AI Literacy for Citizen Participation

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The proliferation of artificial intelligence across social domains has sparked an urgent call for "AI literacy" – yet what this means and who decides remains deeply contested. As schools rush to implement AI frameworks and governments scramble to regulate algorithmic systems, a fundamental question emerges: are we teaching people to understand AI, or merely to accommodate it? The evidence suggests that current approaches to AI literacy, while well-intentioned, may be missing crucial elements needed for meaningful democratic participation. Research from [26] reveals that 22% of UK children aged 8-12 are already using generative AI, yet their nuanced perspectives on both benefits and risks are largely absent from literacy frameworks designed by adults.

[26] Los niños que aman la IA son quienes mejor ven sus peligros

This conceptual muddle matters. How we define AI literacy shapes not just educational curricula but also determines who gets to participate in decisions about algorithmic systems that increasingly govern daily life. The dominant frameworks emerging from institutions prioritize technical understanding and responsible use, as documented in [29], which proposes a tripartite model of understanding, evaluating, and using AI systems. Yet this instrumental approach may inadvertently narrow our conception of what citizens need to know to engage critically with AI's societal impacts.

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

The stakes extend beyond individual competency. When [42] documents how educational AI tools can produce harmful outputs, or when medical professionals experience skill degradation from AI dependence, we glimpse how narrowly conceived literacy frameworks fail to prepare people for AI's complex realities. The challenge isn't simply teaching people to use AI tools effectively – it's fostering the critical capacities needed to question, reshape, and sometimes resist algorithmic systems that embed particular values and power relations.

[42] AI sexualized a California 4th grader's book report. Can the state safeguard students?

Mapping the Territory: Competing Frameworks

The landscape of AI literacy frameworks reveals a fundamental tension between instrumental and critical approaches. On one side, institutional frameworks emphasize practical competencies. The [35] outlines eleven policy proposals for "inclusive and emancipatory" AI liter-

[35] PDF RAPPORT OCTOBRE 2025 Déployer une littératie en IA pour une

acy, yet its focus remains primarily on enabling citizens to navigate existing AI systems rather than questioning their underlying logics. Similarly, [1] from the U.S. Department of Labor frames literacy primarily in terms of workforce readiness, identifying five content areas and seven delivery strategies aimed at helping workers adapt to AI integration.

[1] A Guide for AI Literacy Efforts

These instrumental frameworks typically structure AI literacy around discrete skills. [29] articulates what has become a dominant model: understanding how AI works, evaluating its outputs, and using it effectively. This tripartite structure appears across multiple national and international frameworks, from the OECD's guidance in [37] to regional implementations documented in [14].

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

[37] Reimagining Teaching in an Accelerating World

[14] Empoderando a los estudiantes para la era de la IA: un marco de alfabetización en IA para la educación primaria y secundaria

Yet a growing body of critical scholarship challenges these competency-based approaches. [3] conducts an integrative review of 124 studies, finding that "the concept of 'AI literacy' itself is contested and lacks a universal definition." The authors propose a more expansive framework that includes not just functional skills but also "sociocultural awareness" and the ability to critically examine AI's role in perpetuating or challenging existing power structures.

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

This critical turn is perhaps most evident in frameworks emerging from educational contexts grappling with AI's immediate impacts. [16] distinguishes between AI literacy (understanding and evaluating) and AI fluency (creating and critiquing), arguing that true democratic participation requires moving beyond passive comprehension to active engagement with AI design and governance. The framework explicitly addresses how AI systems embed particular values and whose interests they serve.

[16] From Understanding to Creating: Bridging AI Literacy and AI Fluency in...

The tension between these approaches reflects deeper disagreements about AI's role in society. Instrumental frameworks tend to assume AI integration is inevitable and beneficial, focusing on smoothing adoption and mitigating obvious harms. Critical frameworks question these assumptions, asking whether certain AI applications should exist at all and who benefits from widespread AI literacy as currently conceived. [32] attempts to bridge these perspectives, offering comprehensive guidance that includes both practical classroom strategies and critical questioning of AI's educational impacts.

[32] PDF INTELLIGENCE ARTIFICIELLE GÉNÉRATIVE - IAG - ciip.ch

International variations further complicate the landscape. European frameworks, influenced by stronger data protection traditions, emphasize privacy and ethical considerations more prominently than their North American counterparts. [34] from the European Schools system mandates explicit instruction on AI's limitations and biases, while frameworks from the Global South, glimpsed in [42], focus more

[34] PDF Lignes directrices pédagogiques pour légales et l'utilisation...

[42] Womandla, IBM et IAVE lancent un programme de requalification en Afrique du Sud

on economic empowerment and addressing digital divides.

These competing visions of AI literacy aren't merely academic disputes – they shape what millions of students learn about AI and how they're prepared to engage with algorithmic systems. The dominance of instrumental frameworks in policy documents and implementation guides suggests that critical perspectives, while intellectually influential, struggle to translate into educational practice at scale.

The Implementation Fixation

The rush to implement AI literacy reveals a troubling pattern: institutions prioritize frameworks and guidelines over genuine understanding. [28] provides a sobering bibliometric analysis showing that while publications on AI literacy education have exploded, actual implementation remains fragmented and superficial. The study identifies a "striking gap between theoretical frameworks and classroom reality," with most initiatives focusing on one-off workshops rather than sustained engagement.

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

This implementation fixation manifests most clearly in the proliferation of official guidelines that offer comprehensive recommendations yet little evidence of impact. [33] exemplifies this trend – a detailed national framework from France that provides legal guidelines, ethical principles, and pedagogical strategies, but includes no mechanism for assessing whether these translate into meaningful literacy outcomes. Similarly, institutional responses documented in [38] show schools rapidly deploying AI surveillance systems while providing minimal education about how these systems work or their implications for student privacy.

[33] PDF L'Ia En Éducation

[38] Schools use AI to monitor kids, hoping to prevent violence. Our...

The consequences of this implementation gap are already visible. [Are AI Literacy Lessons Now the Norm? What New Survey...] reports that 79% of high school students receive some form of AI literacy instruction, yet the same students struggle to identify AI-generated content or understand algorithmic bias. The disconnect suggests that current implementation efforts may be checking boxes rather than building genuine understanding.

Teacher preparation emerges as a critical bottleneck. [20] synthesizes over 80 international studies on teacher adoption of AI tools, finding that educators lack both technical knowledge and pedagogical strategies for teaching AI literacy. Most concerning, teachers report feeling pressured to integrate AI tools without adequate support, leading to surface-level adoption that may actually hinder critical understanding. [22] documents similar patterns, with surveys showing

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

[22] Intelligence artificielle générative et éducation scolaire : quelques...

teachers using AI primarily for administrative tasks while struggling to address its deeper educational implications.

The implementation fixation extends to assessment methods that privilege easily measurable outcomes over critical thinking. [5] reports on a multi-country pilot program that, despite sophisticated training materials, ultimately evaluated success through simple metrics like "number of AI tools used" rather than students' ability to critically evaluate AI systems. This measurement problem reinforces instrumental approaches, as complex critical capacities prove harder to quantify than technical skills.

[5] AI4T - Artificial Intelligence for and by teachers | France Education...

Perhaps most troubling is how implementation pressures lead to premature standardization. [42] describes legislative efforts to mandate AI literacy education before consensus exists on what should be taught. The article notes that 85-86% of students and teachers already use AI tools, creating pressure for immediate policy responses that may lock in narrow conceptions of literacy. Similarly, corporate training programs like those described in [21] offer "tiered workshops" and "peer mentoring frameworks" that emphasize rapid skill acquisition over deep understanding.

[42] VA. lawmakers propose guardrails for artificial intelligence use in education

[21] Inclusive AI Literacy in Business Education | AACSB

The implementation fixation reflects broader institutional imperatives – the need to demonstrate responsiveness to technological change, to prepare students for evolving job markets, and to manage AI-related risks. Yet by prioritizing rapid deployment of frameworks over careful consideration of what AI literacy should entail, institutions may be undermining their stated goals. As one educator quoted in [15] observes, "We're so focused on teaching students to use AI that we're forgetting to teach them to think about it."

[15] En classe, l'IA doit rester à sa place - UNESCO

What Gets Lost: Critical Capacities

The evidence reveals a disturbing paradox at the heart of current AI literacy efforts: in teaching people to work with AI, we may be undermining the very capacities needed to think critically about it. [23] documents how medical professionals using AI diagnostic tools show performance declines when the AI is removed – not just returning to baseline, but performing worse than before AI exposure. This "skill atrophy" extends beyond technical domains; the article describes a more insidious "non-acquisition" where learners never develop fundamental competencies because AI handles those tasks from the start.

[23] L'IA va-t-elle « dégrader les compétences » des médecins ?

This cognitive offloading manifests across educational contexts. [25] explores how students develop "cognitive debt" – a growing gap between what they can do independently and what they achieve with

[25] La relation des étudiants à l'IA, entre soutien aux apprentissages et...

AI assistance. The research reveals that students who rely heavily on AI for writing tasks show decreased ability to structure arguments, evaluate sources, and develop original ideas. Most troubling, many students don't recognize this degradation, believing AI use enhances rather than replaces their thinking.

The undermining of critical capacities extends to information evaluation. [30] presents experimental evidence that traditional media literacy training becomes less effective as AI-generated content grows more sophisticated. Participants trained to spot doctored images using established techniques performed worse when confronted with AI-generated deepfakes, suggesting that AI doesn't just require new literacies – it actively undermines existing ones. The study's authors warn of an "epistemic crisis" where citizens lose confidence in their ability to distinguish truth from falsehood.

[30] PDF Ai Visual Misinformation and Media Literacy 1

Current frameworks largely fail to address these deeper impacts. [10] reports that while schools implement AI tools for "personalized learning" and "student support," they rarely teach students about cognitive offloading or strategies to maintain independent thinking capacities. The article cites surveys showing teachers believe AI enhances critical thinking, even as evidence mounts that uncritical AI use may diminish it.

[10] Classrooms are adapting to the use of artificial intelligence

The challenge goes beyond individual cognition to collective sense-making. [7] presents experimental evidence that AI recommendation algorithms can shift political opinions by controlling information exposure. The study's large-scale randomized trial found that users exposed to algorithmically curated content showed measurable opinion changes within weeks. Yet current AI literacy frameworks rarely address how algorithms shape collective belief formation or teach strategies for maintaining intellectual autonomy.

[7] Algorithme de X : une étude publiée dans Nature montre un glissement des opinions politiques

Some educators recognize these dangers. [17] profiles a teacher who prohibits AI use entirely, arguing that students must first develop core competencies before learning to work with AI. Her approach, while extreme, highlights a critical sequencing problem: when should AI be introduced in the learning process? The article notes that her students initially resisted but later reported improved confidence in their own abilities.

[17] How a high school English teacher banned AI from her classroom : NPR

The loss of critical capacities has profound implications for democratic participation. [2] argues that as AI makes content creation effortless, citizens need enhanced rather than diminished critical faculties. Yet the article documents how current AI literacy efforts focus on using generative tools rather than developing the skepticism and analytical skills needed to navigate an AI-saturated information envi-

[2] AI in the Age of Fake (Imagined) Content • Stimson Center

ronment.

What gets lost in the rush to AI literacy is perhaps literacy itself – the deep, patient work of learning to read closely, think independently, and engage critically with information. [19] makes this point philosophically, arguing that AI's tendency to generate plausible-sounding falsehoods makes cultivating doubt and uncertainty more important than ever. Yet most AI literacy frameworks emphasize confident use rather than productive skepticism.

[19] IA, alucinaciones y el rol de la duda en la educación

The Participation Paradox

A fundamental contradiction emerges in how we conceptualize AI literacy for democratic participation: the frameworks designed to empower citizens may actually constrain their ability to shape AI's role in society. [13] presents experimental evidence that including citizens in AI governance discussions leads to more ethical and inclusive outcomes, yet most literacy frameworks prepare people to be users rather than participants in such deliberations.

[13] Democratic governance through DAO-based deliberation...

This participation paradox manifests most clearly in whose perspectives shape AI literacy itself. The evidence reveals a stark absence of youth voices despite young people being primary targets of literacy efforts. [26] provides rare insight into children's perspectives, finding that young AI users demonstrate sophisticated understanding of both benefits and risks – nuances often missing from adult-designed curricula. The study found children could articulate concerns about privacy, authenticity, and social pressure that literacy frameworks rarely address.

[26] Los niños que aman la IA son quienes mejor ven sus peligros

The exclusion of citizen perspectives extends to policy formation. [42] and [6] document regulatory responses to AI risks that proceed without meaningful input from affected communities. These top-down approaches assume citizens need protection rather than participation, reinforcing a model where AI governance happens to people rather than with them.

[42] Government consultation on children's online safety to look at AI chatbots
[6] Alaska Backs Teen Social Curfew And Child AI Deepfake Ban

Power dynamics fundamentally shape what counts as AI literacy. [42] reveals significant disagreements among AI experts about disinformation and appropriate responses, yet these expert debates rarely include voices from communities most affected by algorithmic harms. The study's survey of researchers and practitioners shows consensus on technical issues but divergence on social implications – precisely where broader participation would be most valuable.

[42] On the same page? Experts are mostly, but not always...

Current frameworks perpetuate these exclusions through their em-

phasis on individual competency over collective action. [8] stands out for documenting deliberative workshops where citizens collectively developed AI governance recommendations. Yet such participatory approaches remain rare, with most literacy efforts focused on helping individuals adapt to AI rather than collectively shaping its development.

[8] Apprendre ensemble pour une intelligence artificielle responsable - Canada

The participation paradox becomes more acute when examining who delivers AI literacy education. [9] uses structural equation modeling to show that perceived usefulness drives AI adoption in educational settings, but the study doesn't examine who determines what counts as "useful." Corporate training programs, university partnerships with tech companies, and government initiatives each embed particular assumptions about AI's role in society.

[9] Bridging AI literacy and UTAUT constructs: structural equation... - Nature

Geographic and economic inequities compound these participation gaps. While [42] describes AI training programs in the Global South, such initiatives typically export frameworks developed elsewhere rather than building on local knowledge and needs. The article acknowledges that participants gain technical skills but have little input into how AI systems affecting their communities are designed or deployed.

[42] Womandla, IBM et IAVE lancent un programme de requalification en Afrique du Sud

Even well-intentioned efforts to broaden participation can reinforce existing hierarchies. [27] proposes a "holistic ecosystem model" for AI literacy involving multiple stakeholders, yet the framework emerges from Davos discussions among global elites rather than grassroots organizing. The model's emphasis on "intervention points" positions citizens as targets rather than agents of change.

[27] Media and information literacy in the disinformation age

The participation paradox suggests that true AI literacy must include what [36] calls "emancipatory" dimensions – not just understanding how AI works but developing capacity to influence its development and governance. This requires moving beyond individual skills to collective capabilities: organizing, advocating, and imagining alternative AI futures. Yet such political dimensions remain largely absent from mainstream literacy frameworks.

[36] Rapport - "Littératie en intelligence artificielle (IA)"

Reimagining Literacy for Democratic Life

What would AI literacy look like if designed primarily for democratic participation rather than economic adaptation? The evidence suggests several necessary shifts that challenge current approaches. First, literacy must begin with questioning rather than accepting AI's presence. [11] argues for frameworks that ask not just "how to use AI?" but "should we use AI here?" The article describes pedagogical approaches

[11] Comment encadrer l'IA sans déshumaniser l'éducation

that cultivate what it calls "critical distance" – the ability to step back and evaluate whether AI serves human flourishing in specific contexts.

Reimagined literacy would foreground collective rather than individual capacities. [31] offers a rare model that emphasizes institutional and community readiness over individual skills. While focused on higher education, its framework suggests how literacy efforts could build collective capacity for AI governance. The toolkit includes templates for community deliberation and shared decision-making about AI adoption.

[31] PDF Building AI-Capable Institutions: Implementation Tools for Higher Education

Power analysis must become central to AI literacy. Current frameworks largely ignore questions of who controls AI systems, who profits from their deployment, and whose values they embed. [24] reports on a Brookings study involving multiple countries that found citizens increasingly concerned about AI concentration in tech corporations, yet literacy frameworks rarely address corporate power or alternatives like public AI development.

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

Historical and social context proves essential yet absent from most frameworks. [39] demonstrates how understanding AI's impact requires deep knowledge of existing practices and power relations within specific domains. The study of translator education shows that AI doesn't simply automate tasks but restructures entire fields of practice – insights that generic AI literacy frameworks miss.

[39] Teaching translation in the age of generative AI: New paradigm, new...

Youth leadership offers untapped potential for reimagining literacy. Rather than protecting young people from AI or training them to use it, what if literacy efforts centered their perspectives and agency? [40] documents how young people navigate algorithmic systems with sophistication that formal literacy frameworks fail to capture. The article's experiment revealing algorithmic manipulation could become a model for youth-led AI investigation and advocacy.

[40] Un día en el TikTok de un adolescente de 13 años: así... - El País

Resistance and refusal must be recognized as legitimate literacy practices. [18] describes techniques like "lateral reading" and "click restraint" that involve not engaging with AI-generated content rather than trying to parse it. Similarly, frameworks should include when and how to refuse AI systems – from opting out of surveillance to demanding human alternatives.

[18] How to teach students critical thinking skills to combat misinformation...

Most fundamentally, AI literacy for democratic participation requires temporal depth – understanding not just current AI systems but how to think about unknown future developments. [12] warns that focusing on current AI capabilities leaves citizens unprepared for rapid technological change. The article suggests literacy should develop "adaptive capacity" – principles and practices that remain relevant as AI evolves.

[12] Deepfake Propaganda Threatens Global Election Integrity

This reimagining faces significant obstacles. Institutional pressures for immediate, measurable outcomes conflict with the slow work of building critical democratic capacity. Corporate interests in shaping AI literacy to ensure market acceptance clash with pedagogies of questioning and resistance. Perhaps most challenging, the complexity of AI systems can overwhelm attempts at meaningful public understanding and participation.

Yet the evidence also reveals possibilities. Communities are already developing their own AI literacies through practice – parents organizing against school surveillance, workers documenting algorithmic management, citizens conducting AI audits. [41] describes student journalists uncovering AI surveillance systems through public records requests, demonstrating investigative literacies that formal frameworks neglect. These grassroots efforts suggest that reimagined AI literacy might emerge not from expert frameworks but from communities defending their interests against algorithmic power.

[41] Universities and Students Investigate Use of AI Surveillance Tool in...

Conclusion: Literacy as Democratic Practice

The landscape of AI literacy reveals more than competing frameworks – it exposes fundamental tensions about technology's role in democratic society. Current approaches, dominated by instrumental logic and implementation urgency, prepare citizens primarily as users and workers rather than democratic participants. The evidence from [4] synthesizes these tensions, noting that while initiatives proliferate globally, "critical debates about power, agency, and alternative futures remain marginalized in mainstream literacy efforts."

[4] AI Literacy Review - March 3, 2026 - AI Literacy Institute

The costs of this narrow vision are becoming clear. As documented throughout this analysis, we see skill degradation in professionals, cognitive offloading in students, and the erosion of collective sense-making capacities. More fundamentally, we see citizens positioned as subjects of AI systems rather than agents capable of shaping their development and deployment. The participation paradox – where literacy frameworks designed for empowerment actually constrain democratic agency – suggests that incremental reforms to existing approaches will prove insufficient.

Yet the evidence also points toward possibilities for reimagining AI literacy as democratic practice. This would mean starting with questions of power and purpose rather than technical function. It would mean developing collective capacities for governance alongside individual skills. Most importantly, it would mean recognizing that in a democracy, the most important form of AI literacy might be the abil-

ity to say no – to refuse systems that undermine human flourishing, to demand alternatives that serve collective needs, and to imagine futures where technology serves democracy rather than subverting it.

The path forward requires more than better frameworks or implementation strategies. It demands a fundamental shift in how we conceive the relationship between citizens and AI systems. Rather than asking how to make people AI-literate according to predetermined definitions, we might ask how communities can develop their own literacies through democratic practice. This shift from literacy as received knowledge to literacy as collective capacity offers hope for navigating an AI-transformed world while preserving and enhancing democratic life. The question is not whether we need AI literacy, but whose literacy counts and who gets to decide.

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