

# AI Literacy for Citizen Participation

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The question of how to prepare citizens for an AI-mediated world has become one of education’s most urgent challenges. Yet beneath the apparent consensus that “AI literacy” matters lies a conceptual muddle: competing definitions, conflicting frameworks, and fundamentally different visions of what citizens need to know. As [2] reveals through its systematic review of 124 studies, the field presents a bewildering array of approaches—functional, critical, indirect—each grounded in different assumptions about AI’s role in society. This fragmentation isn’t merely academic; it shapes how millions learn to understand, critique, and shape the algorithmic systems increasingly governing their lives.

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

The stakes of this definitional contest extend far beyond classroom walls. When 57% of teenagers already use AI for information search and 54% for schoolwork, as documented in [14], the frameworks we choose for AI literacy determine not just individual capabilities but collective democratic potential. Are we teaching people to be savvy users of AI tools, critical analysts of algorithmic power, or active participants in shaping AI governance? The answer varies dramatically depending on which literacy framework holds sway.

[14] How Teens Use and View AI - Pew Research Center

This essay maps the contested terrain of AI literacy, examining how different definitions embed different politics, serve different interests, and enable different futures. Through analysis of emerging frameworks, institutional approaches, and grassroots alternatives, I trace what current literacy efforts accomplish—and crucially, what they leave out. The central finding is stark: while existing frameworks excel at building individual technical competencies, they systematically neglect the collective capabilities necessary for democratic participation in AI governance. This isn’t accidental; it reflects deeper assumptions about who shapes technology and who merely adapts to it.

## *The Architecture of AI Literacy Frameworks*

Contemporary AI literacy frameworks reveal a field struggling to define its boundaries. The dominant approach, exemplified by [25], constructs literacy as a set of competencies: understanding how AI works, evaluating AI outputs, using AI ethically, and recognizing AI’s societal

[25] Understanding AI Literacy | Teaching Commons

impacts. This multi-dimensional model appears comprehensive, yet its very structure embeds particular assumptions about the citizen-AI relationship.

The competency-based architecture treats literacy as individual capacity-building. Students learn to prompt large language models effectively, identify potential biases in AI systems, and verify AI-generated content. These skills matter—as [24] demonstrates, the ability to detect AI hallucinations has become essential for maintaining research integrity. Yet this framework positions citizens primarily as users who must adapt to AI systems rather than as participants who might reshape them.

Alternative frameworks attempt to broaden the scope. [3] proposes a more expansive vision encompassing not just technical understanding but ethical reasoning and creative application. This framework explicitly connects AI literacy to citizenship, arguing that democratic participation requires understanding AI’s role in public decision-making. Still, even this broader approach struggles with a fundamental tension: how to balance teaching practical AI skills with developing critical consciousness about AI’s political dimensions.

The most radical reimagining comes from frameworks that reject the literacy metaphor altogether. [4] argues that traditional literacy concepts fail to capture AI’s fundamentally different relationship to knowledge and power. Unlike reading and writing, which enable direct human expression, AI systems mediate between humans and machines in ways that obscure agency and accountability. This critique suggests we need entirely new conceptual frameworks—ones that recognize AI not as a tool to master but as an infrastructure to govern.

International efforts to standardize AI literacy reveal how definitional choices embed cultural and political values. [10] presents UNESCO’s attempt to create a universal framework, balancing technical competencies with humanistic values. Yet even this carefully crafted compromise faces criticism for privileging Western educational models and individual achievement over collective wisdom and community knowledge.

The proliferation of frameworks reflects deeper uncertainties about AI’s trajectory. Should literacy frameworks prepare students for current AI capabilities or anticipated future developments? [26] reveals how schools struggle with this temporal dimension, often teaching yesterday’s AI while tomorrow’s systems render those lessons obsolete. This moving target problem suggests that perhaps the focus on specific technical competencies misses the point—what citizens need most is the meta-literacy to continually relearn as AI evolves.

[24] The Illusion of Evidence: Why Fake AI Citations Demand ...

[3] AI Literacy: A Framework to Understand, Evaluate, and Use Emerging ...

[4] Alfabetización en Inteligencia Artificial (IA) - Español

[10] Empowering Learners for the Age of AI: Un marco de alfabetización en IA ...

[26] What’s Missing From Your School’s AI Adoption Plan? A Roadmap for ...

## *Skills Versus Understanding: A False Dichotomy*

The debate between skills-based and critical approaches to AI literacy often presents these as opposing philosophies. Skills advocates emphasize practical competencies: prompt engineering, output evaluation, tool selection. Critical literacy proponents focus on power analysis: who controls AI, who benefits, who bears the risks. Yet [20] demonstrates how this binary framing obscures more than it reveals. The most effective literacy initiatives integrate both dimensions, teaching students to use AI tools while questioning the systems that produce them.

The skills emphasis responds to immediate pressures. When [11] documents how rapidly AI adoption outpaces governance frameworks, educators feel compelled to focus on practical usage guidelines. Students need to know how to cite AI assistance, verify AI-generated content, and avoid academic integrity violations. These pressing concerns drive curriculum toward instrumental approaches: teaching AI as a tool rather than as a sociotechnical system.

Yet pure skills training creates citizens unprepared for AI's broader implications. [9] illustrates how technical proficiency alone fails when confronting AI's epistemological challenges. Knowing how to detect deepfakes technically differs from understanding how deepfakes transform social trust, political discourse, and the nature of evidence itself. This deeper understanding requires moving beyond skills to examine AI's role in reshaping fundamental social contracts.

Critical approaches offer essential insights often missing from skills-focused frameworks. [5] demonstrates how AI systems shape political engagement, filter information, and influence collective decision-making. Understanding these dynamics requires more than technical knowledge; it demands frameworks for analyzing power, recognizing systematic biases, and imagining alternative configurations. This critical dimension transforms AI literacy from individual capacity to collective capability.

The integration challenge goes beyond simply combining skills and critique. [1] shows how effective AI literacy must be grounded in specific contexts and communities. For students with disabilities, AI literacy might prioritize understanding assistive technologies and advocating for accessible design. For marginalized communities, it might focus on recognizing and resisting algorithmic discrimination. This contextual approach suggests that universal literacy frameworks inevitably fail; what we need are flexible architectures that communities can adapt to their specific needs and struggles.

[20] Making AI work for schools - Brookings

[11] Ethics and governance of generative AI in education: a systematic ...

[9] Deepfakes and the crisis of knowing - UNESCO

[5] Algorithms and Democracy | Sitra

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

*The Democratic Deficit in AI Education*

Current AI literacy frameworks exhibit a glaring omission: they rarely prepare citizens for collective action in AI governance. While [17] documents how AI systems increasingly shape public decisions—from welfare eligibility to criminal justice—literacy initiatives focus overwhelmingly on individual interactions with AI rather than collective influence over AI policy. This gap between AI’s public impact and literacy’s private focus represents perhaps the greatest failure of current approaches.

The democratic deficit manifests in multiple ways. First, frameworks typically position citizens as consumers rather than constituents. [12] reveals that 80% of parents want more input into school AI policies, yet few literacy initiatives teach advocacy skills or policy analysis. Citizens learn to navigate AI systems but not to question their deployment, challenge their design, or demand accountability from their creators.

Second, current approaches underemphasize AI’s role in collective decision-making. [19] documents how AI translation in legal settings can affect justice outcomes, yet legal AI literacy remains specialized knowledge rather than general civic competency. Similar patterns appear across domains: AI shapes healthcare access, educational opportunity, and economic mobility, but literacy frameworks rarely address these systemic impacts.

The individualization of AI literacy reflects broader neoliberal patterns in education. Just as financial literacy shifted responsibility for economic security from institutions to individuals, AI literacy often frames algorithmic harms as problems of personal digital hygiene rather than structural injustice. [23] illustrates this dynamic: while teaching individual verification skills, frameworks rarely address the systemic production and distribution of AI-generated disinformation.

Alternative models suggest possibilities for democratic AI literacy. Community-based approaches, though underrepresented in formal frameworks, demonstrate how collective learning enables collective action. When [21], affected communities develop shared strategies for recognition and response that exceed individual capabilities. These emergent practices point toward literacy models grounded in collective intelligence rather than individual competency.

[17] L’IA dans les décisions publiques : qui est responsable ?

[12] How Do Parents Want Schools to Handle AI? Insights From a New Survey

[19] Machine Translation: Considerations and Cautions for Courts

[23] Reducing AI-Generated Misinformation in Australian Higher ... - MDPI

[21] Military families face waves of AI videos meant to sow discord and tug at heartstrings

## *Whose Literacy Counts?*

The question of who defines AI literacy reveals power dynamics typically obscured in technical discussions. [22] traces how certain voices—computer scientists, educational technologists, policy makers—dominate literacy framework development while others—community organizers, critical race scholars, disability advocates—remain marginalized. This representational imbalance shapes not just what counts as literacy but whose knowledge matters.

Institutional definitions of literacy often reflect institutional interests. When [7] outlines university AI strategies, workforce preparation and institutional efficiency feature prominently while student privacy, algorithmic justice, and democratic governance receive minimal attention. This alignment between literacy frameworks and institutional priorities isn't coincidental—it reflects who funds research, shapes policy, and controls implementation.

The dominance of Global North perspectives in AI literacy frameworks perpetuates colonial patterns in education. [15] critiques how Western frameworks assume technological infrastructures, educational resources, and cultural contexts that exclude much of the world's population. When frameworks privilege individual device ownership, high-bandwidth internet, and English language proficiency, they define billions out of AI literacy before instruction even begins.

Youth perspectives on AI literacy often diverge sharply from adult-designed frameworks. While [14] shows teenagers actively experimenting with AI tools, formal frameworks frequently position youth as vulnerable subjects requiring protection rather than as knowledgeable agents with distinct insights. This paternalistic approach misses how young people develop sophisticated understandings through experimentation, peer learning, and creative appropriation.

Indigenous and community knowledge systems offer profound challenges to dominant literacy frameworks. Where Western approaches emphasize individual mastery and competitive advantage, indigenous pedagogies might prioritize collective wisdom and reciprocal responsibility. [16] acknowledges these tensions but struggles to move beyond acknowledgment to genuine integration. The question isn't simply adding diverse voices to existing frameworks but reimagining frameworks that emerge from different epistemologies entirely.

[22] Navigating the landscape of AI literacy education: insights from a ...

[7] Creating the AI-Literate Campus: Advancing Skills for Faculty and Students

[15] IA y accesibilidad: ¿renunciando al compromiso? - UNESCO

[14] How Teens Use and View AI - Pew Research Center

[16] Intelligence artificielle et éducation - Education

## *Reimagining Literacy for Collective Action*

Emerging alternatives to dominant AI literacy frameworks point toward more democratic possibilities. [6] demonstrates how participatory design processes can reshape AI development, suggesting that literacy might focus less on understanding predetermined systems and more on participating in their creation. This shift from literacy as adaptation to literacy as co-creation fundamentally reimagines the citizen-AI relationship.

Collective intelligence approaches offer promising directions. Rather than treating AI literacy as individual capacity, these frameworks explore how communities can pool knowledge, share strategies, and coordinate responses to AI systems. When confronting AI-generated disinformation targeting specific communities, as documented in cases like military family deepfakes, collective verification networks prove more effective than individual fact-checking skills. This suggests literacy frameworks should teach collaboration protocols alongside technical competencies.

Movement-based pedagogies provide another model. [8] shows how affected communities organize not just to respond to immediate harms but to demand systemic change: better laws, accountability mechanisms, and preventive education. These organizing efforts teach different literacies than classroom instruction—how to document harms, build coalitions, engage media, and pressure policymakers. Such political literacies may prove more essential for democratic participation than technical skills.

The integration of AI literacy with existing justice movements offers particular promise. Environmental justice advocates teaching communities to challenge algorithmic environmental racism, disability rights organizers demanding accessible AI design, racial justice movements exposing algorithmic bias—these efforts demonstrate AI literacy as inseparable from broader struggles for equity and democracy. [18] suggests that effective AI education must connect technical understanding to social justice rather than treating them as separate domains.

## *Towards Participatory AI Literacy*

The path forward requires fundamentally reimagining AI literacy's purpose and process. Current frameworks, despite their sophistication, prepare citizens primarily for individual adaptation to AI systems rather than collective participation in AI governance. This limitation isn't merely pedagogical—it's political, reflecting assumptions about

[6] Continuous AI for accessibility: How GitHub transforms feedback into inclusion

[8] Deepfake abuse has hit schools across the nation. Policy isn't keeping up.

[18] La inteligencia artificial preocupa a expertos por su efecto en ...

technological inevitability and citizen passivity that democratic societies must reject.

[13] points toward institutional innovations that prioritize access, equity, and community knowledge over individual achievement. Libraries, with their public mission and collaborative ethos, model how AI literacy might serve collective empowerment rather than competitive advantage. Similar innovations emerge from community centers, mutual aid networks, and grassroots organizations—spaces where literacy develops through shared struggle rather than individual instruction.

The evidence suggests three essential shifts for democratic AI literacy. First, from individual to collective competencies—teaching communities to pool knowledge, coordinate action, and build power. Second, from technical to sociotechnical understanding—connecting code to power, design to politics, algorithms to justice. Third, from adaptation to transformation—preparing citizens not just to navigate existing AI systems but to imagine and demand better ones. These shifts require new pedagogies, new institutions, and ultimately, new politics that recognize AI governance as fundamental to democratic self-determination.

The stakes could not be higher. As AI systems increasingly mediate education, employment, justice, and social services, the frameworks through which citizens understand these systems shape possibilities for individual flourishing and collective freedom. The question isn't whether we need AI literacy but what kind of literacy serves democratic ends. Current approaches, focused on individual skills and institutional efficiency, fall dangerously short. What we need instead are frameworks that prepare citizens for the essential democratic work of the 21st century: the collective governance of algorithmic power. Only such participatory literacy can ensure that AI serves human flourishing rather than subordinating it to machine logic.

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