

CURATING THE DIGITAL PUBLIC SQUARE: THE URGENT NEED FOR AI LITERACY AS A FOUNDATIONAL CIVIC COMPETENCY

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Abstract

The algorithmic curation of public discourse by artificial intelligence has fundamentally restructured the public sphere into digitally mediated environments where information flow, opinion formation and civic engagement are increasingly shaped by systems optimized for engagement rather than democratic values. This paper argues that a profound civic AI literacy gap has emerged, leaving citizens vulnerable to manipulation, unable to exercise informed consent and excluded from governing technologies that shape their civic lives. Drawing on existing literacy frameworks, the paper develops a multidimensional model of civic AI literacy encompassing three core dimensions: technical understanding of how AI systems function and shape information environments; critical evaluation skills for assessing AI-generated content and identifying manipulation; and ethical-participatory awareness for democratic stewardship of technological systems. The paper demonstrates that systematic AI literacy education is feasible and adaptable across diverse national contexts. Based on these findings, the paper proposes a multi-tiered implementation strategy integrating civic AI literacy into formal education curricula across all levels, community-based lifelong learning programs and public policy frameworks that mandate platform transparency and democratic accountability. The paper concludes that without systematic education about AI's role in shaping discourse, citizens cannot meaningfully participate in, critique or steward the digital environments essential to 21st-century democracy, making AI literacy not merely an educational reform but an urgent investment in democratic resilience.

Keywords: AI Literacy, Civic Education, Digital Public Square, Algorithmic Curation, Democratic Resilience, Digital Citizenship.

Introduction

Over the past two decades, a paradigm shift has occurred in the architecture of public discourse, as the town square, community meetings, and traditional media have been increasingly supplanted by digital platforms powered by artificial intelligence that algorithmically curate what this paper will refer to as the "digital public square" (Zuboff, 2019). These AI-powered platforms now mediate the flow of information, the formation of opinion, political discourse, and civic engagement, deciding whose voices are raised or silenced and whose information sees the light of day, yet citizens have little comprehension of how AI influences their information environment, perceptions, and civic decisions, a lack of knowledge that constitutes a crisis of civic AI literacy that leaves citizens susceptible to exploitation and unable to exercise genuinely informed consent in their civic activities (Noble, 2018).

AI literacy goes beyond simple technological competence and involves three interrelated aspects in the civic realm: grasping the functioning and information-environmental impact of AI systems; building critical skills to evaluate AI-produced content and identify bias, manipulation, and misinformation; and fostering ethical knowledge to actively shape the digital environments that contextualize civic life, without which citizens cannot effectively control the technology that regulates civic conversation (Ng, et al., 2021). The gravity of this crisis is further exacerbated by the rapid integration of AI into the social and political realm, where recommendation algorithms influence news consumption for hundreds of millions by valuing engagement over fact while creating filter bubbles, generative AI allows for synthetic content that is indistinguishable from human production to enable unprecedented levels of disinformation, and microtargeting technologies enable political actors to send messages based on detailed psychological profiles constructed from digital trails without the knowledge or consent of citizens.

This has resulted in many forms of democratic crises worldwide, ranging from the manipulation of social media to influence electoral outcomes in dozens of countries to conspiracy theories and misinformation about health during the COVID-19 pandemic to AI-powered surveillance systems and their implications for freedom of expression, especially among marginalized communities whose voices are most impacted by these systems (Benjamin, 2019). Yet, civic education has not evolved to address these challenges appropriately. The focus of civic education has continued to be rooted in the institutions and processes of democratic governance while remaining oblivious to the technologies that increasingly act as intermediaries between citizens and these institutions. Thus, students are taught about the branches of government and not about search engine algorithms that shape access to political information; they are taught about the history of propaganda and not about the role of generative AI in propagandistic content production; and they are encouraged to debate policy stances without being equipped to identify when these policy stances are being influenced by micro-targeted advertising campaigns (Kahne & Bowyer, 2017).

This paper contends that a qualitatively different information environment, in turn, necessitates a qualitatively different set of civic competencies, that existing models of digital literacy are not adequate to meet the challenges of AI systems that are actively curating the user experience, and that AI literacy needs to be reconceptualized as a key part of civic education, from primary to tertiary levels and through community-based initiatives and public policy, because without education on the role of AI in shaping discourse, citizens are not able to meaningfully participate in, evaluate and manage the digital environments that are so central to 21st-century democracy itself.

Overview of AI Literacy as a Foundational Civic Competency

AI literacy refers to a series of skills that allow an individual to critically comprehend, assess, and interact with AI technologies in their personal, professional, and civic life. AI literacy, therefore, involves a deeper understanding of AI systems and their role in information environments and individual and collective decision-making processes, as opposed to basic digital literacy, which involves the effective utilization of digital tools and technologies. In the civic sphere, AI literacy, therefore, plays a crucial role in democratic processes that are increasingly influenced by AI systems (Long & Magerko, 2020). The idea of literacy has historically been connected to civic engagement. When societies began to invest in the universal education of reading and writing, they did so not only for the purposes of individual betterment but also for the purpose of preparing citizens for active engagement in democratic society. The same is true for AI literacy in the twenty-first century. Just as literate citizens were able to read the newspaper, analyze political rhetoric, and engage in written political discourse, so too must digitally literate citizens be able to navigate information environments that are algorithmically filtered, identify computational propaganda, and understand how their data affects their civic experience (boyd & Crawford, 2012). AI literacy as a civic skill involves multiple interrelated aspects. First, there is a need for citizens to have a basic understanding of how AI works--not necessarily how programming occurs but an understanding of concepts such as machine learning, algorithmic curation, and data-driven personalization. Such an understanding would allow citizens to recognize when AI is influencing their information environment and provide a foundation for citizens to question how this influence occurs and for what ends.

Citizens require AI-mediated content-specific critical evaluation skills, and these are an extension of the traditional media literacy skills that were required of readers, such as the ability to evaluate sources, detect bias, and evaluate evidence. AI literacy builds on these skills and equips citizens with the ability to evaluate challenges that are unique to AI systems, such as detecting deepfakes, understanding recommendation systems and filter bubbles, detecting microtargeted political messages, and evaluating AI-generated content for credibility. These skills are necessary because the information environment is no longer solely produced and curated by humans, but increasingly by machines (Wineburg & McGrew, 2019). Citizens must have ethical and participatory awareness of AI systems. This means being aware of the values and beliefs underlying the systems, being aware of the potential of AI systems to reproduce and exacerbate existing inequalities in society, and being able to advocate for systems that are in the interest of democracy and not in the interest of business alone. This also means being aware of one's rights to privacy and being able to participate in governance processes (Winner, 1980).

Dimensions of Civic AI Literacy

Based on existing frameworks of digital literacy, media literacy and science and technology studies, Hamilton, et al. (2020) proposed a framework of civic AI literacy that has three core dimensions: technical understanding, critical evaluation and ethical-participatory awareness. Each dimension has particular competencies that citizens must have to participate meaningfully in AI-mediated public discourse.

technical understanding: Technical understanding refers to basic comprehension of how AI systems function and shape information environments. This dimension does not require citizens to become programmers or data scientists, but rather to develop conceptual grasp of key concepts that enable informed engagement with AI-mediated systems. Core competencies in technical understanding include:

algorithmic awareness: Citizens should understand that algorithms actively shape their online experiences, curating content based on engagement metrics, user data, and other factors. This includes recognizing that search results, social media feeds, and recommendations are not neutral reflections of available content but are actively constructed by systems designed to optimize for particular outcomes (Hamilton et al., 2020).

data literacy: Citizens should understand how their data is collected, used, and monetized by digital platforms. This includes awareness of tracking technologies, data brokerage, and the use of personal data for

targeting political messaging. It also encompasses understanding of privacy risks and strategies for protecting personal information.

understanding of automation: Citizens should recognize the capabilities and limitations of automated systems, including the difference between rule-based algorithms and machine learning systems, the role of training data in shaping AI outputs, and the potential for AI systems to perpetuate or amplify biases present in their training data.

platform awareness: Citizens should understand the business models and incentive structures that shape major digital platforms. This includes recognizing that platforms optimized for engagement may prioritize sensational or divisive content, and that commercial interests may conflict with democratic values in shaping algorithmic systems.

critical evaluation: It refers to the capacity to evaluate AI-produced content for manipulation, bias, and misinformation. This competency is an extension of media literacy to address the challenges of AI-mediated information environments. The key competencies of critical evaluation are:

detection of synthetic media: Citizens should be able to identify or question content that may be AI-generated, including deepfakes, synthetic text, and manipulated images. While perfect detection is impossible even for experts, citizens should develop healthy skepticism and know strategies for verifying suspicious content.

recognition of algorithmic bias: Citizens should recognize that AI systems can perpetuate and amplify societal biases, leading to discriminatory outcomes in areas ranging from content moderation to predictive policing. This includes understanding how bias can enter systems through training data, design choices, and deployment contexts.

identification of manipulation tactics: Citizens should recognize common manipulation tactics in AI-mediated environments, including microtargeted political advertising, astroturfing campaigns using automated accounts and coordinated inauthentic behavior designed to shape public discourse.

source evaluation in algorithmic contexts: Citizens should extend traditional source evaluation skills to account for algorithmic curation. This includes recognizing that content appearing in search results or social media feeds has been selected by algorithms based on factors that may not align with accuracy or relevance, and seeking out diverse sources beyond algorithmically curated content.

ethical-participatory awareness: Ethical-participatory awareness refers to understanding the values and assumptions embedded in AI systems and developing capacity to participate in democratic governance of technology. This dimension encompasses both ethical reflection on the implications of AI and active engagement in shaping technological development. This include the following:

values in design: Citizens should understand that AI systems are not neutral but embody particular values and assumptions through their design, training data, and deployment contexts. This includes recognizing that design choices reflect priorities and interests that may not align with democratic or public interest values.

rights awareness: Citizens should understand their rights regarding AI systems, including data privacy rights, rights to explanation for algorithmic decisions, and protections against algorithmic discrimination. This includes knowing how to exercise these rights and advocate for their expansion.

democratic accountability: Citizens should understand how AI systems can be governed democratically, including through regulation, oversight mechanisms, and public participation in technology policy. This includes recognizing the limitations of purely technical or market-based approaches to governing AI and the necessity of democratic accountability.

civic participation in technology governance: Citizens should have opportunities and capacities to participate in shaping AI development and deployment, whether through public comment processes, engagement with civil society organizations, voting on technology-related ballot measures, or other forms of civic action.

solidarity and collective action: Citizens should recognize that AI systems affect communities differently and that addressing algorithmic harms often requires collective rather than merely individual responses. This includes understanding how to build solidarity across affected communities and engage in collective action to shape technological development.

These three dimensions are interrelated and mutually reinforcing. Technical understanding provides foundation for critical evaluation; critical evaluation enables ethical reflection; ethical awareness motivates participatory engagement. Together, they equip citizens for meaningful civic participation in AI-mediated democracy.

National Approaches to Civic AI Literacy Education

The recognition of AI literacy as a basic civic skill has led to different reactions among countries that are struggling with the challenges of algorithmically mediated public discourse. The cases of Finland, Taiwan and the United States provide typical information or details into the different strategies that are being used to address the challenges of AI literacy in different areas. These cases are important because they provide information on the feasibility of different models that can be used to build citizen capacity to navigate AI-curated information environments.

Finland has also come out as a world leader in AI literacy education through its innovative "Elements of AI" initiative, which was started in 2018 by the technology company Reaktor and the University of Helsinki. The initiative provides free online courses on the basics of AI that can be taken by anyone, regardless of their technical knowledge, and includes topics such as machine learning, neural networks, and the social implications of AI (Toivonen, et al., 2021). The extent and reach of the initiative have been remarkable, as the initiative has seen over one million learners enroll for the courses across Finland and other countries, translating to 20% of the Finnish population. There are a number of reasons why the Finnish initiative has been successful: institutional support, including partnership with the University of Helsinki and government agencies; pedagogical expertise, ensuring true accessibility with no technical requirements; and structuring the initiative not only as technical education but as civic education that is necessary for democratic engagement in an AI-mediated world. The Finnish initiative shows the value of accessible design, partnership with institutions, and the framing of AI literacy as a civic, rather than technical, skill, and also illustrates that online education can reach people at scale, although complementary offline programs are still valuable.

Taiwan has adopted novel ways of dealing with the challenges of AI-driven information environments through the use of public education, civic technologies, and democratic innovation. In the face of continuous disinformation campaigns by foreign entities, Taiwan has invested heavily in enhancing citizen resilience against manipulation as well as the development of technology that supports information integrity (Lin, 2022). At the heart of the Taiwanese strategy is the idea of "digital democracy," which harnesses technology to strengthen and not weaken democratic engagement, including public education campaigns on how to spot disinformation, fact-checking services available to all citizens, and platforms for collective deliberation on policy matters. The government has invested in the development of civic technologies that assist citizens in dealing with complex information environments, such as source verification and disinformation campaign tracking (Lin, 2022). The Taiwanese case, therefore, underscores the significance of contextual considerations, given the geopolitical situation that the nation finds itself in, which has necessitated the development of citizen resilience, although the general principles that the Taiwanese approach is founded on, including education, technology, and democracy, are universal.

Civil society has been at the forefront of promoting AI literacy, with various civil society organizations contributing to the promotion of AI literacy. For example, Common Sense Media has developed K-12

curriculum resources to address topics such as AI and digital citizenship. The Algorithmic Justice League works to increase awareness of the problems of bias in algorithms and advocate for more equitable algorithms. Data & Society works to research the implications of AI on society and develop educational resources to promote awareness about AI in the wider population (Noble, 2018). These are significant contributions to promoting AI literacy in the US, which has been characterized by limited action by the government to promote AI literacy. Despite the various initiatives by civil society to promote AI literacy in the US, the initiatives are limited to address the issue of AI literacy at the national level. There is no strategy to ensure that all citizens are able to access education in AI literacy. The initiatives that exist are limited to promoting individual skills rather than civic skills that are necessary for civic participation (Wineburg & McGrew, 2019).

Nigeria is actively and strategically building its own civic AI literacy environment. In contrast to the national coordination of online courses in Finland or the civic technology integration in Taiwan, the Nigerian model is marked by a dynamic environment of federal policy reform, large-scale public-private partnerships and grassroots civil society engagement. The federal government has established a policy foundation with the introduction of AI and digital literacy in the revised basic and secondary school curriculum, creating unprecedented demand for AI education throughout the country. In answer to the policy shift, massive projects such as "Naija Teacher AI," a collaboration between the Teachers Registration Council of Nigeria (TRCN) and GMind AI are working to develop teacher training, aiming to provide 1.5 million teachers with AI tools to reach over 30 million students with early results showing a significant reduction in teacher workload and confidence in digital education. In addition to this systemic approach, civil society organizations are also working to ensure that AI literacy is extended to all sections of society through culturally appropriate methods. For example, the Brain Builders Youth Development Initiative (BBYDI) has initiated the "AI Literacy for Everyday People" project which uses radio dramas in Yoruba, Pidgin and Hausa, as well as flashcards and storybooks, to demystify AI for farmers, students and parents, aiming to reach 100,000 learners in the first year alone.

Likewise, the Digital Democracy Lab, led by FactCheckAfrica, has provided training to over 500 journalists and civic actors across South-Western Nigeria, equipping them to harness the capabilities of AI systems for the analysis of the budget and governance accountability thus providing an example of the direct application of AI literacy for civic engagement (Brain Builders Youth Development Initiative (2025)). Moreover, research is also beginning to Gbogbor and Mulade (2025) examined the incorporation of AI literacy skills in the realm of higher education, revealing shortcomings in the realm of critical thinking and digital citizenship within the current curriculum and thus the need for further reform. The new model of AI literacy that is currently being developed and implemented across Nigeria thus shows that the development of AI literacy is not only possible but also requires the integration of a variety of different factors, including national, institutional, and grassroots, and culturally appropriate education.

Implementation Strategy for Civic AI Literacy

Guided by the multidimensional framework and the comparative case studies introduced above, the following multi-tiered implementation strategy for the integration of civic AI literacy into the education system and the broader public sphere is proposed. The strategy includes the integration of AI literacy into the education system, the broader community and the advocacy of AI literacy within the realm of public policy.

1. integration into formal education: Formal education offers the most systematic opportunity to develop civic AI literacy among entire generations of young people. Integration should take place at all levels of education, i.e., primary, secondary and tertiary education.

primary education: At primary levels, foundational concepts can be introduced through age-appropriate activities that build awareness of how digital systems work. Children can learn about recommendation algorithms

through simplified examples, explore how their data is used through interactive activities and develop beginning skills for questioning online content. The goal at this level is not technical mastery but building curiosity and foundational awareness that will support later learning.

secondary education: At secondary levels, more systematic instruction can address the three dimensions of civic AI literacy. Technical understanding can be developed through accessible explanations of concepts like machine learning, algorithmic curation and data collection. Critical evaluation skills can be taught through analysis of algorithmically curated content, identification of manipulation tactics, and evaluation of synthetic media. Ethical-participatory awareness can be developed through discussion of AI's societal implications, exploration of rights and responsibilities and engagement with real-world cases.

tertiary education: At tertiary levels, all students should have opportunities to develop civic AI literacy regardless of their major field of study. General education requirements should include courses addressing AI's societal implications, and institutions should offer co-curricular opportunities for deeper engagement. For students in technical fields, curricula should integrate ethical and policy considerations alongside technical content. For students in humanities and social sciences, opportunities should exist to engage with AI as both subject of study and tool for research.

teacher preparation: Effective integration requires teachers who themselves possess civic AI literacy. Teacher preparation programs should include content on AI's role in society and pedagogical approaches for teaching these concepts. In-service professional development should provide practicing teachers with resources and support for integrating AI literacy across subjects.

2. community-based learning opportunities: Formal education alone cannot reach all citizens, particularly adults who completed their schooling before AI literacy became essential. Community-based learning opportunities are essential for reaching learners across the lifespan and ensuring that all citizens can develop these competencies.

public libraries: Libraries have long served as community hubs for literacy education and can play similar roles for AI literacy. Library programs can offer workshops on topics ranging from data privacy to identifying misinformation, reaching diverse community members in accessible settings. Librarians can receive training to support patrons in navigating AI-mediated information environments.

community organizations: Community-based organizations serving specific populations (seniors, immigrants, low-income communities and others) can integrate AI literacy into their existing programmes. Tailored approaches that address specific concerns and contexts can be more effective than generic programs for reaching diverse learners.

public media and online resources: Public media organizations can develop content that builds AI literacy, reaching broad audiences through familiar channels. Online resources, building on models like Finland's "Elements of AI," can provide accessible learning opportunities at scale. These resources should be designed for diverse learners and available in multiple languages.

3. public policy and advocacy: Individual and community efforts must be supported by public policy that creates conditions for civic AI literacy to flourish. Policy interventions are needed at multiple levels to ensure systematic, equitable access to AI literacy education.

educational standards: States and nations should integrate civic AI literacy into educational standards across subjects. Standards should address the three dimensions of technical understanding, critical evaluation, and ethical-participatory awareness, and should provide guidance for age-appropriate progression from primary through secondary education.

funding and resources: Governments should allocate resources to support AI literacy education, including funding for curriculum development, teacher preparation, and community programs. Resources should be directed particularly to underserved communities to address equity gaps in access to AI literacy.

research and assessment: Investment is needed in research on effective approaches to AI literacy education, including development of assessment tools that can measure progress in developing these competencies. Evidence from research should inform ongoing refinement of educational approaches.

platform accountability: Public policy should hold digital platforms accountable for their role in shaping public discourse. This includes requirements for transparency regarding algorithmic systems, protections for user data, and mechanisms for public input into platform governance. Such policies create conditions where citizen AI literacy can be more effective, as platforms become more legible and accountable.

democratic innovation: Beyond regulation, policy should support democratic innovation that gives citizens meaningful agency in shaping technological development. This includes support for civic technology, participatory processes for technology governance and public investment in AI systems designed to serve democratic rather than merely commercial interests. Conclusion

The algorithmic curation of public discourse has transformed democratic citizenship by creating AI-driven information environments where engagement optimization, microtargeted messaging and disinformation campaigns undermine the informed consent essential to democracy, requiring AI literacy to be reconceptualized as a foundational civic competency. Without systematic AI literacy education encompassing technical understanding, critical evaluation and ethicalparticipatory awareness, citizens remain vulnerable to manipulation and excluded from governing technologies that shape their lives. Systematic AI literacy education is feasible and adaptable across national contexts offering models for broader implementation. As AI systems grow increasingly sophisticated with generative content, recommendation algorithms and predictive technologies, citizen competence in navigating AI-mediated environments becomes essential rather than optional. Every year without systematic AI literacy education leaves citizens unequipped, entrenches algorithmic systems and widens the gap between technological sophistication and civic competence. The investment required is substantial but the cost of inaction erosion of informed consent, manipulation of public opinion and hollowing out of democratic deliberation is far greater.

Suggestions

The following suggestions are made for advancing civic AI literacy as a foundational competency:

Civic AI literacy education should be included in the curriculum of all levels of education, from primary through tertiary education.

There is a need to develop teachers' training programmes and community education programs to help citizens learn about AI concepts and provide citizens with opportunities to learn about AI through community education.

A public awareness campaign should be initiated through media and government institutions to help citizens learn about AI concepts and develop resources to help citizens learn about AI concepts.

A policy should be implemented to require algorithmic disclosure from digital platforms and ensure digital platforms are working in the best interest of democracy, while promoting civic technology to give citizens a say in the development of technology.

Funding should be provided to develop tools and resources through international cooperation to help develop a framework to measure progress in AI literacy.

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