Second, it would embrace multiple ways of knowing about AI. [13] suggests that students, teachers, and communities develop distinct but valuable perspectives on AI's impacts. Democratic literacy frameworks would validate these diverse knowledge forms rather than privileging technical expertise alone.

Finally, democratic AI literacy would be explicitly political, acknowledging that AI systems embed values and that literacy includes the ability to contest those values. This doesn't mean partisan education but rather recognition that AI governance involves fundamental questions about power, justice, and social organization that citizens must be equipped to address.

The evidence suggests we stand at a crossroads. We can continue building AI literacy frameworks that prepare compliant users and vulnerable consumers, or we can develop approaches that enable meaningful democratic participation. The choice we make will shape not just educational outcomes but the possibility of democratic governance in algorithmic societies. As [17] concludes, the stakes are too high to settle for narrow, instrumental versions of literacy when what democracy needs are citizens capable of shaping AI's role in society.

The conceptual muddle around AI literacy isn't merely an academic problem—it reflects deeper uncertainties about citizenship, agency, and democracy in algorithmic times. Clarifying what we mean by AI literacy is the first step toward ensuring that all citizens, not just technical experts, can participate meaningfully in decisions about AI's role in our shared future.

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