The hidden curriculum of the Amazon future engineer educational program

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This paper critically examines the Amazon Future Engineer (AFE) program, a global educational initiative designed to expand access to computer science education for underserved communities. While AFE promotes itself as a philanthropic intervention aimed at bridging the digital divide, this study interrogates its hidden curriculum and ideological foundations. Drawing on critical pedagogy, curriculum theory, educational sociology, and critical data studies, the paper argues that AFE serves as a vehicle for neoliberal ideology, prioritizing human capital development, corporate interests, and platform-based governance under the guise of technological inclusion. Through its emphasis on employability, standardized digital content, and scripted pedagogy, AFE reconfigures education as a site of economic productivity and brand expansion. The paper also critiques the program's epistemic reductionism, its neglect of ethical, social, and ecological dimensions of engineering, and its disregard for more-than-human knowledge systems. By naturalizing technocratic values and depoliticizing educational goals, AFE contributes to the erosion of educational sovereignty and civic imagination. This analysis situates AFE within broader shifts in the political economy of education, marked by increasing corporate involvement and datafication. Ultimately, the paper calls for the development of alternative, justice-oriented pedagogical models that resist the colonization of education by market logics. By exposing the assumptions embedded in AFE's design and discourse, the study invites educators, policymakers, and scholars to reimagine education as a democratic, relational, and decolonial practice grounded in ethical responsibility and collective agency.

The Amazon Future Engineer (AFE) program is a global childhood-to-career initiative launched by Amazon in 2019 to expand access to computer science education for students from underserved and underrepresented communities. Designed to bridge the digital divide and promote educational equity in STEM, the program delivers comprehensive resources ranging from early education to college scholarships and career opportunities. AFE currently operates in the United States, Canada, the United Kingdom, France, and India, partnering with local governments, schools, and nonprofits to scale its impact. In India, for example, the program reached over 100,000 students across seven states during its first year and extended access to an additional 40,000 students in Telangana by 2023 (Amazon India, 2023). In the United States, AFE engages more than 550,000 students annually across over 5,000 schools, most of which are Title I or rural institutions (Amazon, 2024a).

The program is structured to support learners at multiple levels. Students from kindergarten through high school can access free online coding curricula, virtual field trips, and computer science camps. High school students at eligible schools are offered Advanced Placement (AP)

Computer Science courses and college preparatory resources. At the postsecondary level, AFE provides competitive scholarships of up to $40,000 over 4 years and offers paid internships at Amazon to recipients (Amazon, 2024b). The program also invests in educator development through its Teacher Ambassador Program, which provides teachers with professional development, instructional resources, and access to a network of peers and Amazon mentors (Amazon Future Engineer, n.d.).

AFE's success relies on collaboration among several key stakeholders. Amazon provides primary funding and infrastructure while also hosting interns and facilitating mentorship opportunities. Implementation is carried out in partnership with organizations such as Code.org, BootUp Professional Development, Georgia Tech, The Knowledge Society, and region-specific NGOs and education departments in India (Amazon, 2024c). Educators and school administrators act as intermediaries, bringing AFE content into classrooms and guiding student engagement. In addition, local and national government bodies, particularly in India, have collaborated with Amazon to embed AFE into public school systems (Amazon India, 2023).

As of 2024, Amazon has awarded more than $66 million in scholarships to over 1,650 students, including 400 high school seniors in the 2025 cohort alone (Amazon, 2024a). Beyond financial support, the program emphasizes equitable access to technology careers by increasing exposure to computer science education among students who might otherwise lack such opportunities. By combining targeted student interventions, educator empowerment, and strategic public-private partnerships, AFE serves as a scalable model for industry-driven educational philanthropy aimed at addressing systemic disparities in STEM education.

Understanding the underlying implications of the Amazon Future Engineer program is crucial not only because of its expanding reach and philanthropic appeal, but also because it exemplifies a broader shift in the political economy of education. As corporations increasingly embed themselves within public systems under the guise of social responsibility, it becomes vital to interrogate how such initiatives reshape educational values, goals, and practices. This paper asks what is at stake when technology companies assume the role of educational providers: what kinds of knowledge are legitimized, what forms of subjectivity are cultivated, and whose interests are ultimately served. Exposing the hidden curriculum of AFE allows us to make visible the ideological assumptions that guide it—assumptions that are often naturalized in mainstream policy discourse. By foregrounding these questions, this study contributes to critical conversations about educational justice, digital sovereignty, and the future of learning in an age of platform capitalism.

This paper critically interrogates the ideological foundations and educational implications of the Amazon Future Engineer (AFE) program. Positioned as a philanthropic initiative aimed at bridging the digital divide, AFE frames itself as an agent of democratization and opportunity.

However, drawing from critical pedagogy, curriculum theory, educational sociology, and data studies, I argue that AFE functions as a vehicle for neoliberal ideology, embedding a hidden curriculum that serves corporate interests under the guise of technological inclusion.

As Henry Giroux (1992 [1983]) reminds us, it is essential to look "through" official narratives to uncover the tacit goals of educational programs. Amazon describes AFE as a program that has reached over 3.2 million underserved students worldwide, offering STEM instruction

and promoting career readiness in technology fields (Chen, 2023). On the surface, the initiative offers access and empowerment. However, its discourse reveals deeper ideological operations.

AFE is grounded in what Schiro (2008) identifies as the social efficiency ideology of curriculum—the belief that education should serve the needs of society by producing efficient, skilled workers. Amazon's promotional language is suffused with terms like "preparing students for careers," "global economic productivity," and "investment in future generations." These phrases reflect the logic of human capital theory, which views education as an input to economic growth (Monroy and Flores, 2009). From this vantage, students are not citizens-in-formation but future labor units to be optimized.

The program exemplifies the neoliberal shift in educational governance, where corporate actors assume roles once reserved for public institutions (Ball, 2012; Verger et al., 2016). AFE operates as part of a broader trend in which technology companies use education as a site to expand their infrastructural reach and ideological influence. Amazon, like other tech giants, presents its platform as a neutral vehicle for learning, obscuring the fact that it also defines the epistemologies, skills, and values deemed worthy of transmission.

Following Trouillot (2016), this normalization of technological rationality constitutes a form of "epistemic closure" in which alternative worldviews are rendered invisible. The program assumes that participation in the tech economy is both desirable and inevitable, thus positioning its interventions as apolitical. Yet, as Andreotti (2011) notes, any claim to neutrality in education must be viewed with suspicion, especially when made by actors who benefit from existing inequities.

Moreover, the teacher in AFE is not conceptualized as a pedagogical agent but as a facilitator of predesigned content. The program provides scripted lesson plans, toolkits, and asynchronous training modules, suggesting that teaching is a technical act rather than a relational or intellectual one. This aligns with what Apple (1979) and McLaren (2007) critique as the deskilling of educators under managerial models of schooling. It also reflects the logic of platformization, whereby educational processes are standardized and scaled across multiple contexts through digital infrastructures.

AFE fits what Bowles and Gintis (1976) describe as the correspondence principle: schooling is structured to mirror the hierarchical, authoritarian nature of capitalist workplaces. The skills emphasized—compliance, technical proficiency, problem-solving within predetermined frameworks—are those valued in corporate settings. Students are trained to adapt rather than transform, to produce rather than question. This pedagogical framing contrasts sharply with constructivist approaches that emphasize inquiry, agency, and contextualized learning (Sawyer, 2014).

More troubling is AFE's participation in the datafication of education. As Williamson (2017) and Selwyn (2020) argue, educational technologies often function as tools for data extraction, surveillance, and behavioral prediction. While Amazon does not explicitly disclose its data policies in the AFE materials, the broader context of its business model—which relies heavily on data harvesting—suggests that students may be both learners and data sources. This has profound implications for privacy, autonomy, and the commodification of learning. Furthermore, the increasing adoption of AI-driven adaptive learning systems may exacerbate these concerns by reducing students to quantifiable behavioral profiles.

From a Freirean perspective, AFE epitomizes the banking model of education (Freire, 2007). Students are treated as passive recipients of

information, rather than co-creators of knowledge. The emphasis on employability and technical skills evacuates any space for critical consciousness ("conscientização"), civic imagination, or democratic participation. Education becomes a means of social adjustment, not social justice.

Furthermore, AFE's discourse of empowerment through technology often masks paternalistic assumptions. Marginalized students are positioned as recipients of corporate benevolence, rather than as historical subjects capable of naming and transforming their world. This echoes critiques from postcolonial scholars who warn against "development" narratives that infantilize the Global South while legitimating Northern intervention (Bhattacharyya, 2018; Spivak, 1988).

Illich (1971) foresaw the dangers of institutionalizing learning through centralized, credentialed systems. In AFE, the credentials are implicit—proficiency in Amazon-approved skills equals readiness for the digital economy. This renders other forms of knowing invisible or obsolete. Local knowledges, cultural practices, and non-market-oriented values are excluded from the curriculum, reinforcing what de Santos (2014) calls epistemicide.

Current debates in critical education research increasingly center on the implications of platform capitalism and the political economy of ed-tech (Couldry and Mejias, 2019; Zuboff, 2019). Amazon's incursion into education is not an isolated case but part of a growing assemblage of private-public partnerships, philanthropocapitalism, and venture-funded reform initiatives that reconfigure education as a site of data production and brand loyalty. This raises questions about educational sovereignty, particularly in public systems that adopt proprietary corporate tools without sufficient oversight.

Recent advances in critical data studies suggest that the metrics used to assess educational success under such programs reinforce narrow notions of value and intelligence (Anagnostopoulos et al., 2013). They rarely measure creativity, collaboration, or ethical reasoning—traits essential for democratic life. Instead, they reward repetition, rule-following, and productivity, reinforcing meritocratic myths that obscure structural disadvantage (Littler, 2017).

Looking forward, educational scholars must grapple with how to design alternative models that resist these logics. Theories of relational pedagogy (Hooks, 1994), decolonial education (Mignolo and Walsh, 2018), and critical digital pedagogy (Morris and Stommel, 2018) offer promising directions. These approaches foreground learner agency, critique systems of oppression, and emphasize the ethical dimensions of teaching and learning in digital environments. Moreover, future research should explore participatory and community-based ed-tech initiatives that center the voices of marginalized students and educators. Open-source educational platforms, local curriculum development, and cooperative digital infrastructures represent possible interventions that challenge the hegemony of corporate models like AFE.

Ultimately, AFE reflects a broader phenomenon: the transformation of education into a site of market expansion and ideological reproduction. It is not merely a program; it is an apparatus of neoliberal governance, one that reshapes the meaning and purpose of education in the image of corporate interests. Rather than embracing AFE uncritically, educators, policymakers, and scholars must interrogate its assumptions, logics, and effects. What visions of the future are foreclosed when education is reduced to employability? What forms of citizenship are possible when students are treated as consumers rather than co-authors of democracy? What happens to education when its primary referent is the market?

To resist such capture, we must reclaim education as a public, political, and ethical endeavor—a space for dissent, imagination, and solidarity. This entails supporting pedagogical models that center critical inquiry, community relevance, and democratic co-creation. It also means challenging the encroachment of corporate actors who seek to redefine the mission of education in narrowly economistic terms.

While the hidden curriculum of AFE reflects broader neoliberal ideologies, its implications within engineering education merit closer attention. Engineering has historically been framed as an apolitical, technical field governed by objective rationality, yet scholars in critical engineering education have emphasized how such framing masks deeply social and ideological processes (Cech, 2013; Riley, 2008). AFE reproduces this apoliticism by emphasizing skills like coding, problem-solving, and optimization while omitting questions of ethics, justice, or environmental interdependence. The program's curricular materials rarely acknowledge how engineering decisions shape—and are shaped by—power relations, ecological systems, or social inequities. This omission reinforces a form of epistemic reductionism in which technocratic knowledge is privileged over relational, contextual, or situated ways of knowing. Furthermore, AFE's vision of engineering education remains firmly anthropocentric. It disregards emerging conversations around more-than-human epistemologies that center interspecies entanglements, ecological responsibility, and indigenous knowledges (Bastian et al., 2017; TallBear, 2011). In doing so, it perpetuates an extractivist ontology aligned with corporate technoscience, rather than fostering a relational ethic that situates engineering within broader socio-ecological lifeworlds. The absence of such perspectives not only narrows the intellectual horizons of students, but also forecloses the possibility of cultivating engineers who can imagine and design otherwise.

In sum, the hidden curriculum of AFE is not hidden at all for those willing to read critically. It is inscribed in its language, structure, and pedagogical practices. If we are to build an education that is truly liberatory, we must begin by asking: who benefits, who decides, and who gets to dream?

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

Funding

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

The author declares that no Gen AI was used in the creation of this manuscript.

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