

Enacting Collaborative Agency through Critical AI Literacy: A Community-Based Program with Black and Brown Middle School Girls and Their Families

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Problem Space

AI systems increasingly shape domains such as education, hiring, policing, healthcare, and media representation [3]. Yet Black and brown communities are disproportionately impacted by algorithmic bias, surveillance, data extraction, and exclusion from technological decision-making [2,4,6,7]. At the same time, these communities remain underrepresented in the design, governance, and policy conversations that shape how AI systems are built and deployed [1]. Youth, particularly girls of color, are even more rarely positioned as legitimate contributors to conversations about AI's social impact [5,8]. AI education often focuses on technical skills or passive awareness rather than cultivating the capacity to question, critique, and influence sociotechnical systems. In response, we ask: **How can critical AI literacy programs intentionally structure collaborative agency across youth, families, and educators, so that young people move from learning about AI to collectively shaping conversations about its ethical and social use?**

Setting

This study draws on a two-week, community-based informal learning program implemented in August 2024 in partnership with a local nonprofit organization focused on youth and family capacity building in underserved communities. The program was designed as a critical AI literacy experience integrating technical exploration, sociotechnical critique, and creative advocacy. The program included daily guest speakers—local artists, UX designers, advocates, public servants, and technologists—who addressed civic engagement, technology ethics, policymaking, and local community issues. University site visits exposed youth to research labs and innovation spaces, linking AI learning to real-world STEM pathways.

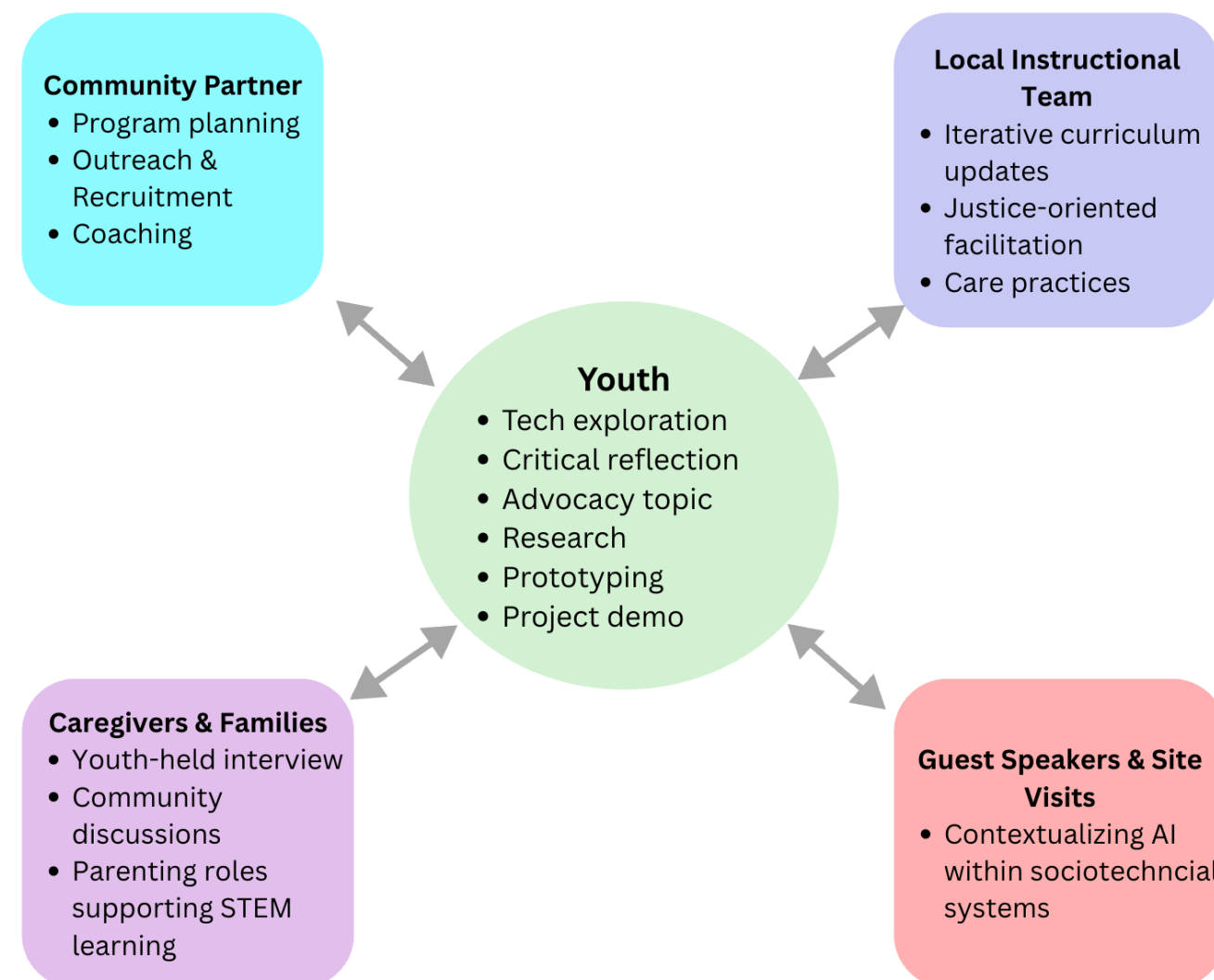


Figure 1: Stakeholder ecology of youth co-agency in the “Tech on the Block” critical AI literacy program.

Eighteen rising 5th–8th grade girls, primarily from Black and Latinx backgrounds, participated. Family engagement was embedded throughout, including orientations and two three-hour structured parent workshops designed to foster intergenerational dialogue about AI. The program was co-designed over ten months through weekly collaboration between the university research team and the nonprofit partner, who played a central role in recruitment, cultural responsiveness, and on-site facilitation.

Key Findings: Enactments of Co-Agency

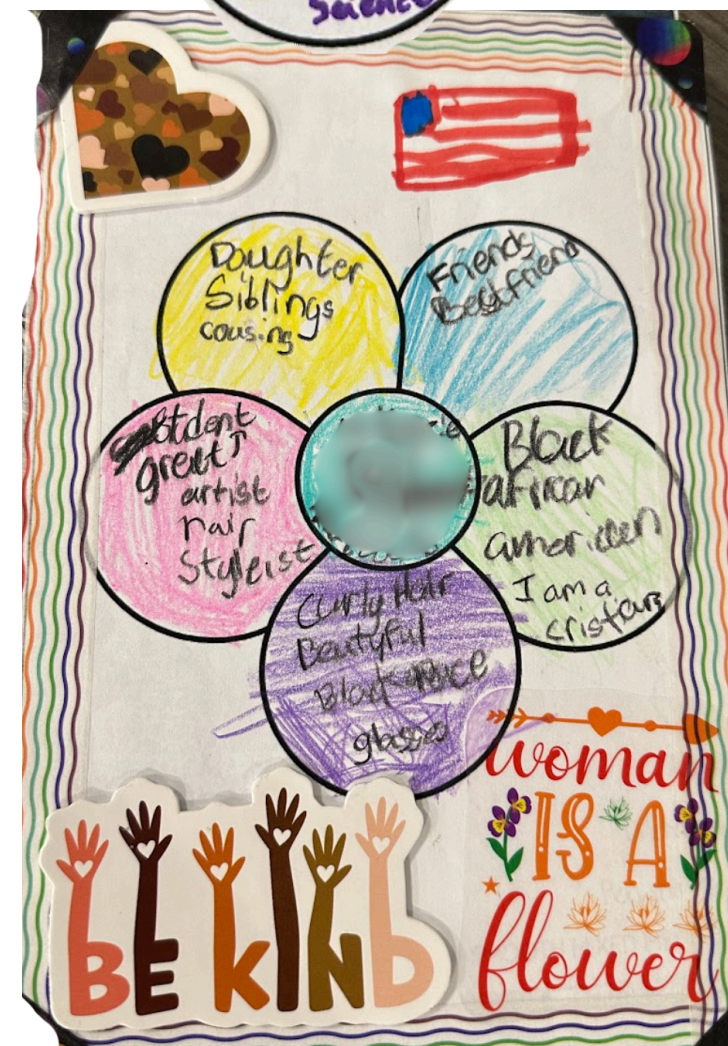
1. Identity & Community Visioning

Who am I? Who are we—and what must change?

The morning instructional space was intentionally structured as girls-only to cultivate belonging and reduce social pressures. Through icebreakers, the Identity Daisy, and sketchbook journaling, youth authored personal narratives and co-created classroom norms framed as shared values—respect, care, responsibility.

Agency was embedded in everyday decisions (names, seating, self-disclosure), establishing collective ownership before engaging generative AI. Afternoon guest speakers and university site visits further expanded youths' imaginaries of who participates in AI design. Artists, technologists, and advocates modeled community-centered technology work, reinforcing that AI development is not distant or neutral but shaped by people, power, and values.

Co-agency enacted through: co-construction of norms, shared responsibility, negotiated participation, and expanded visions of belonging in AI spaces.



Daisy Activity Artifacts (top, bottom)



Youth participants play “Guess Who” to surface shared identities and experiences at the start of the program



Students link arms and dance together during a break, expressing comfort and authenticity within the program

2. Power & Community Visioning

Who benefits—and what do we demand?

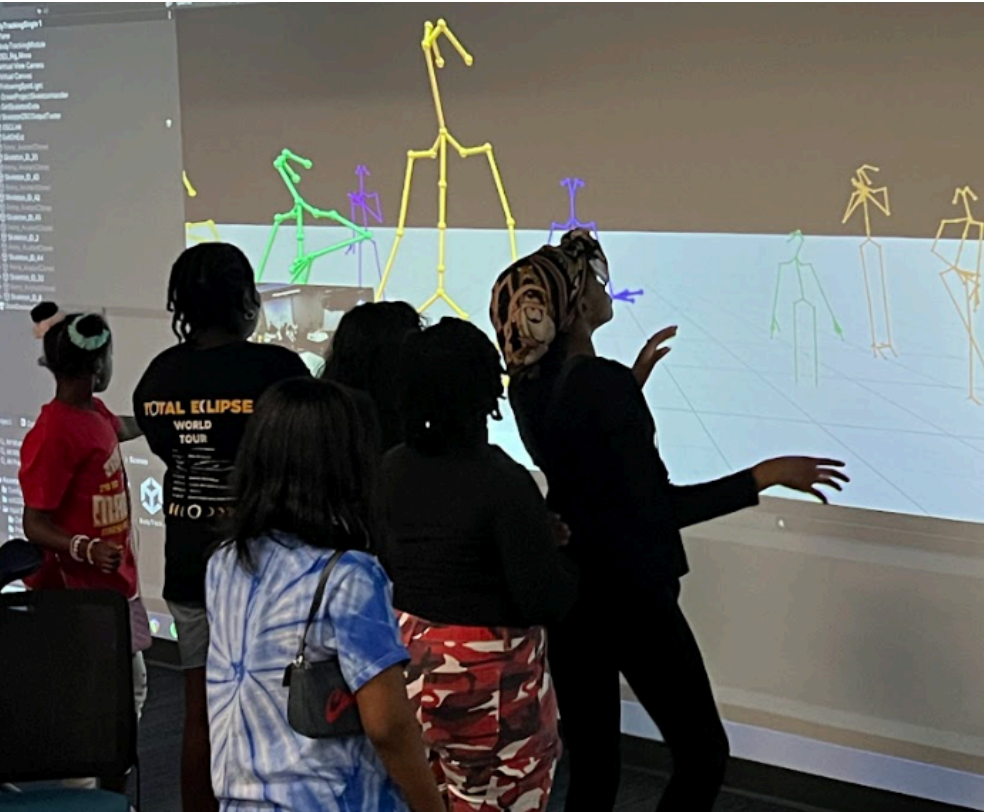
Before designing, youth examined how AI intersects with power, environmental impact, and community life. Through facilitated dialogue, girls collectively asked: Who benefits? Who is excluded? What changes do we demand from those in power?

Participants surfaced advocacy themes—representation, racial equity, environmental justice—and debated how technology could either reinforce or challenge injustice. Decisions about project direction emerged through group deliberation rather than individual assignment.

Co-agency enacted through: collective visioning and shared political imagination.



Guest Speaker Session on How to be Change Agents



Site visit to the Motion Capture Lab



Student Training an Image Classifier on Sandals vs Shoes



Instructional Session on Algorithms

3. Making AI Visible

How do AI systems shape outcomes?

Using Teachable Machine, youth trained classifiers with self-generated datasets, observing how data choices affected accuracy. Through generative tools, they remixed prompts and compared outputs. When biased results emerged, interpretation was collaborative: girls debated causes, questioned training data, and examined representation. AI behavior became a shared object of inquiry rather than an authority.

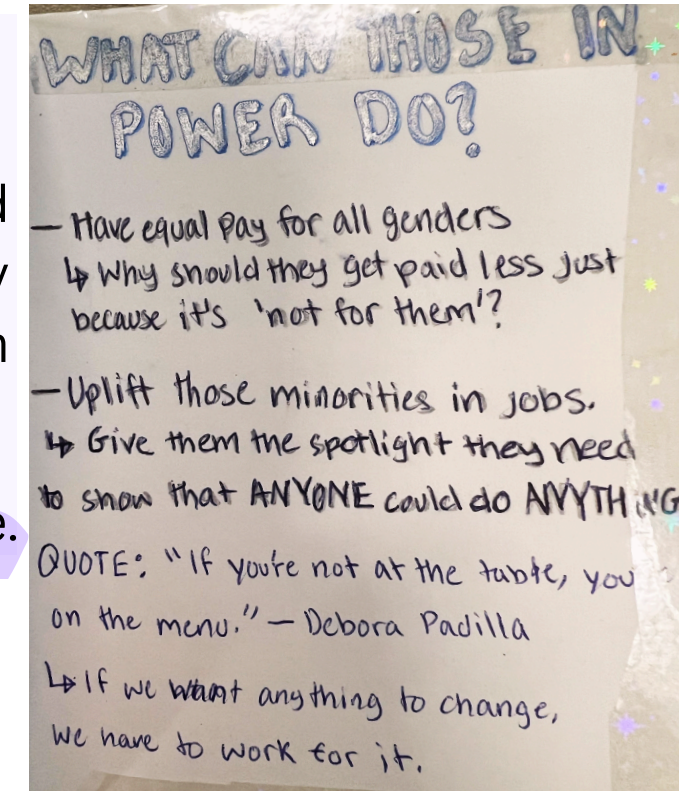
Co-agency enacted through: collective technical experimentation, shared interpretation of bias, and negotiated meaning-making.

4. Youth-Led Inquiry

What does our community experience?

Girls authored interview questions on racial injustice, policing, representation, and AI bias. They then refined their questions using mock interviews with their peers before engaging parents, caregivers, and community members. Community voices informed design revisions, extending decision-making beyond the classroom. Youth positioned themselves as researchers gathering situated knowledge, while families contributed lived experience.

Co-agency enacted through: intergenerational dialogue, shared knowledge production, and distributed expertise.



Zines critiquing bias in AI systems and calling for accountability and oversight mechanisms.



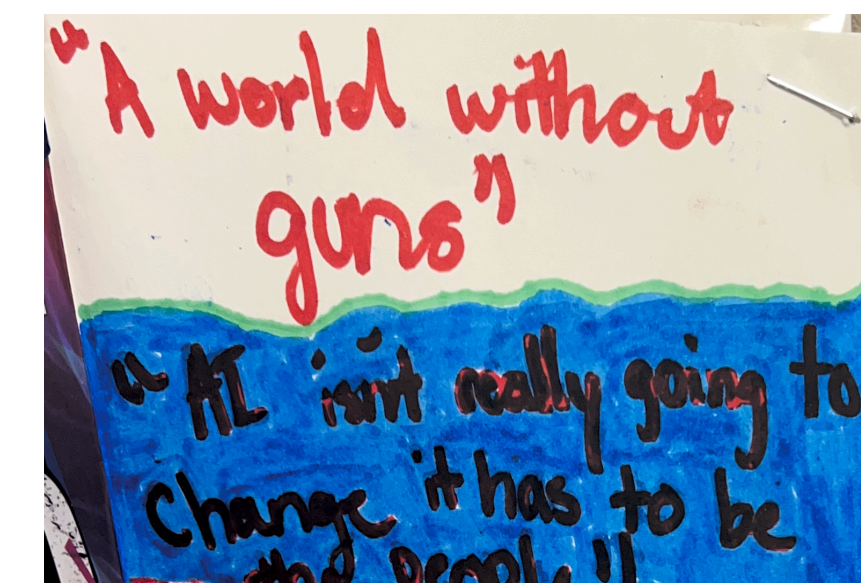
Youth interviewing community members



Prototyping workflow: from hand sketch to AI comparison, annotated revisions, and final 3D artifact with artist statement.



Intergenerational dialogue during youth project presentation



Zine exploring how equitable AI design and policy reform impacts reducing gun-related harm.

5. Creative Redesign

What should AI become?

Critique culminated in speculative redesign. Through iterative sketching, AI image comparison, zine-making, 3D prototyping, and afternoon creative stations, youth materialized ethical, community-centered AI futures. Artifacts incorporated community insights and articulated demands for diversity, transparency, and policy reform. Public showcase sessions invited feedback, reinforcing that their designs entered broader conversation.

Co-agency enacted through: collaborative artifact creation, public articulation, and shared authorship of alternative technological futures.