Rethinking Embodiment: Algorithmic Activisms and Critical Embodiment Pedagogy for Equitable AI Design

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This paper argues that composition instructors and researchers can curate equitable AI tools by foregrounding and recognizing the diverse embodied experiences of learners, engaging with counter-publics and marginalized communities, and empowering them to compose for accessibility and inclusivity. Generative AI (GenAI) plays a major role in advancing ideologies and (mis) representing and silencing diverse bodies. As educational technologies advance and GenAI achieves interdisciplinary utilization, scholarly conversations are geared towards the ways composition classrooms critique the ideologies behind AI perceptions and evaluate the ways individuals are (mis)represented by these tools, in digital spaces (Noble, 2018; Marlowe and Purdy, 2021; Vee, 2017). Drawing on Christina Cedillo's critical embodiment pedagogy and Michael Warner's notion of counter-publics, this paper explores the body as a site of public rhetoric shaped by the discourse around AI, embodiment, inclusivity, and marginalization. We highlight *The Maker or Do-It-Yourself (DIY) movement in Western Kenya* and *Black Girls Code* as illustrations of how a community-driven approach to integrate the bodily experiences of others can result in inclusive AI tools, thus fostering an equitable educational and digital landscape. Based on insights from these case studies, we propose classroom activities aimed at fostering equitable AI technologies grounded in critical embodiment pedagogy.

Activism has long served as resistance to diverse social justice concerns and struggles globally. People, marginalized/*othered* by race, abilities, class, socioeconomic status, gender, and religion among others, have engaged in activism as a means of creating awareness about their marginalized status, depicting life as the other, and facilitating positive change. Daily, across countries globally, "people gather to intervene and advocate for themselves in response to everything from seemingly mundane localized concerns to major social justice movements" (Phillips et al., 2024, p.2). Significantly, grassroots activisms are diverse localized responses to certain exigencies, emergent or ongoing social injustices

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within a specific community, and could result in collective action both online or on the ground (Phillips et al., 2024, p.18). Technologies and interfaces are not value-neutral and are used to perpetuate social injustices and marginalization. Hence, this paper posits that rethinking embodiment through the frameworks of algorithmic activism and critical embodiment pedagogy is pertinent to fostering equitable AI design. This can be achieved through collaboration between composition teachers and creators of composition technologies. This interdisciplinary collaboration will enhance critical digital literacy as well as ensure accurate representation of minority groups in digital spaces. Ultimately, this paper explores the *Maker or Do-It-Yourself (DIY) movement* in Western Kenya and *Black Girls Code* as case studies of algorithmic activism that illustrate how community-driven approaches and critical embodiment pedagogy integrating the bodily experiences of *others* can result in inclusive AI tools, thus fostering an equitable educational and digital landscape.

The latest composing technologies, such as generative artificial intelligence (GenAI) tools, social media spaces, Google, and wikis, reflect socio-political ideologies. These ideologies are visible in the pervasion of othering dominant in the digital landscape and are depicted by "gestures of omission" which have resulted in "missing people" (Selfe & Selfe, 1994, p. 486; Owusu-Ansah, 2023, p.143). Similarly, using data from Google Web Search, Noble (2018) examines the power of algorithms in reinforcing dominance and oppression in digital spaces. She exposes sexism in Google Search autosuggestions and "the ways those digital decisions reinforce oppressive social relationships and enact new modes of racial profiling, which I have termed technological redlining" (p.1). For GenAI (mis)representations, the argument usually is that the results generated are based on big data modelled into these systems from resources available online. However, these misrepresentations of the *others* in composition technologies are algorithmic oppressions constructed via language and oppose certain fundamental human rights, including fairness and justice (in digital spaces).

The exigency for this topic is rooted in the need to dismantle monoliths and enhance accurate and equitable representations, which can be achieved by moving beyond inclusivity to equitable designs. Unlike inclusivity which calls for retrofitting and making accommodations, equitable technologies are built and designed with justice at its core. As educational technologies advance and GenAI achieves interdisciplinary utilization, several conversations are geared towards the ways composition classrooms must critique the ideologies behind AI perceptions and evaluate the ways individuals are (mis) represented by these tools, in digital spaces (Noble, 2018; Marlowe and Purdy, 2021; Vee, 2017). As composition and digital rhetoric scholars interested in studying how the embodied experiences of marginalized people are represented in digital spaces, we decided to explore what an activist approach to

(dis)embodiment might look like by thinking critically about the role of marginalized bodies/ communities, experiences, and activism as well as critical embodiment pedagogy in shaping the ways that marginalized bodies are understood, represented, and engaged within various contexts, particularly in relation to power and ideologies in digital spaces.

Using a qualitative literature review and case study approach, we draw insights from rhetoric and composition scholarship that intersect social justice with digital rhetoric, rhetorics of the body, grassroots activism, and critical embodiment pedagogy. Many composition and rhetoric scholars have questioned dis/embodiment in technology, the ways bodies, bodily experiences, realities, and literacies are represented or ignored in technology (cf. Cedillo, 2018; Noble, 2018; Yergeau et al., 2013; Anderson, 2023). Bodies currently exist in physical and digital spaces, and modern technologies such as GenAI play a major role in advancing ideologies and (mis)representing and silencing diverse bodies. GenAI technologies are widely considered the latest composing technologies, suitable for composition via diverse media. Despite their current updates based on 21st-century technological advancements, these tools consistently fail to account for the diversity of human experiences and instead reinforce biases towards marginalized groups.

Algorithmic Activism as Grassroots Activism

The idea of algorithmic activism put forward in this paper is rooted in Phillips et. al's (2024) concept of grassroots activism. In "Grassroots Activisms: Public Rhetorics in Localized Contexts," Phillips et al. (2024) posit that "… an uncomplicated view of grassroots activism implies that people engage and attempt to intervene when and where it affects them most, working from the bottom up to make change in larger institutions and systems" (p.12). They define activism generally as "actions in service of addressing, alleviating, or eliminating systemic power imbalances and their effects" (p.16). These coalitional interactions intersect with scholarship, pedagogy, and social justice concerns to facilitate accurate representations of marginalized groups (p.16). For Lukowski and Gross (2024), advocacy could take different forms and is a significant aspect of grassroots activism that facilitates awareness and enacts change via activism. Additionally, grassroots activism can also be viewed as a counterpublic challenging the stereotypical totality of the dominant public towards marginalized groups in digital spaces. Warner's (2002) notion of a counterpublic refers to a group that positions itself as a public yet is itself in contradiction to the ideologies inherent in the dominant public (p. 81). They are usually activism-inspired and, like publics, address specific people with common discourse. Counterpublics "challenge the seeming social totality of the public" (Martini, 2020). Thus, they

"are spaces of circulation in which it is hoped that the poesis of scene making will be transformative, not replicative merely" (p.88). Consequently, algorithmic activism could be described as digital and justice movements pioneered by marginalized groups aimed at rendering algorithmic inequalities apparent, redressing algorithmic stereotypes by asserting their agency to rewrite monolithic representations (cf. Costanza-Chock, 2020).

Critical Embodiment Pedagogy

This paper positions critical embodiment pedagogy as key to rethinking embodiment for equitable AI design. Critical embodiment centers and critiques how individuals' identities are shaped via their bodily experiences and representations in diverse spaces. Cedillo (2018) conceptualizes critical embodiment pedagogies within composition pedagogy, situating composition pedagogy as a type of activism aimed at dismantling stereotypes, eliminating the margins by teaching students "to move others towards particular stances or courses of action". She defines critical embodiment pedagogies as "approaches that recognize and foreground bodily diversity so that students can learn to compose for accessibility and inclusivity" (Cedillo, 2018). By teaching writing using rhetoric that engages critical embodiment, we create opportunities for students to "contest conditions that create exclusion." Additionally, Cedillo (2023) defines critical embodiment pedagogies as "approaches that center the body in response to various epistemological concerns including… the invisibility and hyper-visibility of Othered bodies…and how these issues ensure the erasure of marginalized groups from (and through) dominant histories, traditions, and practices" (p.58).

The Maker or Do-It-Yourself (DIY) movement in Western Kenya

DIY activities emphasize building and creating independently. *In Western Kenya, The Maker or DIY movement* promotes independent design, customization, and personalization of digital technology (Hamidi et al., 2018). Hamidi et al. (2018) describe it as "a 'global' community of technology enthusiasts, amateur designers and hands-on artist/technologists who engage with every stage of the design and fabrication of their small-batch productions for technology enthusiasts" (p.78). According to Lukowski and Gross (2024), "grassroots activism is the ongoing process in which individuals coordinate and collaborate with others to create social change" and "activist rhetoric requires ground-level organizing to amplify the needs and goals of a group" (p. 195). The DIY-AT movement project is based on community engagement and sponsored by the government and nongovernmental organizations. Maker projects are usually aimed at supporting learning and inclusion of

underrepresented populations in the creation of digital technology and media (Hamidi et al., 2018, p.78). The maker movement has impacted education by enhancing digital literacy, curriculum development, as well as creating opportunities for accessibility by making space for people with disabilities to design their own assistive technologies (DIY-AT), personalized to their specific needs (cf. Bar-El and Worsley (2021); Hamidi et al. (2018)).

Hamidi et al. (2018) observe that research-based studies have determined that "creating and customizing one's own assistive technology can create a sense of empowerment and agency in users and lead to their increased investment in the end product" (p.79). Hence, diverse makerspace groups and researchers employ DIY as a platform for community building. The DIY-AT participatory and co-design project led by Hamidi et al. in Western Kenya facilitated training workshops and provided opportunity for participants to customize and adapt the TalkBox to specific students' needs. An open-source DIY prototyping platform, The TalkBox is useful for creating customized Augmentative and Alternative Communication (AAC) devices for non-verbal users (Hamidi et al., p.80) This centers disability rights and the embodied knowledge of disabled students as critical to the technology design. It also empowers underrepresented groups by giving them agency to define their identities and reinforce resonant design over retrofitting (cf. Yergeau et al., 2013). Critical embodiment pedagogy emphasize curriculum designs and pedagogies that center the lived experiences of marginalized groups. Consequently, this project fosters critical embodiment via an iterative course design and a pedagogy that creates inclusive spaces and enables students to foreground bodily diversity and compose for accessibility and inclusivity (Cedillo, 2018). The maker movement enables diverse groups to compose technologies rather than just the few financially privileged, thus creating opportunities for students to "contest conditions that create exclusion" (cf. Bar-El and Worsley, 2021; Cedillo, 2018). This in turn empowers underrepresented groups, exposing students to critical digital literacy practices that enable them to actively critique, interrogate, and participate in the creation of these technologies, thereby fostering equitable technology design.

Black Girls Code

A significant component of the digital divide is the gender disparities among female students pursuing higher education in the sciences. According to Rockman et al. (2017), racial and gender discrimination, educational environments that reinforce stereotypes and biases, result in othering, isolation, low participation, and eventually attrition from studies. Black Girls Code (BGC) is a non-profit organization and community engagement initiative founded by Kimberly Bryant in 2011 to enhance inclusion in science and technology by training young

girls from underrepresented communities in science, technology, engineering, and math fields (STEM) (Black Girls Code, 2024). BGC aims to close the gender gap in tech by introduce programming and technology to young girls who eventually, may become "builders of technological innovation and their own futures" (BGC Mission Statement, 2011; Rockman et. al, 2017).

Coding is rhetorical and a mode of composition. According to Christina Jones, the current CEO of BGC, "Code is more than algorithms and applications—it's language that powers dreams and dissolves barriers" (Black Girls Code, 2024). Code is ideological and influences the way people and marginalized communities are (mis)represented in digital spaces. Algorithms are rhetorical because they construct meaning by combining data depicting preferences, activities, and expressions. Algorithms "create meaning and work to persuade the human and nonhuman audiences they engage to induce various types of change in the ecologies in which they operate" (Brock, 2019, p. 68). AI tools are generated via coding and as a form of composition, coding incorporates the stories and embodied experiences of writers/coders. *Black Girls Code* centers the unique perspectives of underrepresented students in coding development while simultaneously aiming to dismantle monolithic representations and socio-political ideologies in STEM. Indeed, "The future isn't just written in code; it's shaped by those behind the keyboards. It's time to ensure those coders reflect the diversity of the world they're shaping" (Black Girls Code, 2025). *BGC* hosts annual summer camps, open to diverse individuals across the United States, where young girls are mentored and exposed to AI, coding, and machine learning to build real projects. Their website also hosts a range of online courses designed to inspire and educate young people interested in tech. By diversifying the field, underrepresented students can (re)assert agency, which could eventually result in not just inclusive, but also equitable design of technologies. This further reinforces the impact of critical embodiment pedagogies that enable students to intersect diverse aspects of their identities while advocating for equitable technological designs.

Class-Specific Exercise

In what follows, this paper proposes classroom activities that could be tailored to fit any of these distinct levels: first-year writing, technical writing, and graduate classes. In designing these activities, the authors acknowledge that its practice could appear differently given students' various learning stages. The question that guides the design of these exercises is: how could technology co-creation in the writing classroom be used to teach students how ideologies shape writing technology design, empowering them to make ethical rhetorical choices in their design? Grounded within Cedillo's concept

of critical embodiment pedagogy, the activities outlined below lean towards co-creation, however, the authors made the rhetorical choice of incorporating analytical exercises given that these are activities designed with a writing-centered classroom in mind.

Class Activity:

Goal: The goal of this exercise is to engage students in practical learning. Through the class activities, students' attention is drawn to the bias and exclusion that can emerge through linguistic, ideological, and design choices embedded in AI technologies. While building an AI chatbot, students become aware of the rhetorical and ideological choices designers make in the design process and use their understanding of equity to design a chatbot.

Required Materials: Safiya Noble's *Algorithms of Oppression* and Ruha Benjamin's *Race After Technology*.

Additional Reading: Jennifer Sano-Franchini's *Critical Digital Interface Analysis*.

Recommended Free AI Chatbot Design Tool: Poe

Recommended Instructional Sources: "How to Create a Prompt Bot"

Learning Outcomes

- Understanding how bias seeps into technologies.
- Reflection on equity in technology design and building a ChatBot.
- Students' practical experience draws their awareness to how language ideologies operate within interfaces and how ideologies could be restructured through equitable design.

Exercise A: Designing a ChatBot

This exercise is designed to engage students in a co-creative process of the rhetorical choices embedded in technology design.

Stage 1: Critical Engagement with Existing ChatBot

Goal: This first stage of the exercise builds students' critical awareness of how ideological decisions impact AI's output. This

prepares their minds for the custom chatbot creation stage.

Begin the class by having students interact with an existing chatbot (*Poe* is recommended for this purpose, given students would be building their personal chatbots on the platform).

- The class collectively decides on a prompt.
- Ask students to record moments when the bot's response reflects bias, misunderstanding of context, or linguistic homogeneity.

Some Reflective Questions While Engaging in this Process:

- What assumptions about language and identity bias are reflected in the bot's response?
- How does the bot's tone or diction reflect the ideology behind its response?
- Is the interface or generated language choices accessible to diverse users?
- From your interactions, what identities are centered, stereotyped, or erased from its output?

Stage 2: Ideation & Planning

In small groups, students use a specific context to brainstorm the design of a chatbot that promotes.

Goal: The ideation encourages students to plan intentionally before embarking on the design. Their response to these questions would become data they fed into the knowledge bank of their custom chatbot.

Brainstorming Question: Imagine you are designing a chatbot that students could interact with in a Community ESL class, what would it mean for the design of this chatbot to be equitable? Things to keep in mind while brainstorming:

The purpose and audience for the chatbot.

- Ethical and rhetorical problems it aims to address.
- Design principles that would guide the creation (Equity and accessibility).

Stage 3: Building a Custom Chatbot

Goal: Transforms students' theoretical understanding of bias and ideology into material design practice.

Using *Poe* (or any other free no-code chatbot builder), students begin to build a custom chatbot. Following the guide on the instructional manual, students would design a custom bot. Here, they make the rhetorical and design decisions that would determine the AI's output. Students design their chatbot by:

- Describing the functionalities of the chatbot.
- Prompt the bot, telling it how to behave and respond to users' messages.
    - *Example:* You are an ESL student's conversation assistant. Interact with them without being biased or having ideological preferences.
- Include a knowledge source to the bot. Ideas generated during the ideation stage could be uploaded at this stage as the knowledge source.
- Decide on a greeting message with your audience/users in mind.
- Decide on the bot's "temperature". This is essential as it controls the bot's level of creativity and unpredictability in its response.
- Publish your bot.

As they design, students should document the rhetorical choices they are making:

- How they decide on the functionality of the bot.
- How they decide the bot's tone and style.
- What kind of things they include or exclude for the bot's responses.
- The choices they make about the information fed into the bot's knowledge source.

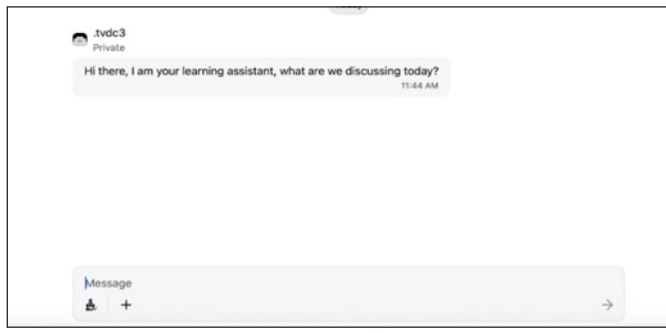

Figure 1. Custom POE bot interface

Stage 4: Usability Testing

Students test their custom chatbots from the context of an ESL student. During the test, students record:

- The rhetorical sensitivity of the chatbot's responses.
- Where the chatbot succeeds or fails to represent equitable design principles.

Exercise B: Critical Reflection

This exercise is designed as a follow-up to the first exercise. Here, the instructor invites students into critical reflection on their design, encouraging students to use their practical experience to reflect on the intersection of language and ideology in technology design.

Reflective Questions:

1. What are the rhetorical and ethical goals behind your design?
2. How do your design choices reflect equity and inclusion?
3. Given that the bot is built within an already designed AI system, how does that impact the outcomes of your rhetorical design choices?
4. How has this process shaped your understanding of technology, writing, and rhetoric?

Additional Reflective Questions for a Technical Writing Class:

- What does it mean to design accessibly and equitably?
- How can you, as a technical writer, advocate for users whose voices, identities are often misrepresented or erased by digital technologies?

Conclusion

Embodied view assumes that because all bodies matter, all bodies are unique and should be centered. We should strive for equity rather than inclusion. Although technologies are ridden with diverse ideologies and socio-politics, scholars in technical communication and RhetComp can create accessible spaces within pedagogies. Hence, Algoritthmic activisms and critical embodiment pedagogies advance equitable spaces and technologies' design, enabling marginalized students to contest dominant narratives and (re)assert

agency by centering their complex realities and bodily experiences as knowledge building in the composition classroom. Future research could explore diverse curriculum design strategies that could intersect composition classes and technology fields as co-creators and co-educators to reinforce embodied perspectives and equitable technology designs.

Additionally, Important questions that shaped the design of these class exercises are: how do we have conversations about critical AI literacy and practically engage critical embodiment pedagogy across various levels of the composition classroom? How do we do this meeting different academic level requirements? The activities are not designed as a semester-long syllabus, rather as separate activities that could be carried out in an entire week of class or restructured by an instructor as a semester-long class activity. Given that, these exercises have been designed to mirror already existing class activities across levels. Yet, it is important to end by acknowledging that engaging in exercises like this means additional labor for instructors, and its sustenance will require institutional support.

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